

2003 National Turfgrass Evaluation Program: Bentgrass Putting Green Turf Cultivar Evaluation.

Cale A. Bigelow and Glenn A. Hardebeck

Objective:

To evaluate creeping and velvet bentgrasses for putting green use in the cool-humid region.

Procedures:

Thirty two cultivars of creeping and velvet bentgrass were seeded at 1.0 lb. of seed per 1000 ft² in early September, 2003 on a research putting green at the W.H. Daniel Turfgrass Research and Diagnostic Center. The research area consisted of a native-soil “push-up” rootzone that had been previously planted to creeping bentgrass and seasonally sand topdressed throughout the growing season. Prior to seeding, the existing vegetation was killed using a non-selective herbicide and the soil was sterilized using Dazomet. Throughout the growing season, the area is maintained by daily triplex mowing at 0.140 inches, irrigation to prevent stress, seasonal aerification and approximately 4.0 lbs. of N per 1000 ft². Additionally, dollar spot severity was assessed by counting the number of infection centers per plot as the disease appeared. In severe outbreaks the plot area was treated using a curative fungicide application.

Results:

- In general, the creeping bentgrasses greened up sooner than the velvet bentgrasses (Table 1). Little statistical difference for spring green (24 March) up was noted within creeping bentgrass cultivars except that A-4 greened up significantly faster than cultivars like Crenshaw and CY-2.
- Color ratings (23 April) were variable with the velvets having a darker green appearance than creeping bentgrass. For the creeping bentgrasses, 9200, 235050, Benchmark DSR, and T-1 all had a dark green appearance (Table 1).
- For visual shoot density (10 Nov.) as expected the velvet bentgrasses all had very high shoot density. Among creeping bentgrasses, 235050, 23R, Benchmark DSR, Declaration, DSB, Penn A-1, SRX 1 GD and T-1 all had excellent shoot density (Table 1).
- Dollar spot severity was assessed on five rating dates. For most severe outbreak (23 July), Independence, Crenshaw, Backspin, Providence and Penn A-4 were least resistant, while the velvet bentgrasses were the most resistant (Table 1).
- For the creeping bentgrasses, 9200, 13-M, 23R, A03-EDI, Benchmark DSR, Declaration, DSB, and Penn A-1 all displayed fairly good to excellent dollar spot resistance (Table 1).
- For visual turfgrass quality, 235050, Benchmark DSR, Declaration, DSB and SRX 1 GPD all performed much better than average for the 13 quality observations in 2004 (Table 2). Crenshaw, Penncross, Providence, and SR7200 all had poorer than average quality due to either poor spring green-up, low shoot density, lack of uniformity, or a high susceptibility to dollar spot.
- Further information for these cultivars and their regional performance can be accessed by visiting <http://www.ntep.org>

Acknowledgments

This research was supported by the National Turfgrass Evaluation Program and The Midwest Regional Turf Foundation.

Table 1. Spring green-up, color, density and dollar spot severity ratings for thirty two bentgrass cultivars, seeded in September 2004.

Cultivar	Dollar Spot							
	Green-up ^a	Color ^b	Density ^c	infection centers per plot				
	24 Mar	23 Apr	10 Nov	21 May	28 May	17 June	19 July	23 July
	----- 1-9 scale -----			----- infection centers per plot -----				
9200	5.3	7.3	7.0	2.0	3.0	1.7	0.3	8.7
235050	5.7	7.3	7.8	4.3	6.7	2.3	2.0	15.3
13-M	6.0	6.0	6.8	2.0	5.0	0.0	0.0	2.3
23R	5.3	6.0	7.7	2.3	4.0	3.0	0.0	9.3
A03-EDI	5.3	6.0	6.8	1.7	1.3	0.0	0.0	4.3
Alpha	6.3	7.0	7.0	3.7	7.3	4.3	1.7	24.0
Backspin	5.7	6.3	5.3	5.0	8.0	11.7	12.0	47.3
Benchmark DSR	5.7	7.3	7.7	3.0	6.0	3.0	0.0	10.0
Bengal	6.0	6.7	7.2	8.0	11.0	10.0	9.3	41.3
Crenshaw	5.0	5.3	5.3	9.0	15.0	8.7	14.7	50.7
CY-2	5.0	6.2	6.8	1.7	1.7	1.0	0.0	15.3
Declaration	5.7	6.0	7.2	1.7	2.3	0.3	0.0	5.0
DSB	5.7	6.7	7.5	1.3	3.0	1.3	0.0	4.0
EFD ^d	5.0	6.3	9.0	0.7	1.0	0.0	0.0	0.0
Greenwhich ^d	4.0	6.7	9.0	0.3	0.7	0.0	0.0	0.7
Independence	5.7	6.7	6.8	11.3	11.7	18.0	12.3	56.3
IS-AC 1 ^b	4.3	7.0	9.0	1.3	1.0	0.0	0.0	0.0
IS-AP 9	6.0	6.7	6.7	3.0	5.0	1.0	0.3	19.3
L93	6.0	6.0	5.7	3.3	6.7	2.7	0.3	20.0
Legendary ^d	4.0	7.0	9.0	0.0	0.7	0.0	0.0	0.0
LS-44	5.7	6.8	7.3	5.0	7.3	3.7	3.0	21.7
Penn A-1	6.0	6.5	7.7	3.0	4.3	1.3	0.0	10.0
Penn A-4	6.3	6.7	7.0	17.3	21.3	12.7	9.7	40.0
Penncross	6.0	6.0	4.7	9.0	12.7	2.7	4.3	33.7
Pennlinks	5.3	6.0	5.0	3.7	3.7	0.7	3.3	26.7
Pennlinks II	5.3	6.7	5.8	7.0	10.0	2.7	2.0	19.3
Providence	5.3	6.0	5.7	19.7	25.7	8.3	12.7	44.7
SR 7200 ^b	4.7	7.2	9.0	0.3	1.0	0.0	0.0	0.0
SRX 1 GD	4.3	6.3	8.2	5.7	11.7	5.0	3.3	31.7
SRX 1 GPD	5.7	6.3	7.8	4.7	7.7	3.7	0.0	20.3
T-1	6.3	7.2	8.0	0.3	12.0	8.7	7.0	35.3
Vesper ^d	4.7	7.0	9.0	1.7	2.0	0.0	0.0	3.7
LSD	1.2	1.2	1.0	8.3	11.7	7.3	8.3	18.9

^a Visual quality ratings were taken using a scale of 1 to 9 with 1 = no living turf, 5 = acceptable turf, and 9 = ideal turf.

^b Color was rated on a scale of 1 to 9 where 1 = light green and 9 = ideal dark green.

^c Spring greenup was rated on a scale of 1 to 9 where 1 = light green and 9 = ideal dark green.

^d Denotes velvet bentgrass

Table 2. Visual quality of thirty two bentgrass cultivars, seeded in Sept. 2004.

Cultivar	Visual quality ^a													
	23 Apr	5 May	21 May	12 Jun	26 Jun	2 Jul	19 Jul	11 Aug	26 Aug	14 Sep	30 Sep	20 Oct	10 Nov	Mean
9200	5.5	6.7	6.3	7.3	7.0	7.3	8.0	6.2	5.7	7.7	8.0	7.2	7.8	7.0
235050	5.8	7.3	7.5	8.2	8.0	8.0	8.3	4.7	4.3	8.2	8.7	7.3	8.0	7.3
13-M	5.5	6.3	7.2	7.7	6.0	7.5	7.7	5.5	5.2	7.5	7.7	6.8	7.2	6.8
23R	6.7	6.5	7.8	8.3	8.7	8.2	8.7	4.5	3.7	7.7	7.7	7.3	7.3	7.1
A03-EDI	5.3	6.0	7.5	7.8	6.7	7.0	8.0	5.2	6.2	7.5	7.3	7.0	7.8	6.9
Alpha	6.0	7.0	6.8	8.2	7.0	7.0	7.3	3.7	3.3	6.3	7.3	6.7	7.7	6.5
Backspin	5.5	6.3	8.3	7.2	7.0	6.8	6.5	3.3	3.0	6.2	7.2	6.0	6.2	6.1
Benchmark DSR	5.3	6.8	7.5	7.7	7.7	8.0	8.7	5.8	6.0	8.2	7.5	7.8	8.0	7.3
Bengal	6.5	7.0	6.3	8.2	7.0	7.7	6.8	3.7	3.3	7.3	8.0	7.2	7.7	6.7
Crenshaw	3.0	3.7	7.0	5.7	5.0	5.7	5.0	2.8	2.7	5.8	7.7	6.2	6.3	5.1
CY-2	6.7	6.8	7.0	8.2	6.7	7.5	7.7	4.7	5.2	7.3	7.7	7.5	7.3	6.9
Declaration	6.3	7.5	7.7	7.2	8.0	8.0	8.7	7.3	7.7	8.2	8.5	7.0	7.5	7.7
DSB	5.8	7.3	7.2	8.5	8.0	7.7	8.3	6.7	6.3	8.0	8.0	8.2	7.7	7.5
EFD ^b	5.7	6.3	7.8	6.8	5.7	7.0	6.3	4.8	6.0	6.2	7.7	6.0	6.0	6.4
Greenwhich ^b	6.0	6.3	7.5	7.5	7.0	7.2	7.5	5.2	5.7	6.0	7.7	6.7	5.8	6.6
Independence	5.8	6.2	7.7	7.7	7.0	7.7	7.0	3.3	3.3	7.5	8.0	7.0	7.7	6.6
IS-AC 1 ^b	5.7	6.8	7.3	7.3	6.7	7.3	7.0	5.5	5.3	6.5	7.7	6.5	6.3	6.6
IS-AP 9	5.2	6.7	7.5	7.8	7.7	7.3	7.8	4.5	5.2	8.0	8.0	7.3	7.7	7.0
L93	5.2	5.5	8.2	7.2	6.3	7.0	7.0	4.3	4.2	6.0	7.7	6.2	6.8	6.3
Legendary ^b	5.3	5.3	7.5	7.0	6.3	6.7	6.3	5.0	4.8	6.0	7.0	5.8	5.5	6.0
LS-44	5.3	6.0	7.3	7.7	7.0	7.0	7.3	4.2	4.0	7.7	7.8	7.0	7.7	6.6
Penn A-1	5.2	6.3	8.0	7.8	7.3	8.3	8.3	4.5	4.7	7.5	7.3	8.0	7.7	7.0
Penn A-4	4.8	6.7	7.2	7.8	8.3	7.0	6.3	4.0	3.7	7.7	7.3	7.3	8.0	6.6
Penncross	5.5	5.3	6.8	6.2	5.7	5.8	5.3	3.5	4.2	5.7	7.7	5.3	5.3	5.6
Pennlinks	5.3	6.2	7.3	7.5	6.3	6.3	6.3	4.0	3.8	6.0	7.7	5.7	5.0	6.0
Pennlinks II	5.7	6.0	7.8	7.3	6.7	6.7	6.3	4.5	4.5	6.3	7.7	6.2	6.0	6.3
Providence	5.3	5.0	7.8	6.7	5.3	5.7	6.0	3.2	2.5	5.8	7.7	6.3	5.7	5.6
SR 7200 ^b	5.2	5.3	7.0	5.8	4.0	5.0	4.3	4.2	4.2	4.7	7.7	5.3	4.3	5.1
SRX 1 GD	4.7	6.3	7.3	8.0	8.3	7.5	7.7	4.0	4.0	7.5	7.7	8.2	7.8	6.9
SRX 1 GPD	6.7	7.3	8.0	8.2	8.0	8.0	8.3	5.2	3.7	7.7	7.3	8.0	7.3	7.2
T-1	6.2	7.0	7.0	8.3	8.3	7.8	6.7	3.7	3.0	8.5	7.5	8.0	8.3	7.0
Vesper ^b	6.2	5.5	7.7	7.2	6.3	7.0	6.3	4.3	4.3	5.5	7.3	6.0	5.3	6.1
LSD	1.0	1.4	1.2	0.9	1.0	0.8	1.6	1.1	1.2	1.3	1.1	0.8	1.0	0.4

^a Visual turfgrass quality was assessed on a 1-9 scale where 9=optimum uniformity, greenness and density.^b Denotes velvet bentgrass