



Report from the 2002 NTEP Bermudagrass Trial – 2nd Year Data

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Summary. Bermudagrass (*Cynodon dactylon*, *C. dactylon* x *C. transvaalensis*) 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 is the predominant means by which cultivars are tested throughout North America. A bermudagrass cultivar trial was planted in the summer of 2002 at Fayetteville, Ark. This trial has been maintained under golf course fairway conditions and data on spring green-up, overall quality, leaf color, leaf texture, and seedhead formation were collected during the 2003 growing season. ‘Aussie Green’ had the most spring green-up on 13 April and consistently had the highest turf quality during the growing season. On 25 June, ‘GN-1’ had the darkest green color and on 28 July ‘Ashmore’ had the finest leaf texture. ‘Ashmore’, ‘Aussie Green’, and ‘Patriot’, were the only cultivars producing no seedheads on the 25 June evaluation date.

Bermudagrass remains the most commonly used turfgrass for golf, sports, lawns, and other activities 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. Department 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 over the past 15 years. This report will describe the data from the 2003 growing season of the 2002 NTEP Bermudagrass Trial at Fayetteville, Ark.

Materials and methods

The cultivar experiment was planted on 2 July 2002 at the University of Arkansas Research and Extension Center in Fayetteville. The plot size was 2.4 x 2.4 m (8 x 8 ft) and there were three replications of each cultivar. Vegetative cultivars were planted as 5 cm (2 in.) diameter plugs on 30 cm (12 in.) spacings within the plots, while seeded cultivars were broadcast planted at a seeding rate of 48 kg•ha⁻¹ (1.0 lb / 1000 ft²). Plots were maintained under golf course fairway or sports field conditions, with a mowing height of 12 mm (0.5 in.), and monthly applications of 48 kg•ha⁻¹ (1.0 lb N / 1000 ft²) during the growing season. Irrigation was applied as needed to promote germination and establishment and to prevent stress.

Cultivars were visually evaluated for spring green-up on 13 April 2003 using a scale of 1 to 9, with 9 representing complete green cover and 1 representing a completely dormant turf stand. Overall turf quality was evaluated monthly from May through October in 2003. 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. Turf color was visually evaluated on 25 June 2003 on a scale of 1 to 9, with 9 representing ideal, dark green turf and 1 representing tan or brown turf. Leaf texture was visually evaluated on 28 July 2003 on a scale of 1 to 9, with 9 representing extremely fine turf texture and 1 representing extremely coarse texture. The presence of seedheads was visually evaluated on 25 June 2003 on a scale of 1 to 9, with 9 representing complete seedhead coverage and 1 representing no seedheads.

An analysis of variance was computed for each evaluation and cultivar effects were considered to be significant if $P < 0.05$. Cultivar means were separated using Fisher’s protected least significant difference test ($\alpha = 0.05$).

Results and discussion

There were significant differences in spring green-up among cultivars on 13 April 2003 (Table 1). ‘Aussie Green’ had the most green-up with an average rating value of 3.0. Statistically, ‘Midlawn’, ‘Patriot’, ‘Riviera’, ‘Sundevil’, ‘Tifway’, ‘Transcontinental’, and ‘Yukon’ had as much green-up as ‘Aussie Green’. ‘Arizona Common’, ‘Celebration’, ‘GN-1’, ‘Mohawk’, ‘NuMex Sahara’, ‘Panama’, ‘Princess 77’, and ‘Sunstar’ had no green cover.

There were significant differences in turf quality among cultivars on each rating date in 2003 (Table 1). Across rating dates, ‘Aussie Green’ had the highest average quality rating, 8.0, although ‘Celebration’, ‘GN-1’, ‘Midlawn’, ‘Patriot’, and ‘Tifsport’, statistically, were rated equal to ‘Aussie Green’. ‘Arizona Common’, ‘Ashmore’, ‘Mohawk’, ‘NuMex Sahara’, ‘Panama’, ‘SR 9554’, ‘Southern Star’, ‘Sundevil’, ‘Sunstar’, and ‘Transcontinental’ were all consistently rated low, with regard to quality, throughout the 2003 growing season.

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There were significant color differences among cultivars on 25 June 2003 (Table 1). 'GN-1' had the darkest green color with an average rating value of 9.0. 'Aussie Green', 'Celebration', 'MS-Choice', 'Midlawn', 'Patriot', 'Tifsport', and 'Yukon' were also rated high for color, statistically equal to 'GN-1'. Conversely, 'Arizona Common', 'Ashmore', 'Mohawk', 'SR 9554', and 'Sunstar' were rated lowest for dark green color.

There were significant leaf texture differences among cultivars on 28 July 2003 (Table 1). 'Ashmore' and 'Tifway' had the finest leaf texture, averaging rating values of 9.0 and 8.3, respectively. 'Arizona Common', 'Mohawk', 'NuMex Sahara', 'Panama', 'SR 9554', 'Southern Star', 'Sundevil', 'Sunstar', and 'Transcontinental' had the coarsest leaf textures with average rating values of 6.0 or below.

On 25 June 2003, there were significant differences among cultivars with regard to the presence of seedheads (Table 1). No seedheads

were present among 'Ashmore', 'Aussie Green', 'Patriot', although statistically, 'Celebration', 'Midlawn', 'Tifsport', 'Tifway', and 'Yukon' had as few seedheads. 'Arizona Common', 'Mohawk', 'NuMex Sahara', 'Sunstar', and 'Transcontinental' were the most prolific seed-head producing cultivars.

Turf quality data will continue to be collected on these varieties throughout the 2005 growing season and will be published by NTEP.

Conclusions

There have been significant differences among bermudagrass cultivars with regard to spring green-up, overall turf quality, turf color, leaf texture, and seed head formation through the 2003 growing season. Data will continue to be collected on these cultivars throughout the 2005 growing season and will be published by NTEP.

Table 1. Spring green-up, turf quality, leaf color, leaf texture, and seedhead presence ratings for the commercially available cultivars from the 2003 growing season of the 2002 NTEP Bermudagrass Trial.

Cultivar	Spring green-up ^z								Turf Color ^x	Leaf Texture ^w	Seedhead Presence ^v
	Turf Quality ^y										
	4/13	5/20	6/25	7/28	8/21	9/16	10/04	Avg.	6/25	7/28	
	rating value										
Arizona Common	1.0	4.0	4.7	6.0	5.7	5.0	6.0	5.2	4.5	5.3	5.0
Ashmore	2.0	6.7	6.9	6.0	5.0	3.3	5.7	5.6	4.3	9.0	1.0
Aussie Green	3.0	7.7	8.0	8.7	9.0	8.3	6.3	8.0	8.3	8.0	1.0
Celebration	1.0	7.3	7.0	8.3	8.3	8.0	7.0	7.7	8.7	6.7	1.7
GN-1	1.0	6.7	7.7	8.3	8.0	7.0	6.3	7.3	9.0	7.7	2.3
MS-Choice	2.0	5.7	7.0	7.7	7.0	5.7	6.3	6.6	8.0	6.7	2.3
Midlawn	2.3	7.3	7.3	7.7	8.0	7.7	6.3	7.4	8.0	7.7	1.3
Mohawk	1.0	4.3	4.7	6.0	5.7	4.7	5.3	5.1	4.7	5.3	4.0
NuMex Sahara	1.0	3.7	4.3	6.0	6.0	5.3	5.3	5.1	6.0	5.3	4.7
Panama	1.0	4.7	3.8	6.7	6.0	5.0	6.0	5.4	5.7	5.3	2.3
Patriot	2.3	7.7	8.7	9.0	8.7	8.3	5.3	7.9	8.7	7.3	1.0
Princess 77	1.0	6.7	6.3	7.0	7.0	6.3	6.0	6.6	6.7	7.3	2.3
Riviera	2.7	6.7	7.0	7.7	7.3	6.7	5.7	6.8	7.3	7.0	2.7
SR 9554	2.0	5.3	5.2	7.0	6.0	4.3	6.0	5.6	5.0	5.7	3.0
Southern Star	1.7	5.0	5.7	5.7	5.0	4.0	5.7	5.2	6.0	5.3	3.7
Sundevil	2.3	5.0	6.0	5.3	5.3	4.7	5.0	5.2	6.0	5.7	3.7
Sunstar	1.0	4.3	5.3	6.0	5.7	4.7	5.7	5.3	5.0	5.3	4.0
Tifsport	1.7	7.7	7.3	8.3	8.7	8.7	7.0	7.9	8.0	7.7	1.3
Tifway	2.7	6.7	7.0	7.7	7.7	7.0	6.7	7.1	7.3	8.3	1.7
Transcontinental	2.3	5.3	5.3	5.3	5.0	4.0	5.3	5.1	6.0	6.0	4.3
Yukon	2.7	7.0	7.7	7.3	7.7	7.0	5.7	7.1	8.0	6.7	1.7
LSD _{0.05} ^u	0.86	1.30	2.30	3.30	4.30	5.30	6.30	0.69	1.01	0.82	1.17
Significance ^t	***	***	***	***	***	***	***	***	***	***	***

^z Spring green-up rated on a scale of 1 to 9 (9 = complete green turf, 1 = complete dormant turf).

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

^x Color rated on a scale of 1 to 9 (9 = ideal dark green turf, 1 = brown/tan turf).

^w Texture rated on a scale of 1 to 9 (9 = very fine texture, 1 = very coarse texture).

^v Seedhead presence rated on a scale of 1 to 9 (9 = complete seedhead coverage, 1 = no seedheads).

^u Fisher's protected least significant difference values at $P = 0.05$.

^t***, ** significant at the 0.001 and 0.01 probability level, respectively.