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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public.

This publication includes lecture notes of papers presented at the 2009 New Jersey Turfgrass Expo. Publication of these lectures provides a readily avail-

able source of information covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

This proceedings also includes research papers that contain original research findings and reviews of selected subjects in turfgrass science. These papers are presented primarily to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

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PERFORMANCE OF BENTGRASS CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS

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Bentgrass species possess a distinct ability to form very dense, uniform, and fine-textured surfaces under an extremely low height of cut, and as a result are often used in specialized, high maintenance areas such as golf course fairways, tees, and putting greens. Three bentgrass species predominantly used for turf are creeping bentgrass (*Agrostis palustris* Huds.; synonym = *A. stolonifera* L.), colonial bentgrass (*A. tenuis* L. or *A. capillaris* L.), and velvet bentgrass (*A. canina* L.). In addition, highland or dryland bentgrass (*A. castellana* Boiss. & Reut.) can be options for turf in stressful areas but tend to be less attractive than the more common species when a high quality turf is needed and are, therefore, less commonly utilized. Due to their aggressive growth habits and adaptability to a variety of climates, creeping and velvet bentgrasses are most suitable for the very low cutting heights required for golf course greens in the United States. Colonial bentgrass responds best to a slightly higher height of cut and is thus better suited for fairways in temperate areas of the United States.

Creeping bentgrasses are highly stoloniferous and have a prostrate growth habit, which allows for persistence under very low mowing heights of up to 1/8 of an inch or less. Cutting heights of 1/10 of an inch can be expected on many of the top tier golf courses. This species is highly adapted to both cool temperate as well as warm humid regions of the United States, making it the most popular species used on golf course putting greens in temperate areas. Its vigorous, spreading growth habit also contributes to its ability to repair damaged areas quickly. In 1954, H.B. Musser released 'Pennncross,' the first seeded synthetic variety of creeping bentgrass (Musser, 1959). Since that time, breeding efforts have markedly improved creeping bentgrasses to withstand the increasing demands of the game of golf including the need for better turf quality, darker green color,

improved shoot density, improved traffic tolerance and recuperative ability, as well as increased disease and stress tolerances compared to older varieties.

Creeping bentgrasses are susceptible to a number of pathogens and pests. Dollar spot (caused by the fungus *Sclerotinia homoeocarpa*) is one of the main disease problems of close-cut creeping bentgrass. However, these turfgrasses can also be susceptible to brown patch (caused by *Rhizoctonia solani*), copper spot (*Gloeocercospora sorghi*), anthracnose (*Colletotrichum cereal*), and Pythium root disease.

Colonial bentgrass, also referred to as browntop, has traditionally been used as a lawn and golf course grass in areas of Northern Europe and New Zealand that have mild (cool and humid) summers. Compared to creeping bentgrass, colonial bentgrass has a finer leaf texture and a more upright and less aggressively spreading growth habit. In addition, colonial bentgrass is generally better adapted for fairway or tee use in the warmer summer climates of the United States. Colonial bentgrass performs best in New Jersey when mowed no lower than 3/8 of an inch. Compared to creeping bentgrass, colonial bentgrass typically has a brighter green color as well as better color retention during cool weather, wear tolerance, and resistance to dollar spot. This species is much more susceptible, however, to brown patch. While not lethal, the playability of golf courses may be affected if brown patch is not controlled on colonial bentgrass. Current breeding efforts include improving the tolerance of colonial bentgrasses to this disease.

Velvet bentgrass forms the finest-textured and most dense turf of the bentgrasses and can nearly resemble green velvet when managed properly. The grass spreads mainly through profuse production of

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erect tillers with short stolons. This grass can tolerate very close mowing, heat, cold, and shade, and is one of the most drought tolerant of the bentgrasses used for turf (Skogley, 1973). Due to the density and vigor of this turf, even under very low mowing conditions, velvet bentgrass stands are extremely impervious to encroachment by *Poa annua*, one of the most prolific weeds on a golf course. The spread of velvet bentgrass via stolons is more aggressive than colonial bentgrass, but is less aggressive than that of creeping bentgrass. Velvet bentgrass can form excessive thatch, especially at high fertility rates, increased irrigation, and higher cutting heights, and can therefore become problematic if not maintained properly. Years of mismanagement and subsequent poor turf quality has given velvet bentgrass a poor reputation, but recent research shows that when managed properly, velvet bentgrass can create a superior turf (Brilman and Meyer, 2000). This species can also be susceptible to red thread (caused by *Laetisaria fuciformis*) and copper spot, but in general, has good resistance to dollar spot and brown patch. Seedlings of velvet bentgrasses are susceptible to Pythium seedling root rot during establishment.

During colder weather, velvet bentgrass turf will turn dark purple and will take longer than the other bentgrass species to green up in the spring. Velvet bentgrass has not been used extensively for high maintenance turf, largely because its range of adaptation has not been well characterized. Selections of velvet bentgrass have persisted for many years in trials under New Jersey growing conditions. Recent research at Rutgers indicates that the species may one day serve as a viable alternative to creeping bentgrass for use on golf course greens in the Northeastern United States as long as proper cultural management inputs are implemented. Some of the major breeding objectives for velvet bentgrass include wear tolerance as well as resistance to copper spot and Pythium root disease.

The New Jersey Agricultural Experiment Station participates in the National Turfgrass Evaluation Program (NTEP), which evaluates many species of turfgrass, including bentgrasses, at various locations throughout the United States. The Rutgers turfgrass breeding program conducts extensive field evaluations of collections and new material developed in the improvement program, many of which are a result of recent collection trips within the United States and throughout Europe and Asia. Collections from Norway, Sweden, Spain, Portugal, France, Finland, Switzerland, Scotland, Italy, Greece, Poland, Holland,

Bulgaria, Romania, Croatia, China, and the Slovak Republic serve to enhance the genetic diversity of the germplasm used in this breeding program. The Rutgers turfgrass breeding program focuses on improving turfgrasses for overall quality, color, density, uniformity, texture, disease resistance, salt tolerance, traffic tolerance, and many other aspects of a turf to be grown for a variety of purposes.

PROCEDURES

Bentgrass evaluation trials were established at the Rutgers Horticultural Research Farm II in North Brunswick, NJ in the fall of 2006 (Tables 1 and 2), 2007 (Tables 3 and 4), and 2008 (Tables 5 to 8). Trials were established on a modified Nixon loam. Plot size was 3 x 5 ft for all trials, except for the two 2008 NTEP trials (putting greens and fairway/tee tests, Tables 5 and 7, respectively) which were 4 x 6 ft. Plots were hand-seeded at a rate of approximately 1.0 lb/1000 ft². All tests were arranged in a randomized complete block design with three replications.

Sites associated with most tests (Tables 1 to 4, 7, 8) were well drained and openly exposed to both sunlight and air circulation. Air circulation was somewhat enclosed, however, for the 2008 NTEP putting green (Table 5) and the 2008 sand green (Table 6) trials. The annual rate of nitrogen applied, mowing height, cultivation/topdressing practices, and pesticide applications for each test are presented in Table 9. The putting green tests were mowed five to six times per week during periods of active growth with a triplex or walk-behind reel mower equipped to collect clippings. The fairway tests were mowed three times per week with a triplex reel mower and clippings were removed during periods of active growth. Soil pH was maintained in the range of 6.0 to 6.5 with agricultural limestone. All tests were irrigated to avoid drought stress.

Plots were evaluated frequently during the growing season for overall turf quality (i.e. turf density, texture, uniformity, color, growth habit, and presence of disease and insect damage). Turf quality, wear tolerance, spring green-up, and disease were rated on a 1 to 9 scale, where 9 represented the most desirable turf characteristic. Disease ratings included brown patch (Tables 1, 6 to 8), dollar spot (Tables 1 and 4), and copper spot (Table 6). All data were subjected to analysis of variance. Means were separated using Fisher's protected least significant difference (LSD) means separation test.

RESULTS AND DISCUSSION

Turf Quality Evaluations

Entries in Tables 1 through 4 are ranked according to their overall multi-year quality average. Tables 5 through 8 are ranked by the average turf quality for 2009. Throughout all of the years that turf quality was assessed, a few varieties in each bentgrass species stood out as better performing entries. For creeping bentgrasses maintained at a putting green height of cut, Shark, Authority, Kingpin, Declaration, OO7, and the experimental selections TDN2 Comp and DC1 Comp rated very well, while Penncross, Providence, Sandhill, and Brighton were among the poorest performers. At fairway height, the turf quality of Declaration, Tyee, Authority, OO7, and the experimental selections SRX 1WM Comp, TDN2 Comp, FAC Comp, and DC1 Comp creeping bentgrasses was excellent, while the scores for Penncross, Sandhill, Providence, and Brighton were low. In the NTEP putting green/tee trial (Table 5), A08-TDN2, PST-OJO, MVS-AP-101, Shark, V8, and SRP-1GMC were the top creeping bentgrass cultivars and selections. In the NTEP fairway trial (Table 7), PST-OJD, A08-TDN2, MVS-AP-101, Authority, and LTP-FEC were the top performing creeping bentgrasses.

Overall turf quality was evaluated for velvet bentgrasses under greens height of cut (1/8-inch) in 2007 and 2008 (Tables 3, 5, and 6). The cultivars Greenwich, Villa, IS-AC 4, and Legendary were among the top performing velvet bentgrasses within all trials in which they were included, although IS-AC 4 was not entered in the NTEP greens/tee trial. The cultivar SR 7200 had the poorest quality under these greens-type management conditions.

As mentioned previously, colonial bentgrasses perform better at fairway cutting height and typically have poor performance under putting green conditions as shown in Tables 1 and 3. Under fairway conditions however, the experimental selections A08-FT12, MGD Comp, NBC Comp, LMC Comp, and the cultivar Capri were the best performing colonial bentgrasses, while ratings for SR 7150, SR 7100, and SRX 7EE were poor at fairway cutting heights. In the NTEP fairway height trial (Table 7), A08-FT12, BCD, and Green Time had the highest turf quality, while PST-R9D7 did not perform as well as other colonial bentgrass entries.

Dollar Spot

Turf affected by *S. homoeocarpa*, the causal agent of this widespread turfgrass disease, appears as spots of dead plants the size of silver dollars that may converge to form larger areas of damaged turf (Belanger et al., 2005). While potentially one of the more significant turf diseases on golf courses in New Jersey, dollar spot can be easily controlled with the use of fungicides. Unfortunately, disease control can be expensive because dollar spot occurs so frequently and resistance to fungicides, particularly the DMI fungicides (Smiley et al., 2005) has become more prevalent. Additionally, increased fungicide use is not beneficial to the environment.

Breeding for dollar spot resistance in bentgrass is an important objective of the Rutgers breeding program. Typically, velvet and colonial bentgrasses have more resistant to dollar spot than creeping bentgrass; results from recent trials (Tables 1 and 4), however, indicate that disease resistance in creeping bentgrass has significantly improved. Declaration, 13M, Memorial, 9002-1-3, FAC Comp, GMC Comp, and TDN2 Comp were highly resistant to this disease, while Ninety-Six Two, Alpha, Mackenzie, Imperial, Independence, Runner, and Backspin were the most susceptible.

Brown Patch

Among the bentgrass species used for turf, velvet bentgrass is typically the most tolerant of brown patch, whereas colonial bentgrass is the most susceptible. A major emphasis of the Rutgers breeding program, with dramatic results, has been to improve the resistance of colonial and creeping bentgrasses to brown patch (Tables 1, 6 to 8). The creeping bentgrasses Tyee, DC1 Comp, MSS Comp, PSG 1RHG1, SRP 1WM, OO7, Penneagle II, MVS-AP-101, Declaration, and 13M rated best for brown patch resistance, while Penn A-4, Putter, Brighton, Sandhill, Providence, and SR 1119 were more susceptible. The fact that several of the more resistant creeping bentgrasses rated higher than most velvet bentgrass entries could be indicative of improvement of cultivars for resistance to this disease.

In the most recent cycle of colonial bentgrasses evaluated in the 2008 fairway trial (Table 8), the experimental selections NBC Comp and SDS Comp ex-

hibited significantly improved brown patch resistance compared to standard cultivars Glory, SR 7100, and SR 7150; these ratings were comparable to many of the creeping bentgrass cultivars. In other trials, 9328-1-3,5, 9314-6-12, BCD, and A08-FT12 exhibited improved resistance, whereas Green Time, Glory and PST-R9D7 were among the most susceptible cultivars and selections. PSG 7PC2, GSV1 Comp, and Legendary velvet bentgrasses all rated well for resistance to brown patch, while SR 7200 was the most susceptible (Table 6).

Copper Spot

In the northeast, copper spot has become increasingly troublesome during late spring and early summer due to the warm, wet conditions typical of this time of year. *Gloeocercospora sorghi*, the causal agent, is a fungus that produces 3- to 4-inch, red-brown patches on the turf. A copper spot epidemic occurred on the 2008 putting green trial in 2009 (Table 6) where the only species present were velvet and creeping bentgrasses. Currently, one of the major drawbacks in the use of velvet bentgrass continues to be the high susceptibility of this species to infection *G. sorghi*. Therefore, selection for resistance to copper spot is a major goal of the Rutgers Turfgrass Breeding Program. The experimental lines GSV1 Comp, PC1 Comp, and PSG 7PC2 were selected for improved tolerance and performed significantly better than cultivars SR 7200, Villa, and Legendary. Some creeping bentgrass cultivars and selections were also affected by copper spot; Tyee, DC1 Comp, PSG 1RHG1, PSG 1RHTAV1, and PST-ODJ were more resistant to this disease than Declaration, Cobra 2, Providence, Sandhill, and SR 1119, which were quite susceptible.

Spring Green-Up

Spring green-up data was collected on the 2008 NTEP bentgrass greens/tee and fairway tests (Tables 5 and 7, respectively). The NTEP fairway trial contained both creeping and colonial bentgrass species, whereas the NTEP greens/tee trial contained creeping and velvet bentgrass species. In general, compared to colonial and creeping bentgrasses, spring green-up was typically poor for velvet bentgrasses, which could even exhibit a reddish or purple color during cold winter months. Another major research initiative of the Rutgers Turfgrass breeding program is to improve the spring green-up of velvet bentgrasses. In the 2008 NTEP greens/tee test (Table 5), SR 7200

possessed the earliest spring green-up while Greenwich greened up later. Creeping bentgrasses SRP 1GMC, Memorial, Declaration, MVS-AP-101 and LTP-FEC had the highest ratings for spring green-up whereas Penn G-2, Penn A-2, Penncross, and Tyee had the lowest ratings. Under fairway conditions, A08-TDN2, MVS-AP-101, and Authority exhibited early green-up, but performance of Princeville and L-93 was poorer. The colonial bentgrasses did not vary greatly in regards to spring green up.

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Table 1. Performance of creeping and colonial bentgrass cultivars and selections in a putting green trial seeded in September 2006 at North Brunswick, NJ.

Cultivar or Selection	Species	-----Turf Quality ¹ -----				Dollar Spot ² June 2009	Brown Patch ² July 2009	Turf Density ³ Sept. 2009
		2007- 2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.			
1 TDN2 Comp	Creeping	6.2	7.4	5.2	6.1	6.0	6.0	6.7
2 OO7	Creeping	6.0	6.6	5.7	5.7	3.7	9.0	6.7
3 IS-AP-15	Creeping	6.0	6.6	5.5	5.8	4.3	6.3	6.3
4 RH 12-34	Creeping	6.0	6.2	6.0	5.6	4.7	7.0	5.3
5 95-S	Creeping	6.0	6.7	5.4	5.8	4.0	7.0	6.7
6 9058 - 1-4	Creeping	6.0	6.6	5.5	5.8	4.3	4.3	7.3
7 95-N	Creeping	5.8	6.7	5.2	5.6	5.3	7.0	7.0
8 PST-Syn-0JO	Creeping	5.8	6.7	5.1	5.5	3.0	7.0	7.3
9 Runner	Creeping	5.8	6.3	5.1	5.7	3.7	8.7	6.3
10 Shark	Creeping	5.7	6.7	5.2	5.4	2.3	6.3	7.0
11 Tyee	Creeping	5.7	5.7	5.4	6.0	4.0	8.0	7.7
12 PST-0JD Bulk	Creeping	5.6	6.0	5.6	5.3	2.3	7.3	7.0
13 TDN1 Comp	Creeping	5.6	6.0	5.3	5.7	5.7	6.7	7.3
14 RH 1-5	Creeping	5.6	5.4	6.0	5.4	3.0	8.0	7.5
15 AFM Comp	Creeping	5.6	5.8	5.8	5.1	5.3	7.0	5.3
16 GMC Comp	Creeping	5.6	6.3	5.3	5.1	7.0	5.0	5.0
17 Authority	Creeping	5.5	6.6	4.8	5.0	4.3	5.0	6.7
18 Tyee/OO7	Creeping	5.4	5.6	5.4	5.4	3.3	5.0	5.7
19 9002 - 1-3	Creeping	5.4	6.0	5.3	5.0	8.0	7.3	6.0
20 9039	Creeping	5.4	5.2	5.9	5.1	6.0	5.0	5.3
21 Tyee/SR 7200	Creeping blend	5.4	5.7	5.5	4.9	4.3	8.0	6.0
22 GEC Comp	Creeping	5.3	6.2	4.9	4.8	5.7	5.3	5.7
23 RH 8-4	Creeping	5.3	5.7	5.2	4.9	3.3	7.0	5.7
24 OO7/Mackenzie/Tyee	Creeping	5.3	5.9	4.5	5.4	3.7	7.3	7.7
25 9085 - 1-5	Creeping	5.3	5.6	5.2	5.0	5.0	8.0	5.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	Species	-----Turf Quality ¹ -----				Dollar Spot ² June 2009	Brown Patch ² July 2009	Turf Density ³ Sept. 2009
			2007- 2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.			
	26 OO7/SR 1150	Creeping	5.2	5.9	5.0	4.7	3.3	8.0	4.7
	27 RH 931	Creeping	5.2	6.2	4.9	4.5	2.0	6.7	5.7
	28 FEC Comp	Creeping	5.2	5.4	4.9	5.3	5.0	5.3	6.3
	29 9014 - 4-6	Creeping	5.2	5.9	4.7	5.0	5.7	6.3	6.3
	30 OO7/Mackenzie	Creeping	5.1	5.4	5.1	5.0	2.7	8.0	6.3
	31 9012 - 4-6	Creeping	5.1	5.7	5.2	4.5	6.7	8.0	6.0
	32 9034 - 1-6	Creeping	5.1	4.9	5.0	5.4	4.7	4.0	6.3
	33 Declaration	Creeping	5.0	5.4	4.5	5.1	6.0	7.3	5.7
	34 9014 - 1-3	Creeping	5.0	5.5	4.7	4.8	6.3	7.7	6.0
o	35 95-TC	Creeping	5.0	5.0	5.1	4.7	4.0	7.0	5.0
	36 SRX 1WM	Creeping	4.9	5.1	4.8	4.8	4.3	7.0	5.3
	37 Capri	Colonial	4.9	5.0	5.3	4.4	7.7	4.0	5.3
	38 9020 - 1-3	Creeping	4.9	5.2	4.5	4.8	4.7	6.3	5.3
	39 Independence	Creeping	4.8	5.7	4.2	4.4	3.7	5.0	6.0
	40 OO7/SR 1119	Creeping	4.7	4.9	4.7	4.4	4.0	7.0	5.0
	41 Benchmark	Creeping	4.6	5.4	4.3	4.2	5.3	7.3	5.3
	42 9008 - 1-3	Creeping	4.6	4.8	4.8	4.3	6.0	7.7	5.3
	43 Cobra 2	Creeping	4.5	4.8	4.3	4.5	4.0	6.0	6.7
	44 LMC Comp	Colonial	4.5	5.0	4.6	4.0	5.3	3.0	5.3
	45 Mackenzie/Sandhill	Creeping	4.5	4.8	4.4	4.2	3.3	8.7	6.0
	46 Mackenzie	Creeping	4.4	5.1	4.1	4.0	2.7	8.0	5.7
	47 9020 - 4-6	Creeping	4.4	5.0	4.3	4.1	4.0	8.0	5.0
	48 Ninety-Six Two/Mackenzie	Creeping	4.4	4.9	4.4	3.8	2.7	6.7	5.7
	49 9027 - 4-6	Creeping	4.3	4.1	4.4	4.4	4.7	7.7	4.7
	50 T-1	Creeping	4.2	4.8	3.9	4.1	2.7	7.7	4.3

(Continued)

Table 1 (continued).

Cultivar or Selection	Species	-----Turf Quality ¹ -----				Dollar Spot ² June 2009	Brown Patch ² July 2009	Turf Density ³ Sept. 2009
		2007- 2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.			
51 Penneagle II	Creeping	4.2	4.1	4.7	3.6	4.7	9.0	5.3
52 KingPin	Creeping	4.2	4.1	4.3	4.0	6.0	8.0	4.3
53 Penn A-4	Creeping	4.1	4.6	4.3	3.6	2.3	5.0	5.3
54 Mackenzie/Penn G-1	Creeping	4.1	4.0	4.2	4.2	3.7	7.7	5.7
55 Ninety-Six Two	Creeping	4.1	4.5	4.2	3.6	2.7	9.0	5.0
56 SR 1150	Creeping	4.0	4.7	3.9	3.5	3.3	8.0	5.0
57 9009 - 4-6	Creeping	4.0	4.0	4.5	3.6	7.0	9.0	4.7
58 Ninety-Six Two/Sandhill	Creeping	4.0	4.8	3.8	3.5	2.0	6.7	4.3
59 Alpha	Creeping	4.0	4.3	4.1	3.5	2.3	8.0	4.7
60 9328 - 1-3,5	Colonial	4.0	3.6	4.4	4.0	5.3	6.0	5.0
61 SR 1150/SR 1119	Creeping	3.9	4.2	4.0	3.6	3.3	9.0	5.0
62 95-W	Creeping	3.9	3.8	4.1	3.8	3.7	7.7	4.7
63 Penn G-1	Creeping	3.9	3.8	4.3	3.5	3.7	7.3	4.3
64 9021 - 1-3	Creeping	3.9	4.7	4.0	3.0	4.0	9.0	4.7
65 Penncross	Creeping	3.9	3.7	4.2	3.7	3.0	8.0	4.7
66 Sandhill	Creeping	3.8	3.4	4.1	3.9	3.3	8.0	4.7
67 Southshore	Creeping	3.8	3.8	4.1	3.5	2.7	8.3	3.3
68 L-93	Creeping	3.7	3.1	4.6	3.4	5.3	8.0	4.3
69 9313 - 10-12	Colonial	3.6	4.2	3.6	3.2	6.0	4.0	4.7
70 9314 - 6-12	Colonial	3.6	3.5	4.0	3.3	6.3	5.3	4.0
71 DEB Comp	Colonial	3.6	4.1	3.6	3.0	6.3	3.7	3.7
72 DMB Comp	Colonial	3.6	4.0	3.2	3.5	4.7	5.0	5.3
73 Century	Creeping	3.5	3.3	3.7	3.6	2.7	8.7	4.7
74 Backspin	Creeping	3.5	3.6	3.8	3.0	2.0	7.7	4.0
75 Imperial	Creeping	3.4	4.1	3.5	2.8	2.0	6.0	4.3

(Continued)

Table 1 (continued).

Cultivar or Selection	Species	-----Turf Quality ¹ -----				Dollar Spot ² June 2009	Brown Patch ² July 2009	Turf Density ³ Sept. 2009
		2007- 2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.			
76 SR 1119	Creeping	3.2	3.3	3.6	2.8	2.3	8.7	3.7
77 PST-0166 Bulk	Creeping	3.2	2.7	3.7	3.1	4.7	7.7	4.7
78 DBN Comp	Colonial	3.2	3.5	3.1	3.0	7.3	5.0	4.0
79 9355 - 6	Colonial	3.2	3.8	2.8	2.8	7.0	4.5	4.0
80 Pennlinks II	Creeping	3.1	3.4	3.1	2.9	4.7	9.0	3.3
81 9316 - 2,3,5	Colonial	3.1	3.4	3.0	3.0	6.3	5.0	4.7
82 9327 - 1-6	Colonial	3.1	2.9	3.0	3.3	6.7	4.3	5.0
83 Tiger II	Colonial	3.1	3.2	2.9	3.0	5.3	3.7	3.7
84 Putter	Creeping	3.0	2.8	3.6	2.6	3.3	8.3	3.0
∞ 85 Providence	Creeping	3.0	2.8	3.3	2.8	3.7	9.0	3.0
86 9310 - 1-6	Colonial	2.9	2.9	2.9	2.9	5.7	4.3	4.0
87 Brighton	Creeping	2.8	2.8	3.3	2.4	4.3	8.3	3.7
88 Brighton/Sandhill	Creeping	2.7	2.3	3.1	2.8	3.7	8.7	3.3
89 9343 - 6	Colonial	2.7	2.5	2.7	2.9	6.7	5.3	4.3
90 SR 7100	Colonial	2.6	2.3	3.0	2.4	5.0	5.3	4.0
LSD at 5% =		0.6	0.9	0.8	0.7	2.0	2.2	1.6

¹9 = best turf quality

²9 = least disease (data reported represents a single rating)

³9 = greatest turf density (data reported represents a single rating)

Table 2. Performance of creeping and colonial bentgrass cultivars and selections in a fairway trial seeded in September 2006 at North Brunswick, NJ.

Cultivar or Selection	Species	-----Turf Quality ¹ -----			
		2007-2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.
1 Capri	Colonial	6.4	6.0	7.0	6.4
2 FEC Comp	Creeping	6.1	7.0	6.1	5.4
3 Tye/007	Creeping	6.0	6.7	6.1	5.3
4 GMC Comp	Creeping	6.0	6.6	6.1	5.3
5 Tye/SR 7200	Creeping blend	5.9	5.9	6.3	5.5
6 007	Creeping	5.8	6.3	5.6	5.5
7 SRX 1WM Comp	Creeping	5.8	6.2	5.9	5.3
8 LMC Comp	Colonial	5.7	6.0	5.9	5.2
9 Authority	Creeping	5.6	6.0	5.9	4.9
10 9039	Creeping	5.6	5.7	6.0	5.3
11 DEB Comp	Colonial	5.6	5.9	6.1	4.7
12 GEC Comp	Creeping	5.6	6.2	5.2	5.4
13 9034 - 1-6	Creeping	5.6	5.6	6.2	4.9
14 9314 - 6-12	Colonial	5.5	5.8	5.6	5.3
15 9312 - 10-12	Colonial	5.5	5.3	6.0	5.3
16 SR 1150	Creeping	5.5	6.0	5.7	4.9
17 Tye	Creeping	5.5	5.7	5.8	4.9
18 AFM Comp	Creeping	5.5	5.2	5.8	5.4
19 9330 - 7-9	Colonial	5.3	5.7	5.5	4.7
20 Declaration	Creeping	5.3	6.3	4.9	4.7
21 007/SR 1150	Creeping	5.3	5.9	5.2	4.8
22 DBN Comp	Colonial	5.2	5.8	5.2	4.7
23 Runner	Creeping	5.2	5.6	5.3	4.6
24 DMB Comp	Colonial	5.1	5.7	5.3	4.4
25 9316 - 2,3,5	Colonial	5.1	5.1	5.5	4.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	Species	-----Turf Quality ¹ -----			
			2007-2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.
	26 9328 - 1-3,5	Colonial	5.1	5.1	5.4	4.8
	27 OO7/Mackenzie/Tyee	Creeping	5.1	5.2	5.5	4.6
	28 Shark	Creeping	5.1	5.4	5.2	4.7
	29 SR 1150/SR 1119	Creeping	5.1	5.6	5.2	4.3
	30 OO7/SR 1119	Creeping	5.1	5.2	5.6	4.3
	31 9313 - 10-12	Colonial	5.0	4.9	5.1	5.0
	32 Penn A-1	Creeping	5.0	5.3	5.2	4.5
	33 9014 - 1-3	Creeping	4.9	4.7	5.4	4.6
	34 RH 931	Creeping	4.9	5.0	5.3	4.4
10	35 PST-Syn-0JO	Creeping	4.8	4.8	5.3	4.4
	36 9319 - 8-10	Colonial	4.8	4.5	5.0	5.0
	37 Cobra 2	Creeping	4.8	5.3	4.6	4.3
	38 KingPin	Creeping	4.7	4.8	5.0	4.3
	39 T-1	Creeping	4.7	4.7	5.3	4.1
	40 9333 - 6-10	Colonial	4.7	4.8	4.7	4.6
	41 Mackenzie/Penn G-1	Creeping	4.7	5.1	4.8	4.3
	42 Ninety-Six Two/Sandhill	Creeping	4.6	5.2	4.5	4.3
	43 OO7/Mackenzie	Creeping	4.6	4.9	5.0	4.0
	44 Benchmark	Creeping	4.6	5.0	4.7	4.2
	45 SR 1CCR2	Creeping	4.6	4.3	4.9	4.5
	46 Tiger II	Colonial	4.5	5.1	4.5	3.9
	47 SR 7100	Colonial	4.5	4.8	4.7	4.1
	48 SRX 7CRCO	Colonial	4.5	5.0	4.6	3.9
	49 Penn G-1	Creeping	4.5	4.9	4.7	4.0
	50 Independence	Creeping	4.5	4.9	4.6	3.9

(Continued)

Table 2 (continued).

	Cultivar or Selection	Species	-----Turf Quality ¹ -----			
			2007-2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.
	51 9310 - 1-6	Colonial	4.4	4.5	4.5	4.2
	52 Mackenzie	Creeping	4.4	4.5	4.5	4.3
	53 9327 - 1-6	Colonial	4.4	4.9	4.6	3.8
	54 9343-6	Colonial	4.4	4.7	4.6	4.0
	55 Penn A-4	Creeping	4.4	5.4	4.0	3.8
	56 L-93	Creeping	4.4	4.3	4.8	4.0
	57 9355-6	Colonial	4.4	5.1	4.1	3.9
	58 Ninety-Six Two	Creeping	4.3	4.3	4.7	3.9
	59 Alpha	Creeping	4.3	4.4	4.5	3.9
11	60 9027 - 4-6	Creeping	4.3	4.3	4.1	4.4
	61 Mackenzie/Sandhill	Creeping	4.2	4.9	4.2	3.6
	62 Imperial	Creeping	4.2	4.2	4.3	4.2
	63 Putter	Creeping	4.2	4.4	4.4	3.8
	64 Penn G-2	Creeping	4.2	4.3	4.2	4.0
	65 SRX 7EE	Colonial	4.1	3.9	4.3	4.2
	66 9307 - 10-12	Colonial	4.1	4.1	4.3	4.0
	67 Glory	Colonial	4.1	4.2	4.3	3.8
	68 Brighton	Creeping	4.1	4.4	4.2	3.8
	69 Ninety-Six Two/Mackenzie	Creeping	4.1	4.2	4.2	3.7
	70 SR 1119	Creeping	4.1	4.3	4.2	3.7
	71 Sandhill	Creeping	4.0	4.1	4.1	3.8
	72 Penn G-6	Creeping	3.9	3.8	4.2	3.8
	73 Southshore	Creeping	3.9	3.8	4.3	3.4
	74 Brighton/Sandhill	Creeping	3.8	3.5	4.0	3.7
	75 Century	Creeping	3.7	3.4	4.0	3.9

(Continued)

Table 2 (continued).

Cultivar or Selection	Species	-----Turf Quality ¹ -----			
		2007-2009 Avg.	2007 Avg.	2008 Avg.	2009 Avg.
76 Backspin	Creeping	3.7	4.3	3.6	3.2
77 Penncross	Creeping	3.7	3.9	3.8	3.3
78 SR 7150	Colonial	3.6	3.4	4.0	3.4
79 Providence	Creeping	3.5	3.6	3.5	3.5
80 Seaside II	Creeping	3.4	3.3	3.5	3.2
LSD at 5% =		0.6	0.9	0.9	0.8

¹9 = best turf quality

Table 3. Performance of bentgrass cultivars and selections in a putting green trial seeded in September 2007 at North Brunswick, NJ.

Cultivar or Selection	Species	-----Turf Quality ¹ -----		
		2008-2009 Avg.	2008 Avg.	2009 Avg.
1 TDN2 Comp	Creeping	7.2	7.4	7.1
2 IS-AC 4	Velvet	6.9	6.7	7.0
3 Legendary	Velvet	6.6	6.8	6.4
4 DC1 Comp	Creeping	6.6	6.7	6.5
5 Villa	Velvet	6.4	6.4	6.4
6 SRX1WM	Creeping	6.4	6.5	6.2
7 IS-AP 15	Creeping	6.4	6.0	6.8
8 FAC Comp	Creeping	6.1	6.5	5.8
9 Declaration	Creeping	6.1	6.3	5.9
10 Greenwich	Velvet	5.9	5.9	5.9
11 Vesper	Velvet	5.9	6.2	5.5
12 PinUp	Creeping	5.8	5.6	5.8
13 PC4 Comp	Velvet	5.8	5.7	5.8
14 PC2 Comp	Velvet	5.7	5.8	5.7
15 CY-2	Creeping	5.7	5.8	5.6
16 RH 13-4	Creeping	5.6	5.9	5.3
17 Benchmark DSR	Creeping	5.6	5.7	5.5
18 Shark	Creeping	5.5	5.7	5.4
19 OO7/SR 1150/Tyee	Creeping	5.5	5.6	5.5
20 Memorial	Creeping	5.5	5.5	5.4
21 PC3 Comp	Velvet	5.5	5.5	5.5
22 RH 3-4	Creeping	5.4	5.6	5.2
23 Kingpin	Creeping	5.3	5.2	5.4
24 OO7	Creeping	5.3	5.6	5.0
25 OO7/Mackenzie/Tyee	Creeping	5.2	5.6	4.9
26 Runner	Creeping	5.2	5.4	4.9
27 Cobra 2	Creeping	5.2	5.2	5.2
28 RH 12-8	Creeping	5.0	5.3	4.8
29 OO7/SR 1150/Mackenzie	Creeping	5.0	5.1	4.8
30 Tyee	Creeping	4.9	4.8	5.1
31 RH 5-24	Creeping	4.9	5.0	4.7
32 Penneagle II	Creeping	4.9	4.7	5.1
33 PC1 Comp	Velvet	4.8	4.9	4.8
34 SR 7200	Velvet	4.8	5.5	4.1
35 LS-44	Creeping	4.7	4.6	4.9

(Continued)

Table 3 (continued).

Cultivar or Selection	Species	-----Turf Quality ¹ -----		
		2008-2009 Avg.	2008 Avg.	2009 Avg.
36 Penn G-1	Creeping	4.7	4.7	4.7
37 Pennlinks II/Penneagle II	Creeping	4.6	4.8	4.4
38 T-1	Creeping	4.5	4.6	4.5
39 TDN1 Comp	Creeping	4.5	4.0	5.0
40 Mackenzie/Tyee	Creeping	4.3	4.4	4.3
41 Independence	Creeping	4.3	4.3	4.3
42 Penn A-4	Creeping	4.3	4.4	4.2
43 L-93	Creeping	4.2	4.2	4.2
44 SR 1150	Creeping	4.2	4.7	3.6
45 MGD Comp	Colonial	4.2	5.0	3.4
46 LAA-134	Velvet	4.1	4.1	4.1
47 Mackenzie	Creeping	4.0	4.4	3.6
48 DSH Comp	Colonial	4.0	4.7	3.3
49 Nintey-Six Two	Creeping	3.9	4.0	3.9
50 DGD Comp	Colonial	3.8	4.4	3.2
51 Sandhill	Creeping	3.7	3.8	3.6
52 SR 1119	Creeping	3.6	3.6	3.5
53 EBM - FTO	Colonial	3.6	4.0	3.1
54 SR 1150/SR 1119	Creeping	3.5	3.9	3.2
55 Southshore	Creeping	3.5	3.5	3.3
56 PRO AT-1 BCD	Colonial	3.3	4.0	2.6
57 Providence	Creeping	3.2	3.2	3.3
58 Alpha	Creeping	3.1	2.9	3.4
59 Alister	Colonial	3.0	3.7	2.2
60 Brighton	Creeping	2.9	3.0	2.8
61 PCC Comp	Colonial	2.4	2.9	2.0
LSD at 5% =		0.7	0.7	0.9

¹9 = best turf quality

Table 4. Performance of creeping and colonial bentgrass cultivars and selections in a fairway/tee trial seeded in September 2007 at North Brunswick, NJ.

Cultivar or Selection	Species	-----Turf Quality ¹ -----			Dollar Spot ² 2009
		2008-2009 Avg.	2008 Avg.	2009 Avg.	
1 Declaration	Creeping	6.4	6.0	6.7	7.7
2 FAC Comp	Creeping	6.2	5.9	6.5	7.7
3 TDN2 Comp	Creeping	6.2	6.9	5.4	6.3
4 13M	Creeping	5.9	5.5	6.3	8.2
5 007	Creeping	5.9	6.4	5.5	5.5
6 PinUp	Creeping	5.9	6.2	5.6	5.0
7 SRX1WM	Creeping	5.8	6.1	5.5	6.2
8 Memorial	Creeping	5.8	5.5	6.1	8.0
9 Benchmark DSR	Creeping	5.6	5.6	5.7	7.7
10 RH 3-4	Creeping	5.5	5.8	5.2	5.7
11 MGD Comp	Colonial	5.5	5.5	5.5	8.5
12 IS-AP 15	Creeping	5.3	5.9	4.7	4.8
13 CY-2	Creeping	5.2	5.6	4.9	4.8
14 007/SR 1150/Tyee	Creeping	5.2	5.6	4.7	6.0
15 DSH Comp	Colonial	5.1	5.4	4.8	7.7
16 Cobra 2	Creeping	5.1	5.5	4.7	4.7
17 Shark	Creeping	5.0	5.3	4.8	3.7
18 RH 5-24	Creeping	5.0	5.5	4.6	3.8
19 007/SR 1150/Mackenzie	Creeping	5.0	5.9	4.1	4.0
20 Kingpin	Creeping	5.0	5.3	4.7	6.5
21 007/Mackenzie/Tyee	Creeping	4.9	5.3	4.5	4.5
22 IS-AT 8	Colonial	4.9	5.0	4.9	6.7
23 Penn A-1	Creeping	4.8	5.2	4.5	4.7
24 Tyee	Creeping	4.8	5.2	4.5	3.7
25 EBM - FTO	Colonial	4.8	4.7	4.9	8.2

(Continued)

Table 4 (continued).

	Cultivar or Selection	Species	-----Turf Quality ¹ -----			Dollar Spot ² 2009
			2008-2009 Avg.	2008 Avg.	2009 Avg.	
	26 Sandhill	Creeping	4.8	5.0	4.5	4.8
	27 Pennlinks II/Penneagle II	Creeping	4.7	5.1	4.5	4.8
	28 RH 12-8	Creeping	4.7	5.2	4.2	2.8
	29 TDN1 Comp	Creeping	4.7	4.8	4.7	5.8
	30 RH 13-4	Creeping	4.7	5.0	4.4	5.0
	31 PCC Comp	Colonial	4.7	4.6	4.8	7.8
	32 PST-Syn-9DTM	Colonial	4.7	5.1	4.2	6.5
	33 Penneagle II	Creeping	4.6	4.8	4.4	4.7
	34 T-1	Creeping	4.6	4.8	4.4	4.2
16	35 LS-44	Creeping	4.6	4.8	4.3	4.5
	36 Runner	Creeping	4.6	4.9	4.2	2.7
	37 PST-Syn-9HO	Colonial	4.6	4.8	4.3	6.8
	38 Independence	Creeping	4.5	5.2	3.8	2.5
	39 Penn G-1	Creeping	4.5	4.8	4.2	3.3
	40 DGD Comp	Colonial	4.5	5.2	3.9	6.3
	41 PST-9BNC	Colonial	4.5	4.2	4.8	7.5
	42 Mackenzie/Tyee	Creeping	4.5	5.1	3.9	3.8
	43 SR 1150/SR 1119	Creeping	4.5	5.0	3.9	4.3
	44 Penn A-4	Creeping	4.4	4.8	3.9	2.8
	45 SR 1150	Creeping	4.3	5.1	3.6	4.5
	46 Alister	Colonial	4.3	4.1	4.6	7.2
	47 Glory	Colonial	4.2	4.4	4.0	7.5
	48 PST-Syn-9DTE	Colonial	4.1	4.3	4.0	6.3
	49 Mackenzie	Creeping	4.1	4.2	4.0	2.8
	50 Ninety-Six Two	Creeping	4.1	4.2	4.0	2.8

(Continued)

Table 4 (continued).

Cultivar or Selection	Species	-----Turf Quality ¹ -----			Dollar Spot ² 2009
		2008- 2009 Avg.	2008 Avg.	2009 Avg.	
51 L-93	Creeping	4.1	4.3	3.9	5.5
52 Tiger II	Colonial	4.1	4.3	3.9	6.3
53 SRX1CRCO	Colonial	4.0	4.4	3.6	2.8
54 Southshore	Creeping	3.9	4.2	3.7	3.8
55 PST-OETD Bulk	Creeping	3.9	3.6	4.1	4.8
56 PRO AT-1 BCD	Colonial	3.8	4.2	3.5	7.5
57 SR 1119	Creeping	3.8	4.2	3.4	3.3
58 Alpha	Creeping	3.7	4.0	3.5	3.0
59 Brighton	Creeping	3.7	3.7	3.7	4.3
60 SR 7100	Colonial	3.6	3.8	3.3	6.8
61 Providence	Creeping	3.5	3.6	3.3	3.8
62 SRX7EE	Colonial	3.4	3.6	3.2	7.0
63 SR 7150	Colonial	3.3	3.5	3.1	7.5
64 Penncross	Creeping	3.0	3.6	2.5	4.7
65 PST-OLTD Bulk	Creeping	3.0	3.0	3.0	3.8
LSD at 5% =		0.7	0.8	0.7	1.6

¹9 = best turf quality

²9 = least disease (data reported represents two rating dates)

Table 5. Performance of bentgrass cultivars in a putting green trial established on sand in September 2008 at North Brunswick, NJ. (Includes all entries of the 2008 National Bentgrass Greens Test - NTEP.)

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Sept. 2008	Spring Green-up ³ March 2009	Turf Color ⁴ Aug. 2009	Turf Density ⁵ Oct. 2009	Leaf Texture ⁶ Oct. 2009
1 A08-TDN2	Creeping	7.5	63.3	5.7	6.3	7.7	8.0
2 PST-OJO	Creeping	7.5	60.0	4.7	5.0	8.3	8.0
3 Legendary	Velvet	7.4	70.0	3.3	4.0	9.0	9.0
4 Villa	Velvet	7.2	63.3	3.3	3.7	8.7	9.0
5 MVS-AP-101	Creeping	7.1	50.0	6.0	5.7	7.7	8.0
6 Shark	Creeping	7.0	56.7	4.0	6.0	7.3	7.0
7 Greenwich	Velvet	6.9	56.7	2.3	4.0	8.7	9.0
8 V8	Creeping	6.8	46.7	4.7	6.0	7.3	7.3
9 SRP-1GMC	Creeping	6.8	70.0	6.3	6.7	6.7	6.3
10 Authority	Creeping	6.5	60.0	5.3	4.7	5.7	6.7
11 LTP-FEC	Creeping	6.4	53.3	6.0	5.0	6.7	7.0
12 Declaration	Creeping	6.4	53.3	6.0	4.3	6.7	6.7
13 Penneagle II	Creeping	6.2	60.0	4.7	6.3	5.0	6.0
14 T-1	Creeping	6.1	63.3	5.3	7.7	5.7	6.0
15 Penn A-4	Creeping	6.1	46.7	4.7	6.3	6.0	6.0
16 OO7	Creeping	5.9	43.3	5.0	5.0	6.0	6.0
17 SR 7200	Velvet	5.8	78.3	4.7	2.0	7.0	7.7
18 Alpha	Creeping	5.8	56.7	5.3	5.7	4.3	5.3
19 PinUp	Creeping	5.8	40.0	4.7	4.7	5.3	5.0
20 Kingpin	Creeping	5.7	56.7	5.0	7.7	5.7	5.7
21 SRP-1BLTR3	Creeping	5.6	60.0	6.0	4.3	5.0	5.3
22 Penn A-1	Creeping	5.3	46.7	4.0	6.7	4.0	5.7
23 AFM	Creeping	5.2	36.7	4.7	4.0	5.0	6.0
24 13M	Creeping	5.1	56.7	5.7	5.3	3.7	4.3
25 Crenshaw	Creeping	4.8	66.7	4.0	6.3	2.7	3.0

(Continued)

Table 5 (continued).

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Sept. 2008	Spring Green-up ³ March 2009	Turf Color ⁴ Aug. 2009	Turf Density ⁵ Oct. 2009	Leaf Texture ⁶ Oct. 2009
26 Memorial	Creeping	4.7	56.7	6.0	4.7	2.7	4.0
27 Tye	Creeping	4.5	66.7	3.3	4.3	4.7	4.3
28 Penn A-2	Creeping	4.3	40.0	3.3	4.7	3.7	3.7
29 L-93	Creeping	4.0	50.0	4.0	4.3	2.0	3.3
30 Southshore	Creeping	4.0	63.3	3.7	3.7	1.7	2.3
31 Penncross	Creeping	3.8	70.0	3.7	3.3	1.0	1.3
32 Penn G-2	Creeping	3.8	5.0	2.0	4.0	6.0	6.0
LSD at 5% =		0.8	30.6	2.1	1.5	1.0	1.2

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¹9 = best turf quality

²100 = best establishment after seeding

³9 = earliest spring green-up

²9 = darkest green color

⁵9 = highest shoot density

⁶9 = finest leaf texture

Table 6. Performance of creeping and velvet bentgrass cultivars and selections in a putting green trial seeded in sand in September 2008 at North Brunswick, NJ.

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Oct. 2008	Copper Spot ³ Aug. 2009	Brown Patch ³ Aug. 2009
1 Tye	Creeping	6.5	5.7	6.3	6.3
2 Shark	Creeping	5.8	6.3	5.7	5.7
3 SRP 7P2162	Creeping	5.8	4.0	5.0	6.0
4 DC1 Comp	Creeping	5.7	3.0	6.3	6.7
5 CY-2	Creeping	5.6	6.0	5.0	4.3
6 SRP 7P21622	Creeping	5.6	5.5	6.5	5.0
7 SRP 7P21463	Creeping	5.4	4.0	6.7	8.0
8 SEC Comp	Creeping	5.2	4.3	5.7	5.3
9 PSG 1RHTAV2	Creeping	5.2	4.7	5.0	4.3
10 Greenwich	Velvet	5.2	7.3	3.3	5.7
11 GSV1 Comp	Velvet	5.2	3.7	6.3	7.0
12 07-PC2 Comp	Velvet	5.2	5.3	6.3	6.7
13 PST-ODJ Bulk	Creeping	5.1	5.0	7.7	6.3
14 Legendary	Velvet	5.1	6.7	3.0	6.3
15 OO7	Creeping	5.0	5.0	3.3	4.7
16 PSG 7PC2	Velvet	5.0	5.3	6.0	7.0
17 13M	Creeping	5.0	6.3	5.3	6.3
18 ESS Comp	Creeping	5.0	3.7	4.3	4.7
19 Mackenzie	Creeping	4.9	5.3	4.0	5.7
20 Declaration	Creeping	4.9	5.3	3.0	4.0
21 SRP 7P2152	Creeping	4.9	5.7	5.7	7.0
22 SRP 721461	Creeping	4.9	4.0	6.0	6.5
23 LS-44	Creeping	4.8	5.7	6.7	6.0
24 PSG 1RHTAV1	Creeping	4.8	3.7	7.3	4.7
25 PSG 1RHTAV3	Creeping	4.8	3.0	4.7	5.0

(Continued)

Table 6 (continued).

	Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Oct. 2008	Copper Spot ³ Aug. 2009	Brown Patch ³ Aug. 2009
	26 SR 1150	Creeping	4.7	5.7	4.0	4.0
	27 Cobra 2	Creeping	4.7	5.7	3.0	3.7
	28 Penn G-1	Creeping	4.6	4.0	4.0	3.7
	29 PSG 1RHG1	Creeping	4.6	3.0	7.7	8.3
	30 Villa	Velvet	4.6	6.7	3.3	6.0
	31 GSV4 Comp	Velvet	4.5	3.3	5.0	6.0
	32 GSV3 Comp	Velvet	4.4	4.0	4.3	5.0
	33 07-PC1 Comp	Velvet	4.4	3.7	5.3	6.0
	34 MSS Comp	Creeping	4.3	2.7	4.3	5.3
21	35 GSV2 Comp	Velvet	4.1	4.0	3.7	4.7
	36 SRP 7P2166	Creeping	4.1	2.7	3.0	4.0
	37 Crenshaw	Creeping	4.0	5.7	4.3	4.3
	38 SRP 7P2102	Creeping	4.0	4.0	2.5	4.0
	39 PST-Syn-VN4	Velvet	3.8	3.3	2.3	5.3
	40 PSG 1RHG12	Creeping	3.8	3.0	5.7	5.3
	41 SR 1119	Creeping	3.7	4.7	3.0	3.7
	42 Providence	Creeping	3.7	6.0	2.0	4.0
	43 PST-Syn-OPXS	Creeping	3.4	3.7	4.3	4.3
	44 Brighton	Creeping	3.4	6.0	1.3	3.7
	45 PST-OPUF Bulk	Creeping	3.3	2.0	5.0	5.0
	46 Penncross	Creeping	3.0	3.7	3.7	5.0
	47 PSG 1RHG13	Creeping	2.7	1.3	3.0	5.3
	48 Sandhill	Creeping	2.0	1.3	2.7	2.3
	49 SR 7200	Velvet	1.9	1.3	1.3	4.3

(Continued)

Table 6 (continued).

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Oct. 2008	Copper Spot ³ Aug. 2009	Brown Patch ³ Aug. 2009
LSD at 5% =		1.1	1.9	2.5	2.1

¹9 = best turf quality

²9 = best establishment after seeding

³9 = least disease (data reported represents a single rating)

Table 7. Performance of bentgrass cultivars in a fairway/teetrial seeded in September 2008 at North Brunswick, NJ. (Includes all entries of the 2008 National Bentgrass Fairway Test - NTEP.)

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Oct. 2008	Spring Green-up ³ April 2009	Turf Density ⁴ Oct. 2009	Leaf Texture ⁵ Oct. 2009	Turf Color ⁶ Oct. 2009	Brown Patch ⁷ 2009 Avg.
1 PST-OJD	Creeping	7.3	90.0	7.0	7.7	8.0	6.0	7.0
2 A08-TDN2	Creeping	7.3	91.7	8.0	8.0	6.7	6.7	6.5
3 MVS-AP-101	Creeping	7.3	88.3	7.3	7.7	7.7	5.7	7.5
4 Authority	Creeping	6.9	88.3	7.3	7.3	7.3	4.7	6.7
5 LTP-FEC	Creeping	6.7	93.3	6.0	8.0	7.3	5.0	7.2
6 Declaration	Creeping	6.6	91.0	6.7	8.0	7.7	5.3	7.8
7 SRP 1WM	Creeping	6.6	80.0	7.0	7.0	6.7	6.0	8.8
8 Crystal BlueLinks	Creeping	6.5	91.7	5.0	7.0	7.0	6.0	6.8
9 Benchmark DSR	Creeping	6.4	85.0	6.0	8.0	8.0	7.3	7.2
10 PinUp	Creeping	6.4	81.7	6.3	8.0	7.0	5.0	6.5
11 OO7	Creeping	6.3	94.3	5.0	8.0	8.0	5.7	7.3
12 T-1	Creeping	6.3	91.7	5.7	8.0	8.0	8.7	6.2
13 CY-2	Creeping	6.2	90.0	6.0	6.0	6.0	5.3	5.3
14 Penn A-4	Creeping	6.2	83.3	7.0	7.0	7.0	5.0	4.5
15 A08-FT12	Colonial	6.1	93.3	7.0	7.0	6.7	3.3	5.2
16 BCD	Colonial	5.8	86.7	5.0	7.0	7.0	4.3	5.2
17 13M	Creeping	5.7	95.0	6.7	6.3	6.7	5.3	7.2
18 Green Time	Colonial	5.6	75.0	4.0	6.7	6.7	3.7	3.8
19 Tiger II	Colonial	5.5	85.0	4.3	6.3	6.7	3.0	5.3
20 A08-EBM	Colonial	5.4	91.7	5.3	7.0	7.0	3.0	4.5

Table 7 (continued).

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Oct. 2008	Spring Green-up ³ April 2009	Turf Density ⁴ Oct. 2009	Leaf Texture ⁵ Oct. 2009	Turf Color ⁶ Oct. 2009	Brown Patch ⁷ 2009 Avg.
21 Memorial	Creeping	5.2	73.3	5.3	5.7	6.0	5.7	7.3
22 L-93	Creeping	4.9	81.7	3.3	6.3	6.3	5.7	7.2
23 Penncross	Creeping	4.5	88.3	5.0	2.7	4.0	4.0	7.7
24 Princeville	Creeping	3.9	96.0	4.0	2.7	2.7	3.3	6.3
25 PST-R9D7	Colonial	3.7	80.0	2.7	5.0	5.3	2.0	3.7
LSD at 5% =		0.7	9.0	1.8	1.1	1.3	1.5	1.4

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¹9 = best turf quality

²100 = best establishment after seeding

³9 = earliest spring green-up

⁴9 = highest shoot density

⁵9 = finest leaf texture

⁶9 = darkest green color

⁷9 = least disease (data reported represents two rating dates)

Table 8. Performance of creeping and colonial bentgrass cultivars and selections in a fairway/tee trial seeded in September 2008 at North Brunswick, NJ.

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Oct. 2008	Brown Patch ³ 2009
1 DC1 Comp	Creeping	6.5	4.3	8.0
2 07-MGD Comp	Colonial	6.4	5.7	5.8
3 NBC Comp	Colonial	6.3	3.7	6.7
4 MSS Comp	Creeping	6.2	5.3	8.2
5 SDS Comp	Colonial	6.2	3.7	6.5
6 SEC Comp	Creeping	6.0	6.3	7.8
7 Tyee	Creeping	5.9	7.3	7.2
8 Declaration	Creeping	5.9	7.7	6.7
9 Shark	Creeping	5.8	7.7	7.3
10 PST-Syn-9HO	Colonial	5.8	5.3	5.3
11 Authority	Creeping	5.8	7.3	7.3
12 EBM	Colonial	5.7	7.3	5.0
13 OO7	Creeping	5.7	7.7	5.8
14 PRO AT-1	Colonial	5.6	5.3	4.0
15 ESS Comp	Creeping	5.6	6.3	7.3
16 Independence	Creeping	5.6	7.3	5.8
17 Penn A-4	Creeping	5.5	5.3	6.3
18 BQC Comp	Colonial	5.5	3.7	6.5
19 PST-Syn-9BC3	Colonial	5.4	5.7	5.0
20 Penneagle II	Creeping	5.4	5.7	6.0
21 Revere (EWTR)	Colonial	5.2	5.3	4.7
22 13M	Creeping	5.2	7.0	6.7
23 Kingpin	Creeping	5.1	6.3	5.8
24 PSG 1RHG1	Creeping	5.1	4.7	8.5
25 PST-Syn-9MS	Colonial	5.1	6.0	3.8
26 PBP Comp	Colonial	5.1	3.0	5.3
27 Tiger II	Colonial	5.0	5.3	5.0
28 Putter	Creeping	4.9	6.7	5.2
29 Memorial	Creeping	4.9	6.3	6.8
30 T-1	Creeping	4.8	7.0	5.7
31 PST-920 Bulk	Colonial	4.8	4.7	4.2
32 Penn G-1	Creeping	4.8	4.7	6.5
33 Alister	Colonial	4.8	4.3	4.8
34 PST-Syn-9NCS	Colonial	4.8	3.3	5.2
35 PST-9NCS Bulk	Colonial	4.7	4.0	4.3

(Continued)

Table 8 (continued).

Cultivar or Selection	Species	Turf Quality ¹ 2009	Establishment ² Oct. 2008	Brown Patch ³ 2009
36 Mackenzie	Creeping	4.7	7.7	5.5
37 SR 1150	Creeping	4.7	5.3	6.8
38 Alpha	Creeping	4.6	6.7	6.3
39 L-93	Creeping	4.6	7.0	5.7
40 Crenshaw	Creeping	4.5	7.0	5.7
41 Glory	Colonial	4.5	5.3	4.3
42 Southshore	Creeping	4.4	7.3	5.0
43 SR 7100	Colonial	4.3	4.0	4.7
44 07-PCC Comp	Colonial	4.3	4.7	5.5
45 PSG 1RHG12	Creeping	4.2	3.3	7.2
46 SR 7150	Colonial	4.1	5.7	4.0
47 PST-ODJ Bulk	Creeping	4.0	4.3	5.2
48 PST-OPUF Bulk	Creeping	4.0	1.7	7.3
49 SR 1119	Creeping	3.9	5.7	5.3
50 Brighton	Creeping	3.9	7.3	4.2
51 Penncross	Creeping	3.7	4.3	5.0
52 Penn G-2	Creeping	3.7	1.0	7.2
53 PSG 1RHG13	Creeping	3.7	1.5	6.8
54 PST-Syn-OPXS	Creeping	3.6	4.3	5.2
55 Providence	Creeping	3.5	7.7	3.8
56 Sandhill	Creeping	2.5	1.0	7.3
57 PST-9TO Bulk	Colonial	1.7	1.0	5.2
58 Exeter	Colonial	1.4	1.0	6.0
LSD at 5% =		0.7	1.9	1.4

¹9 = best turf quality

²9 = best establishment after seeding

³9 = least disease (data reported represents two rating dates)

Table 9. Maintenance practices performed in 2009 on bentgrass trials at North Brunswick, NJ.

Table	Test	Fertility ¹	Mowing Height (inches)	Cultivation/ Top Dress	Fungicides	Insecticides	Herbicides
1	2006 Greens	2.21	1/8	May/June/ July/Aug./ Oct.–top dressed	June–Curalan; Aug.–Segway/Banner Maxx/ Junction; Sept.–Spectro	July–Merit (grubs); Sept.–Talstar (cut- worms)	April–Dimension (pre- emergence weeds)
2	2006 Fairway	3.75	3/8	Jun/Aug.–top dressed	None	July–Merit (grubs); Sept.–Talstar (cut- worms)	April–Dimension (pre- emergence weeds)
3	2007 Greens	2.96	1/8	May/June/ July/Aug./ Sept./Oct.– top dressed	Aug.–Segway/Banner Maxx/ Junction	July–Merit (grubs)	April–Dimension (pre- emergence weeds); May–Primo Maxx
4	2007 Fairway/ Tee	3.0	3/8	None	June–Curalan; July–Emerald	July–Merit (grubs)	April–Dimension (pre- emergence weeds)
5	2008 NTEP Greens - NTEP	5.16	1/8	May/June/ Aug./Sept./ Oct.–top dressed	May–Daconil Ultrex; June–Daconil Ultrex/Banner Maxx; July–Daconil Ultrex/Chipco Signature; Aug.–Segway/Subdue Maxx/ Daconil Ultrex; Sept.–Daconil Ultrex/Banner Maxx; Oct.–Chipco 26GT/Bayleton	Sept.–Talstar (cut- worms)	None

Table 9 (continued).

Table	Test	Fertility ¹	Mowing Height (inches)	Cultivation/Top Dress	Fungicides	Insecticides	Herbicides
6	2008 Greens	4.96	1/8	May/June/ Aug./Sept./ Oct.–top dressed	Aug.–Banner Maxx/Daconil Ultrex; Sept.–Spectro; Oct.–Chipco 26GT/Bayleton	Sept.–Talstar (cut- worms)	None
7	2008 NTEP Fairway/Tee - NTEP	6.74	3/8	None	May–Emerald; June–Banner Maxx/Daconil Ultrex; Aug.–Segway/Spectro/Banner Maxx/Daconil Ultrex	July–Merit (grubs); Sept.–Talstar (cut- worms)	April–Trimec Bent (broa- dleaf weeds)/Dimension (pre-emergence weeds)
8	2008 Fairway/ Tee	6.94	3/8	None	Aug.–Banner Maxx/Daconil Ultrex	July–Merit (grubs); Sept.–Talstar (cut- worms)	April–Dimension (pre- emergence weeds)

¹Annual nitrogen applied (lb/1000 ft²)