



Report from the 2002 NTEP Bermudagrass Trial- Establishment Data

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Summary. Bermudagrass (*Cynodon dactylon*) continues to be the predominate 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 was maintained under golf course fairway conditions and data on turfgrass establishment, color, and texture were collected in the first growing season. Seeded varieties reached 90% cover 25 days earlier than vegetatively propagated varieties. ‘Tifway’, ‘Tifsport’, and ‘Tift No. 4’ had the lowest percent cover throughout most of the growing seasons. There were no significant differences among varieties with regard to leaf color or texture.

Bermudagrass remains the most commonly-used species for golf and sports turf, 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 the 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 establishment data for 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 8 x 8 ft (2.4 x 2.4 m) and there were three replications of each cultivar. The vegetative cultivars were planted as 2 in. (5 cm) diameter plugs on 12 in. (30 cm) spacing within the plots, while the seeded cultivars were broadcast planted at a seeding rate of 1.0 lb / 1000 ft² (48 kg / ha) during the growing season. Irrigation was applied as needed to promote germination and establishment and to prevent stress.

Turfgrass establishment rates of the various cultivars were determined several times during the growing season using digital image analysis (Richardson et al., 2000). Data on turfgrass color and leaf textures were also collected. Color was visually rated on a scale of 1 to 9, with 9 representing ideal, dark green turf and 1 representing brown turf. Texture was visually rated on a scale of 1 to 9, with 9 representing extremely fine turf texture and 1 representing extremely coarse turf texture.

Results and discussion

On average, the seeded varieties had greater percent cover than the vegetatively established varieties on all evaluation dates (Table 1). On 29 July, all of the seeded varieties had greater than 88 percent cover, while the vegetative varieties ranged from 1 to 13 percent cover. On 3 Sept., all varieties had greater than 95 percent cover except for ‘Tifway’, which was an 80 percent cover.

The only significant difference in percent cover among seeded varieties was ‘Panama’ having lower cover than most other varieties on 29 July (Table 1). Among the vegetative varieties, ‘Tifway’ had the least percent cover across all evaluation dates. ‘Tifsport’ and ‘Tift No. 4’ had significantly less cover than other varieties on several dates. ‘Aussie Green’, ‘GN-1’, ‘Patriot’, and ‘Tift No. 3’ consistently had the greatest percent cover among the vegetative varieties.

There were no statistically significant differences in turfgrass color or texture among all cultivars (Table 1). Mean color rating values ranged from a high of 6.3 (‘Patriot’) to a low of 3.3 (‘MS-Choice’), while mean texture rating values ranged from highs of 4.7 (‘Tifway’ and ‘Transcontinental’) to lows of 3.0 (‘NuMex Sahara’ and ‘Sundevil’).

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

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Literature Cited

Richardson, M.D., D.E. Karcher, and L.A. Purcell. 2001. Using digital image analysis to quantify percentage turfgrass cover. *Crop Science* 41: 1884-1888.

Table 1. Percent turf cover, color, and texture means for cultivars from the 2002 NTEP Bermudagrass Trial.

Variety ^z	Turfgrass Cover					Color	Texture
	Evaluation date					08/16/06	rating value
	07/30/06	08/03/06	08/13/06	08/25/06	09/04/06		
	%						
<u>Seeded</u>							
Arizona Common	97.9	91.7	98.8	95.1	96.6	4.7	3.7
Mohawk	95.7	92.4	97.8	96.1	97.5	4.0	4.3
NuMex Sahara	96.0	89.5	98.6	94.4	97.0	4.3	3.0
Panama	88.2	89.7	98.3	96.6	97.2	4.3	3.7
Princess 77	96.8	97.2	99.5	97.2	98.3	3.7	3.3
Riviera	93.2	96.6	99.2	95.8	98.4	4.0	3.7
Southern Star	95.6	94.8	99.0	96.5	97.6	4.7	4.0
Sundevil	98.2	92.4	98.8	96.7	97.7	3.7	3.0
Sunstar	96.5	92.7	98.2	95.9	97.1	4.7	3.3
Tift No. 1	98.5	95.9	99.2	96.3	98.2	5.0	4.3
Tift No. 2	92.3	93.7	98.8	96.3	98.2	5.0	4.0
Transcontinental	94.7	95.0	99.3	95.1	97.7	5.3	4.7
Yukon	95.0	93.6	99.4	96.1	97.4	5.0	3.3
<u>Vegetative</u>							
Ashmore	8.9	31.0	75.7	97.4	99.4	4.0	4.0
Aussie Green	12.3	55.8	89.8	97.2	98.7	6.0	4.3
Celebration	8.7	48.3	74.8	92.7	97.0	5.0	3.3
GN-1	12.6	59.8	87.1	96.1	97.7	4.0	3.3
MS-Choice	9.5	37.8	67.4	89.6	97.9	3.3	3.3
Midlawn	13.1	36.5	71.1	92.5	97.9	3.7	3.3
Patriot	12.1	48.5	81.0	96.1	98.1	6.3	4.3
Tifsport	5.2	20.4	40.7	76.0	97.7	5.3	4.0
Tift No. 3	13.0	49.5	80.5	94.2	98.0	4.0	3.7
Tift No. 4	7.0	18.2	44.4	68.1	98.1	4.7	3.7
Tifway	1.0	6.3	10.2	36.4	80.3	5.3	4.7
LSD0.05†	7.5	7.5	7.5	7.5	7.5	—	—
Significance	***	***	***	***	*	NS	NS

*,*** Significant at the 0.05 and 0.001 probability levels, respectively.

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