

2005 RUTGERS Turfgrass Proceedings



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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, Cook College, 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 2005 New Jersey Turfgrass Expo. Publication of these lectures provides a readily available 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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Dr. Ann Brooks Gould, Editor
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PERFORMANCE OF PERENNIAL RYEGRASS CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS

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Perennial ryegrass (*Lolium perenne* L.) is a vigorous, cool-season grass best known for its ability to rapidly establish an attractive turf stand within a short time of seeding. Perennial ryegrass performs well in a wide variety of soil conditions and is increasingly popular among homeowners, sports turf managers, and golf course superintendents. The development of improved perennial ryegrass cultivars continues at the New Jersey Agricultural Experiment Station as well as at other research facilities. The incorporation of new germplasm collections from Western and Eastern Europe permits turf breeders to expand the genetic base of perennial ryegrass used in cultivar development.

Turfgrass breeders and researchers are continuing to research the beneficial role of endophytes in turfgrasses. Endophytes are naturally occurring fungi that live within the leaf, sheath, and stem tissue of certain grasses. The endophytes are transmitted to succeeding generations of plants by seed. The presence of a *Neotyphodium lolii* endophyte has enhanced insect resistance and stress tolerance in many perennial ryegrasses. International collection trips are on-going in an effort to acquire new sources of germplasm containing the endophyte.

PROCEDURES

Four perennial ryegrass trials were established between 2004 and 2005. Three of the tests were seeded at Adelphia, NJ (Tables 1, 3, and 4) and one test was seeded at North Brunswick, NJ (Table 2). The three Adelphia tests were hand sown with 0.88 oz of seed into 3 X 5 ft plots (3.7 lb seed/1000 ft²). The North Brunswick test (Table 2) was hand sown with 2.1 oz into 3.5 X 5.5 ft plots (6.8 lb seed/1000 ft²). All tests were arranged in a randomized com-

plete block design with three replications, and plots had a 6-inch unseeded border to limit contamination.

A spring application of Dimension was used for preemergence control of summer annuals on tests in Tables 1, 2, and 3. The North Brunswick test (Table 2) also received a late June application of Turflon and Lontril for broadleaf control. Merit was used for grub control in June for the tests represented in Tables 1 and 3 and in July for the test in North Brunswick (Table 2). The North Brunswick test also received an October application of Dimension for annual bluegrass control. The postemergence herbicides 2,4-D, Sterling, and MCPP were applied in October to the tests in Tables 1 and 3 for broadleaf weed control.

The annual rate of nitrogen (N) and mowing height for each test is presented in Table 5. Single applications of fertilizer did not exceed 1.0 lb N/1000 ft². The amount and timing of N applied to turf varied to encourage disease and other stresses. Tests were mowed regularly with reel mowers to maintain a 1.5-inch height of cut. Rotary mowers were occasionally used to cut off tillers. Based on soil test results, tests were limed as needed to maintain a pH of 6.0 to 6.5. All tests were irrigated when necessary to avoid drought stress.

All trials were rated throughout the growing season for visual turf quality (i.e., overall appearance, turf color, uniformity, density, mowing quality, reduced rate of vertical growth, leaf texture, and damage from insects and diseases). Other ratings such as establishment, spring green-up, color, density, leaf texture, and damage due to specific diseases were rated when significant differences were evident. All ratings were based on a 1 to 9 scale, with 9 represent-

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ing the best turf characteristic. Plots were evaluated by a number of turfgrass specialists to reduce the impact of personal bias for particular characteristics. All data were summarized and subjected to an analysis of variance. Means were separated using Fisher's protected least significant difference (LSD) means separation test.

RESULTS AND DISCUSSION

Results for all tests are presented in Tables 1 through 4. Entries in Tables 1 to 3 are ranked according to their overall quality average. A high quality average is generally indicative of better disease resistance, a darker, bright green color, greater density, uniformity, finer leaf texture, lower growth habit, improved mowing quality, and less damage due to insects. Tables 1 and 2 include entries of the 2004 National Perennial Ryegrass test sponsored by the National Turfgrass Evaluation Program (NTEP). The entries in Table 4 are ranked by gray leaf spot average since this test was maintained to encourage the disease and evaluate the plots for resistance.

Turf Quality

Considerable improvements have been made in the overall quality of turf type perennial ryegrass over the last 40 years. Newer varieties such as Exacta II GLR, Paragon GLR, and All*Star 3 as well as many promising experimentals possess a darker green color, more uniform appearance, increased density, lower growth habit, cleaner mowing, and better tolerance of diseases and insects. Perennial ryegrass can adapt well to a wide variety of soil types, and newer varieties have improved heat tolerance when not stimulated with too much fertilizer.

Establishment

Perennial ryegrass is the most widely used grass on home lawns, golf courses, and athletic fields because of its ability to rapidly establish an attractive turf stand within 7 to 10 days. It is often found in mixtures with slower germinating grasses such as Kentucky bluegrass and the fine fescues to help prevent soil erosion during lawn establishment. Perennial ryegrass is also often used in the southern United States for overseeding winter dormant lawns. Cover (%) (Tables 1 and 2) and establishment (Tables 3 and 4) ratings indicate that most cultivars were well established within a month after seeding. Seedling

vigor can be affected by factors such as genetics, seed quality and storage, environmental conditions, after ripening dormancy, and management procedures.

Disease

Many of the newly developed perennial ryegrasses exhibit significant differences in disease resistance and recovery. In New Jersey, excellent environmental conditions exist for development of diseases such as gray leaf spot (caused by *Pyricularia grisea*), red thread (caused by *Laetisaria fuciformis*), dollar spot (caused by *Sclerotinia homoeocarpa*), brown patch (caused by *Rhizoctonia solani*), and certain strains of rusts that attack perennial ryegrass as well as many other turf species.

The development of improved resistance to gray leaf spot steadily continues at the New Jersey Agricultural Experiment Stations. This disease can be devastating to newly established turf stands of perennial ryegrass. Gray leaf spot is favored when several hours of leaf wetness and/or high humidity and temperatures above 68 °F are maintained. The disease first appears as small, gray to brown leaf lesions that progress into dark, gray-brown or light brown, oblong lesions. Diseased leaves are often off-color and wilted, and pockets of irregularly-shaped patches develop in the turf. The gray leaf spot data in Tables 1 to 4 are very significant because of the damaging effects gray leaf spot is known to have on turf-type perennial ryegrass.

In August 2005, a perennial ryegrass test was established at Adelphia, NJ (Table 4) and maintained to encourage a gray leaf spot epidemic. Many experimentals as well as the newer varieties released to the market had excellent resistance to the disease. In August 2004, three perennial ryegrass tests were also established and maintained to encourage gray leaf spot (Tables 1, 2, and 3). The tests in Tables 1 and 2 include all entries of the 2004 National Ryegrass Test sponsored by NTEP. The data in Table 1 represents two ratings taken about 2 weeks apart. A drop in performance by some cultivars was evident by the second rating; the performance of other varieties and experimentals stayed consistent or improved during that period. The data in Table 2 represents gray leaf spot data taken 2 days apart and shows that most of the same varieties and

experimentals that did well in Table 1 remained consistent or recovered quickly in the trial reported in Table 2.

SUMMARY

The new turf-type perennial ryegrass is one of the most versatile grasses available. Its high traffic tolerance, rapid establishment, and deep green color are raising the demand for perennial ryegrass in the turfgrass seed industry. Although significant improvements have been made to perennial ryegrasses, increased genetically stable resistance to gray leaf spot, crown rust, dollar spot, pink patch, red thread, and brown patch is still needed. In addition, increased

heat tolerance, cold hardiness, and the ability to survive under ice sheets for extended periods are also necessary.

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Table 1. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2004 at Adelphia, NJ. (Includes all entries of the 2004 National Perennial Ryegrass Test sponsored by NTEP.)

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.	Gray Leaf Spot ² Oct. 5 2004	Gray Leaf Spot ² Oct. 21 2004	Cover (%) Sept. 2004	Brown Patch ² Aug. 2005	Color ³ Nov. 2005	Density ⁴ Nov. 2005
1	GL4 Comp	7.3	8.5	8.3	8.7	75.0	7.7	7.3	7.0
2	Exacta II GLSR	7.1	8.8	8.7	9.0	90.0	5.3	6.7	6.7
3	All*Star 3	7.1	8.5	8.3	8.7	76.7	5.7	7.3	6.7
4	Pick F4	7.0	8.7	8.7	8.7	66.7	6.7	7.3	7.0
5	D04-11T	7.0	7.5	7.3	7.7	90.0	6.7	7.3	7.7
6	GL1 Comp	6.9	8.8	9.0	8.7	81.7	5.0	6.0	6.0
7	SRX 4SP	6.9	8.5	8.3	8.7	68.3	5.7	7.3	7.0
8	DP1	6.7	8.7	8.7	8.7	91.7	5.7	7.0	6.7
9	APR 1664	6.7	8.0	8.0	8.0	63.3	5.7	5.7	5.7
10	IS-PR 270	6.7	7.5	7.7	7.3	68.3	6.7	6.0	6.7
11	AF	6.6	8.2	8.3	8.0	90.0	4.3	6.3	6.3
12	Panther GLS	6.6	7.3	7.7	7.0	73.3	7.0	6.0	7.0
13	JR-348	6.6	7.8	8.0	7.7	80.0	3.7	5.7	6.0
14	Derby Xtreme	6.5	7.2	7.3	7.0	71.7	6.3	7.0	7.0
15	IS-PR 236	6.5	7.3	7.3	7.3	70.0	6.0	7.0	7.0
16	IS-PR 271	6.5	7.5	7.3	7.7	70.0	6.7	7.0	6.3
17	Celeste	6.5	7.5	7.3	7.7	73.3	6.3	8.0	8.3
18	Paragon GLR	6.4	8.3	8.7	8.0	88.3	4.7	7.0	5.7
19	MMW	6.4	7.7	7.7	7.7	70.0	5.3	5.7	5.3
20	IS-PR 235	6.4	7.5	7.7	7.3	60.0	5.7	8.0	7.0
21	RG3P	6.4	6.8	6.7	7.0	73.3	7.0	6.0	5.3
22	Pick RB-1	6.3	9.0	9.0	9.0	85.0	4.3	6.7	6.3
23	Palace	6.3	7.7	7.7	7.7	68.3	5.7	7.0	6.0
24	RNS	6.3	7.2	7.0	7.3	83.3	6.3	7.3	6.7
25	LCK	6.3	6.8	6.7	7.0	61.7	6.3	6.7	7.0
26	GL-2	6.2	8.2	8.3	8.0	91.7	6.7	5.7	6.7
27	SRX 4UP3	6.1	8.2	8.3	8.0	76.7	3.7	6.0	6.0
28	GL3 Comp	6.1	7.2	7.3	7.0	63.3	4.7	6.0	6.0
29	Palmer GLS	6.0	8.0	8.0	8.0	71.7	6.0	5.0	5.7
30	Secretariat II GLSR	6.0	7.2	7.0	7.3	66.7	5.3	5.7	6.0
31	Fusion	6.0	6.8	7.0	6.7	58.3	5.7	6.7	6.3
32	APR 1660	6.0	7.3	7.0	7.7	73.3	7.0	5.3	5.7
33	Repell GLS	6.0	7.2	7.0	7.3	81.7	6.3	6.3	6.7
34	Keystone 2	6.0	6.3	6.0	6.7	90.0	7.0	5.7	7.0
35	Palmer IV	5.9	6.8	7.0	6.7	81.7	4.0	7.0	6.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.	Gray Leaf Spot ² Oct. 5 2004	Gray Leaf Spot ² Oct. 21 2004	Cover (%) Sept. 2004	Brown Patch ² Aug. 2005	Color ³ Nov. 2005	Density ⁴ Nov. 2005
36	D04-1667	5.9	6.5	6.7	6.3	76.7	7.0	5.7	6.0
37	Protégé GLR	5.9	8.5	8.7	8.3	91.0	3.0	7.3	6.0
38	Primary	5.8	7.0	7.0	7.0	65.0	6.0	5.7	6.0
39	D04-UP	5.8	8.8	9.0	8.7	68.3	3.7	6.3	6.0
40	AAZ-B104	5.8	8.7	8.7	8.7	71.7	4.3	6.7	5.7
41	Charismatic II GLSR	5.7	7.3	7.7	7.0	75.0	6.3	5.3	6.0
42	PST-2AG4	5.7	5.5	5.7	5.3	68.3	5.3	6.7	6.0
43	APR 1663	5.6	7.5	8.0	7.0	75.0	4.7	4.7	5.0
44	APR 1670	5.6	6.5	6.7	6.3	81.7	5.7	4.3	5.7
45	Buena Vista	5.5	5.8	5.3	6.3	75.0	4.3	6.0	5.7
46	PST-2GSM	5.5	5.7	5.7	5.7	83.3	6.3	5.3	5.0
47	Silver Dollar	5.5	5.7	5.0	6.3	76.7	4.0	6.0	5.3
48	Manhattan 5 GLR	5.3	6.7	7.0	6.3	81.7	4.3	5.0	5.0
49	AC2	5.1	5.0	4.7	5.3	65.0	5.3	5.7	5.3
50	PST-2MNG	5.0	5.3	5.3	5.3	76.7	5.7	5.0	4.7
51	MS2	5.0	4.8	4.3	5.3	70.0	4.3	6.0	5.0
52	IS-PR 233	4.9	6.7	7.0	6.3	46.7	5.3	6.0	5.0
53	DCM	4.9	4.8	4.7	5.0	81.7	5.0	5.3	5.3
54	PM 103	4.9	4.7	4.7	4.7	75.0	5.3	6.0	5.7
55	Citation Fore	4.9	4.3	4.3	4.3	93.3	5.3	5.3	5.0
56	Gray Star	4.8	4.5	4.7	4.3	56.7	4.3	5.7	5.0
57	LPFG	4.8	4.2	4.3	4.0	53.3	4.7	6.3	4.3
58	Overdrive	4.8	3.2	3.0	3.3	71.7	6.3	5.3	5.0
59	SRX 4682	4.7	6.7	7.0	6.3	55.0	5.0	3.7	5.0
60	Mach I	4.7	4.3	4.3	4.3	91.7	4.3	6.0	5.3
61	EXS54	4.7	4.0	4.3	3.7	53.3	5.0	6.3	5.3
62	VB77	4.7	4.8	5.3	4.3	58.3	6.0	5.3	5.0
63	RAD-PR8	4.7	4.2	4.0	4.3	48.3	5.7	5.0	5.3
64	PST-2LAN	4.6	4.3	4.3	4.3	76.7	6.0	4.0	4.3
65	SRX 4692	4.6	5.2	5.7	4.7	48.3	5.3	5.3	4.3
66	Pinnacle II	4.6	4.0	4.3	3.7	48.3	5.7	6.0	4.7
67	APR 1648	4.6	2.5	2.3	2.7	83.3	5.7	6.0	5.7
68	SNR	4.6	3.7	3.3	4.0	66.7	5.3	6.7	5.3
69	04-BEN	4.5	5.2	5.7	4.7	50.0	3.7	5.0	4.7
70	ES45	4.5	4.3	4.7	4.0	56.7	4.7	6.0	5.0

(Continued)

Table 1 (continued).

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.	Gray Leaf Spot ² Oct. 5 2004	Gray Leaf Spot ² Oct. 21 2004	Cover (%) Sept. 2004	Brown Patch ² Aug. 2005	Color ³ Nov. 2005	Density ⁴ Nov. 2005
71	Pentium	4.5	3.3	3.0	3.7	93.3	6.0	4.7	5.3
72	PST-2BLK	4.5	3.8	4.0	3.7	81.7	5.0	5.0	5.3
73	04-BRE	4.5	5.3	5.7	5.0	43.3	5.3	5.7	5.3
74	VB99	4.4	3.7	3.7	3.7	58.3	5.0	6.0	4.7
75	PRG HS-01-99	4.4	3.7	3.3	4.0	80.0	4.3	5.7	4.3
76	GPR	4.4	3.5	3.7	3.3	60.0	4.0	5.7	5.0
77	Pick 01-2	4.3	3.8	3.7	4.0	86.7	4.0	6.3	4.7
78	Quicksilver	4.2	3.3	3.7	3.0	80.0	4.3	6.0	4.3
79	E-99	4.1	3.8	3.7	4.0	56.7	6.0	4.7	5.0
80	CNV	4.1	3.5	3.7	3.3	48.3	5.0	5.3	4.0
81	JR-119	4.1	3.2	3.3	3.0	73.3	6.3	4.0	4.3
82	JR-324	4.1	2.0	2.0	2.0	71.7	5.3	5.0	4.0
83	DP 17-9499	4.1	3.7	4.0	3.3	51.7	5.7	6.0	5.0
84	BAR Lp 4420	4.1	4.5	4.7	4.3	50.0	4.7	5.7	4.0
85	PM 102	4.1	3.8	3.3	4.3	53.3	5.0	6.0	4.3
86	JR-225	4.0	3.3	3.3	3.3	63.3	4.0	5.7	4.3
87	TR47	4.0	3.2	3.3	3.0	55.0	4.7	5.3	4.0
88	DP 17-9502	4.0	4.5	4.7	4.3	58.3	6.7	5.0	5.0
89	PST-217	4.0	4.2	4.3	4.0	70.0	6.0	5.0	4.3
90	PM 101	4.0	3.7	3.7	3.7	58.3	4.7	5.7	4.3
91	SP4	4.0	3.2	3.3	3.0	70.0	5.7	6.3	4.3
92	BAR Lp 4920	4.0	3.0	2.7	3.3	76.7	6.0	6.3	4.3
93	Halo	4.0	3.0	3.3	2.7	53.3	5.0	5.7	4.0
94	L44	4.0	3.0	3.3	2.7	61.7	4.3	5.3	4.0
95	BAR Lp 4317	3.9	3.5	3.7	3.3	70.0	7.7	4.3	4.7
96	JR-408	3.9	3.2	3.0	3.3	70.0	3.7	4.3	4.7
97	DP 17-9505	3.9	3.0	3.7	2.3	51.7	4.7	4.7	4.0
98	AJM	3.9	3.2	3.7	2.7	53.3	3.0	5.7	3.3
99	Brightstar SLT	3.9	2.8	2.7	3.0	90.0	5.7	5.3	6.0
100	Pizzazz	3.9	3.7	3.3	4.0	88.3	5.0	5.3	4.3
101	BPR	3.8	3.5	3.7	3.3	46.7	3.7	5.3	4.3
102	Pick 02-R	3.7	1.7	1.7	1.7	55.0	4.0	5.3	3.7
103	TRS	3.7	3.3	3.3	3.3	45.0	5.3	5.7	4.0
104	D04-LP05	3.7	2.8	3.0	2.7	73.3	5.0	5.3	4.0
105	Premier II	3.7	2.8	3.0	2.7	93.3	4.0	4.0	4.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.	Gray Leaf Spot ² Oct. 5 2004	Gray Leaf Spot ² Oct. 21 2004	Cover (%) Sept. 2004	Brown Patch ² Aug. 2005	Color ³ Nov. 2005	Density ⁴ Nov. 2005
106	Sunshine 2	3.7	2.3	1.7	3.0	76.7	4.7	5.0	4.0
107	Headstart 2	3.7	1.8	1.3	2.3	68.3	3.3	5.7	4.0
108	JR-114	3.5	1.7	1.3	2.0	63.3	4.0	5.3	4.0
109	PWDR	3.5	3.3	3.7	3.0	50.0	4.7	5.0	4.3
110	Palmer III	3.4	3.2	3.0	3.3	83.3	3.3	4.7	5.0
111	Inspire	3.4	2.0	2.3	1.7	86.0	5.7	4.3	4.3
112	DP 17-9788	3.4	3.8	4.0	3.7	51.7	3.7	4.0	3.7
113	RTS	3.3	3.0	3.7	2.3	50.0	3.7	6.0	4.3
114	PS-2	3.3	1.3	1.0	1.7	53.3	6.0	5.3	4.7
115	JR-163	3.2	1.7	1.7	1.7	48.3	5.0	4.3	3.7
116	Affinity	3.2	3.5	3.7	3.3	95.0	5.3	2.7	4.3
117	Barlennium	3.1	2.2	2.7	1.7	76.7	5.0	4.3	3.7
118	Panther	3.0	1.7	2.0	1.3	94.3	3.3	3.7	4.0
119	Premier	2.9	3.2	3.3	3.0	94.3	6.3	2.3	3.3
120	LPR 02203	2.5	1.0	1.0	1.0	90.0	5.3	3.0	3.3
121	Pinnacle	2.1	1.8	2.3	1.3	90.0	5.7	2.7	2.3
122	Manhattan II	1.8	.	.	.	5.0	3.3	3.7	2.7
123	Linn	1.0	1.0	1.0	1.0	88.7	4.0	1.0	1.0
	LSD at 5% =	0.7	1.0	1.2	1.1	17.4	1.8	1.3	1.2

¹9 = best turf quality²9 = least disease³9 = darkest green color⁴9 = highest turf density

Table 2. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2004 at North Brunswick, NJ. (Includes all entries of the 2004 National Perennial Ryegrass Test sponsored by NTEP.)

Cultivar or Selection	Turf Quality ¹	Gray Leaf Spot ²		Cover (%)		Cover (%)		Color ³	Density ⁴	Leaf Texture ⁵
	2005 Avg.	2004 Avg.	2004 Oct.	2004 Sept.	2005 April	2005 July	2005 Oct.	2005 Nov.	2005 Nov.	2005
1 D04-11T	7.7	8.0	8.0	83.3	86.7	86.7	7.0	8.7	7.7	7.7
2 All*Star 3	7.4	8.5	8.3	86.7	88.3	91.7	7.0	7.7	7.0	7.0
3 SRX 4SP	7.4	8.8	9.0	76.7	95.3	96.3	6.3	7.3	7.3	7.3
4 DP1	7.2	8.8	9.0	88.3	92.3	91.3	6.3	7.7	7.7	7.7
5 Pick RB-1	7.2	8.8	9.0	83.3	95.7	90.0	7.0	7.3	7.3	7.3
6 IS-PR 271	7.1	6.7	6.7	78.3	80.0	91.7	7.7	7.0	7.7	7.7
7 MMW	7.1	8.8	8.7	81.7	95.0	91.7	6.3	7.0	7.3	7.3
8 SRX 4UP3	7.1	8.3	8.7	73.3	95.3	93.3	6.3	7.3	7.3	7.3
9 RNS	7.1	7.3	8.0	85.0	83.3	96.0	6.0	8.0	7.7	7.7
10 Pick F4	7.0	8.8	8.7	85.0	91.7	95.0	6.7	8.0	7.3	7.3
11 IS-PR 270	6.9	7.8	7.7	86.7	89.0	89.0	6.7	7.7	7.3	7.3
12 Paragon GLR	6.9	7.7	7.7	86.7	90.0	78.3	6.3	7.3	7.7	7.7
13 D04-1667	6.9	7.8	8.0	80.0	92.3	95.7	5.7	7.3	7.7	7.7
14 Celeste	6.8	7.5	7.3	86.7	89.0	91.7	6.3	8.0	7.7	7.7
15 Derby Xtreme	6.8	6.0	6.0	83.3	80.0	86.7	7.3	8.3	7.7	7.7
16 AAZ-B104	6.8	8.5	8.7	78.3	92.3	86.3	6.3	6.7	6.7	6.7
17 Exacta II GLSR	6.8	9.0	9.0	81.7	94.0	94.0	6.3	7.7	7.7	7.7
18 APR 1664	6.7	8.5	8.3	76.7	93.3	95.7	5.7	7.7	7.0	7.0
19 Panther GLS	6.7	8.2	8.7	75.0	81.7	90.0	6.0	7.0	6.3	6.3
20 Primary	6.7	6.3	6.7	86.7	82.3	92.7	6.3	8.0	7.3	7.3

(Continued)

Table 2 (continued).

Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004		Gray Leaf Spot ² Oct. 2004	Cover (%) Sept. 2004	Cover (%) April 2005	Cover (%) July 2005	Color ³ Oct. 2005	Density ⁴ Nov. 2005	Leaf Texture ⁵ Nov. 2005
		2004 Avg.	2004							
21 IS-PR 235	6.7	7.2	7.3	7.0	81.7	81.7	86.7	6.3	7.3	7.3
22 D04-UP	6.7	9.0	9.0	9.0	68.3	94.0	87.7	6.7	6.7	7.3
23 JR-348	6.7	6.8	7.3	6.3	73.3	85.0	91.3	6.3	7.7	7.0
24 APR 1663	6.7	8.5	8.7	8.3	86.7	96.3	94.3	5.7	7.0	5.7
25 Secretariat II GLSR	6.6	7.2	7.3	7.0	73.3	88.3	92.7	5.0	6.7	6.7
26 RG3P	6.6	6.3	6.3	6.3	85.0	80.0	86.7	6.0	7.3	6.7
27 GL-2	6.6	7.5	7.7	7.3	86.7	88.3	93.7	6.3	8.0	7.3
28 Palmer GLS	6.6	7.3	7.3	7.3	81.7	92.3	90.7	5.7	7.0	6.7
29 AF	6.6	8.5	8.7	8.3	86.7	90.0	86.7	6.3	6.7	6.3
30 APR 1660	6.6	8.3	8.7	8.0	83.3	90.0	91.0	5.7	6.7	6.0
31 Palace	6.6	6.8	7.3	6.3	78.3	83.3	85.7	7.0	8.0	7.0
32 Charismatic II GLSR	6.6	7.2	8.0	6.3	61.7	90.0	90.7	5.3	7.0	6.7
33 Palmer IV	6.6	7.2	7.3	7.0	76.7	87.3	83.3	6.7	7.7	7.0
34 APR 1670	6.5	6.8	7.0	6.7	88.3	91.7	87.3	5.0	6.7	6.0
35 IS-PR 236	6.5	7.5	7.3	7.7	83.3	85.0	90.0	6.7	7.0	6.7
36 LCK	6.4	5.5	5.7	5.3	78.3	83.3	83.3	6.0	7.0	6.7
37 IS-PR 233	6.4	6.2	6.3	6.0	76.7	75.0	82.3	8.0	6.3	6.3
38 SRX 4692	6.4	6.3	6.7	6.0	68.3	84.0	89.7	6.0	7.3	6.0
39 Protégé GLR	6.4	8.5	8.3	8.7	83.3	94.0	86.7	7.0	7.0	7.3
40 Manhattan 5 GLR	6.3	7.8	8.0	7.7	78.3	86.7	93.3	4.7	6.3	5.7
41 Keystone 2	6.2	4.8	5.0	4.7	90.0	76.7	89.0	5.3	7.3	6.7
42 Silver Dollar	6.1	4.0	4.0	4.0	81.7	71.7	81.7	6.3	7.3	7.0
43 PST-2GSM	6.1	4.7	4.7	4.7	68.3	56.7	81.7	5.3	7.3	6.0
44 Fusion	6.0	6.3	6.3	6.3	75.0	80.0	85.0	7.0	6.3	6.7
45 Repell GLS	6.0	7.5	7.7	7.3	76.7	81.7	85.0	6.0	6.0	6.3

(Continued)

Table 2 (continued).

Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.	Gray Leaf Spot ² Oct. 2004	Gray Leaf Spot ² Oct. 2004	Cover (%) Sept. 2004	Cover (%) April 2005	Cover (%) July 2005	Color ³ Oct. 2005	Density ⁴ Nov. 2005	Leaf Texture ⁵ Nov. 2005
46 Buena Vista	5.9	5.7	6.0	5.3	76.7	80.7	80.0	6.7	6.0	6.3
47 PST-2AG4	5.9	5.7	5.3	6.0	70.0	56.7	80.0	5.3	7.0	6.0
48 DCM	5.8	4.2	4.3	4.0	78.3	66.7	84.0	4.7	6.0	5.7
49 PST-2MNG	5.8	5.3	5.7	5.0	80.0	71.7	85.0	5.0	6.7	6.3
50 SRX 4682	5.8	8.0	8.7	7.3	65.0	94.0	92.7	4.3	6.3	6.0
51 RAD-PR8	5.4	4.2	4.3	4.0	80.0	53.3	78.3	5.0	6.7	6.7
52 04-BRE	5.3	6.7	7.0	6.3	75.0	61.7	75.0	6.3	5.3	4.7
53 MS2	5.3	4.5	5.0	4.0	75.0	68.3	75.0	7.7	5.7	6.3
54 04-BEN	5.3	6.0	6.7	5.3	70.0	71.7	83.3	4.0	5.0	5.3
55 AC2	5.1	4.8	5.0	4.7	73.3	65.0	70.0	6.3	6.3	6.0
56 PM 103	5.1	3.5	3.7	3.3	76.7	51.7	66.7	6.7	6.3	6.0
57 AJM	5.1	4.2	4.3	4.0	76.7	43.3	70.0	8.0	6.3	6.0
58 ES45	5.0	5.0	5.0	5.0	68.3	46.7	70.0	8.0	6.0	5.7
59 PST-2LAN	5.0	3.7	4.0	3.3	73.3	58.3	68.3	4.0	6.0	5.0
60 Citation Fore	5.0	3.5	3.7	3.3	86.7	70.0	75.0	4.3	6.0	5.3
61 Gray Star	4.9	5.0	5.7	4.3	75.0	46.7	71.7	5.3	6.0	5.7
62 E-99	4.9	3.5	4.0	3.0	73.3	48.3	66.7	5.0	6.7	6.0
63 Overdrive	4.9	4.0	4.0	4.0	78.3	50.0	68.3	5.3	6.3	6.3
64 PWDR	4.8	3.8	4.0	3.7	78.3	40.0	66.7	7.0	5.3	6.0
65 BPR	4.8	4.2	4.3	4.0	80.0	45.0	70.0	8.0	5.7	5.7
66 SNR	4.7	3.8	4.3	3.3	78.3	51.7	65.0	7.7	5.3	5.0
67 VB77	4.7	4.2	4.3	4.0	76.7	46.7	68.3	7.0	6.0	5.3
68 LPFG	4.7	4.8	5.0	4.7	75.0	53.3	68.3	7.0	6.3	6.0
69 EXS54	4.6	4.0	4.3	3.7	76.7	41.7	66.7	7.0	5.7	6.3
70 PST-2BLK	4.6	3.2	3.3	3.0	66.7	45.0	65.0	4.0	5.7	5.0

(Continued)

Table 2 (continued).

Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.	Gray Leaf Spot ² Oct. 2004	Gray Leaf Spot ² Oct. 2004	Cover (%) Sept. 2004	Cover (%) April 2005	Cover (%) July 2005	Color ³ Oct. 2005	Density ⁴ Nov. 2005	Leaf Texture ⁵ Nov. 2005
71	GPR	4.5	3.2	3.0	73.3	43.3	61.7	7.3	5.7	6.3
72	Pick 01-2	4.5	3.2	3.3	80.0	46.7	61.7	7.7	5.7	6.0
73	TR47	4.5	3.7	4.0	76.7	36.7	63.3	8.3	5.0	5.3
74	PST-217	4.5	3.7	3.7	73.3	46.7	63.3	5.3	5.3	5.0
75	CNV	4.4	3.8	4.0	71.7	50.0	63.3	7.0	5.3	5.3
76	Pinnacle II	4.4	3.5	4.3	73.3	50.0	63.3	6.3	5.3	6.0
77	VB99	4.4	4.3	4.7	68.3	38.3	60.0	7.3	5.0	5.7
78	Pizzazz	4.3	3.0	3.3	85.0	43.3	65.0	6.3	6.0	5.3
79	L44	4.3	4.2	4.3	76.7	43.3	60.0	8.3	5.0	5.3
80	BAR Lp 4420	4.1	3.8	4.0	76.7	51.7	65.0	6.0	5.7	6.0
81	DP 17-9502	4.1	2.5	3.0	81.7	46.7	58.3	5.7	5.3	6.0
82	SP4	4.0	3.5	3.7	83.3	35.0	55.0	8.0	4.7	5.3
83	Pentium	4.0	3.0	3.0	81.7	50.0	66.7	3.3	5.7	4.7
84	DP 17-9499	4.0	2.8	3.3	76.7	45.0	63.3	6.7	5.3	5.7
85	Halo	4.0	3.0	3.0	75.0	38.3	56.7	8.7	5.0	5.3
86	TRS	3.9	3.2	3.7	78.3	38.3	63.3	7.7	5.7	5.7
87	RTS	3.8	3.0	3.3	75.0	30.0	51.7	8.0	4.7	5.0
88	PRG HS-01-99	3.8	3.3	3.7	85.0	51.7	71.7	7.5	4.5	5.5
89	BAR Lp 4317	3.8	3.0	3.0	73.3	41.7	65.0	4.0	5.0	4.3
90	DP 17-9788	3.8	2.8	3.0	76.7	50.0	61.7	3.7	5.3	5.3
91	JR-119	3.8	3.0	3.3	81.7	35.0	60.0	4.3	4.0	4.3
92	Mach I	3.8	2.5	3.0	90.0	33.3	55.0	6.3	5.7	6.0
93	Quicksilver	3.7	3.0	3.3	75.0	35.0	51.7	6.3	4.3	5.7
94	PM 101	3.7	2.8	3.3	78.3	36.7	53.3	7.7	5.7	5.7
95	Brightstar SLT	3.6	2.2	2.7	90.0	38.3	58.3	4.0	4.7	5.0

(Continued)

Table 2 (continued).

Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.		Gray Leaf Spot ² Oct. 2004		Gray Leaf Spot ² Oct. 2004		Cover (%) Sept. 2004	Cover (%) April 2005	Cover (%) July 2005	Color ³ Oct. 2005	Density ⁴ Nov. 2005	Leaf Texture ⁵ Nov. 2005
		2004 Avg.	Oct. 2004	Oct. 2004	Oct. 2004								
96 PM 102	3.6	2.8	3.0	2.7	2.7	2.7	2.7	81.7	35.0	53.3	7.7	5.0	5.7
97 JR-225	3.6	2.8	3.3	2.3	2.3	2.3	2.3	68.3	34.0	50.0	7.0	4.7	5.0
98 BAR Lp 4920	3.5	2.8	3.3	2.3	2.3	2.3	2.3	78.3	41.7	61.7	5.0	4.7	5.7
99 Affinity	3.5	2.3	2.7	2.0	2.0	2.0	2.0	86.7	45.0	75.0	2.3	4.3	4.7
100 APR 1648	3.5	2.0	2.7	1.3	1.3	1.3	1.3	80.0	26.7	48.3	7.7	5.3	5.7
101 JR-324	3.4	2.2	2.7	1.7	1.7	1.7	1.7	75.0	31.7	60.0	5.3	5.0	5.0
102 D04-LP05	3.4	2.7	3.3	2.0	2.0	2.0	2.0	76.7	38.3	56.7	6.7	5.0	5.3
103 Palmer III	3.4	2.7	3.7	1.7	1.7	1.7	1.7	70.0	36.7	53.3	4.3	4.7	5.0
104 Premier	3.4	2.5	2.7	2.3	2.3	2.3	2.3	90.0	45.0	70.0	2.3	3.0	3.3
105 Barlennium	3.4	2.7	3.3	2.0	2.0	2.0	2.0	83.3	38.3	53.3	3.3	4.7	5.0
106 Inspire	3.3	2.3	2.7	2.0	2.0	2.0	2.0	85.0	38.3	51.7	4.7	5.3	5.0
107 DP 17-9505	3.3	2.7	3.3	2.0	2.0	2.0	2.0	75.0	35.0	58.3	5.3	4.7	5.3
108 JR-408	3.3	2.5	3.0	2.0	2.0	2.0	2.0	86.7	35.0	56.7	4.3	4.3	4.3
109 Sunshine 2	3.2	2.5	3.0	2.0	2.0	2.0	2.0	81.7	33.3	50.0	5.7	4.0	5.0
110 PS-2	3.2	2.3	3.0	1.7	1.7	1.7	1.7	76.7	30.0	58.3	6.0	4.7	5.7
111 Pick 02-R	3.2	2.0	2.7	1.3	1.3	1.3	1.3	70.0	33.3	51.7	8.3	4.0	6.0
112 Headstart 2	3.2	2.0	2.7	1.3	1.3	1.3	1.3	80.0	30.7	48.3	7.0	3.7	5.3
113 JR-114	3.1	2.3	3.0	1.7	1.7	1.7	1.7	75.0	28.3	55.0	4.7	3.7	4.7
114 Premier II	3.0	1.8	2.3	1.3	1.3	1.3	1.3	86.7	29.3	51.7	4.3	4.0	4.7
115 JR-163	2.9	2.3	2.7	2.0	2.0	2.0	2.0	73.3	28.3	53.3	4.7	4.7	5.0
116 Pinnacle	2.6	1.7	2.3	1.0	1.0	1.0	1.0	86.7	35.0	51.7	2.3	3.0	3.0
117 Panther	2.4	1.3	1.7	1.0	1.0	1.0	1.0	90.0	19.0	50.0	3.0	3.7	4.7
118 LPR 02203	2.0	1.3	1.7	1.0	1.0	1.0	1.0	76.7	15.0	43.3	2.3	3.0	3.3
119 Manhattan II	1.8	.	.	.	.	.	.	1.0	15.0	36.7	2.0	3.0	4.0
120 Linn	1.1	1.5	2.0	1.0	1.0	1.0	1.0	88.3	23.3	31.7	1.0	1.0	1.0

(Continued)

Table 2 (continued).

Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Gray Leaf Spot ² 2004 Avg.	Gray Leaf Spot ² Oct. 2004	Gray Leaf Spot ² Oct. 2004	Cover (%) Sept. 2004	Cover (%) April 2005	Cover (%) July 2005	Color ³ Oct. 2005	Density ⁴ Nov. 2005	Leaf Texture ⁵ Nov. 2005
LSD at 5% =	0.7	1.2	1.3	1.4	10.5	13.4	11.0	1.2	1.3	1.2

¹9 = best turf quality

²9 = least disease; data taken 2 days apart in October

³9 = darkest green color

⁴9 = highest turf density

⁵9 = finest leaf texture

Table 3. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2004 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Establishment ² Sept. 2004	Gray Leaf Spot ³ Oct. 2004
1	04-10 LP	7.7	6.0	8.7
2	Applaud C-2	7.2	7.7	9.0
3	PST-SYN-2MAG	6.9	6.7	8.3
4	APR 1660	6.7	7.0	7.7
5	04-8 LP	6.7	5.7	8.7
6	Paragon GLR	6.7	7.7	7.7
7	APR 1664	6.6	6.0	8.3
8	IS PR-266	6.5	6.3	6.7
9	Palmer IV	6.5	8.0	8.7
10	APR 1667	6.5	6.7	7.3
11	Prelude GLS	6.5	6.0	8.0
12	PR5	6.4	7.0	6.3
13	Repell GLS	6.4	6.7	8.3
14	APR 1668	6.4	7.0	8.0
15	APR 1665	6.4	6.7	8.7
16	IS PR 239	6.3	5.7	6.7
17	APR 1663	6.3	6.3	8.0
18	SG-04	6.3	6.3	7.0
19	IS PR-230	6.2	6.0	5.7
20	Palmer GLS	6.2	7.3	7.3
21	APR 1675	6.2	7.0	7.0
22	Panther GLS	6.1	6.7	7.0
23	IS PR 267	6.0	6.3	5.7
24	APR 1666	6.0	6.0	7.0
25	APR 1659	5.9	6.7	8.7
26	APR 1670	5.9	7.3	7.3
27	PST-SYN-2RL2	5.8	7.0	5.3
28	PSW# 5-04	5.8	6.7	4.0
29	RAD-PR23	5.6	6.3	4.7
30	Quick Trans	5.5	8.3	6.3
31	SR 4550	5.5	8.3	5.3
32	PST-2Q4L BULK	5.4	6.7	6.0
33	RAD-PR6	5.4	7.3	3.3
34	PST-2MGG-04	5.4	4.7	4.7
35	PSW# 24-03	5.4	5.7	4.7

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Establishment ² Sept. 2004	Gray Leaf Spot ³ Oct. 2004
36	PST-2Q4 BULK	5.3	6.3	5.3
37	APR 1671	5.3	7.0	4.7
38	PST-2LGS BS	5.2	7.0	5.3
39	Quickstart II	5.2	7.3	6.3
40	PST-SYN-2RO2	5.1	4.7	3.7
41	PST-2MAN BULK	5.0	7.3	4.0
42	APR 1661	5.0	7.3	6.3
43	Stellar	5.0	8.3	3.7
44	PST-2J15	5.0	7.0	4.0
45	PSW# 21-04	5.0	7.0	4.0
46	Palmer III	5.0	8.3	3.0
47	AllStar2	4.8	8.3	4.0
48	04-9 LP	4.8	6.3	5.3
49	PSW# 3-04	4.8	6.0	4.3
50	PST-2E* BULK	4.7	5.7	5.0
51	RAD-PR9	4.7	5.3	3.3
52	PR13	4.7	5.7	3.0
53	RAD-PR22	4.6	5.7	3.7
54	PST-SYN-2E10	4.6	6.7	3.7
55	PST-3BM BULK	4.6	5.7	4.7
56	SR 4220	4.6	8.0	3.7
57	Peregrine	4.6	8.3	3.0
58	Gator 3	4.6	7.0	2.7
59	NMSP-04	4.5	6.7	2.7
60	Grand Slam	4.5	8.0	3.3
61	BOB-03	4.5	5.7	3.0
62	Applaud	4.5	8.0	3.0
63	PST-2M* BULK	4.5	5.0	4.7
64	Integra	4.4	8.0	3.3
65	WHC PSC BULK 3-03	4.4	7.3	2.0
66	Top Hat 2	4.4	6.7	3.3
67	PST-2LITA	4.4	6.7	3.7
68	Sunkissed	4.4	9.0	2.0
69	PST-SYN-2ROH	4.4	6.0	3.0
70	PST-2CH BULK	4.4	6.0	4.0
71	PSW# 17-04	4.4	5.0	3.3
72	Mach I	4.3	8.0	3.3
73	04-HEAT	4.3	5.3	4.0
74	PST-2IN4 BS	4.3	5.7	3.7
75	04-11 LP	4.3	4.7	3.0

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Establishment ² Sept. 2004	Gray Leaf Spot ³ Oct. 2004
76	PSW# 7-04	4.3	5.7	2.3
77	Dazzle	4.3	8.3	2.3
78	SRXOH 421	4.3	8.0	2.7
79	SR 4420	4.3	8.0	2.0
80	PSW# 9-04	4.2	6.7	3.0
81	Vail II	4.2	5.7	3.0
82	Pizzazz	4.2	8.0	2.3
83	Ringer	4.2	8.3	3.0
84	RAD-PR17	4.2	3.7	3.3
85	PSW# 16-04	4.2	5.7	3.7
86	NAP1-04	4.2	6.0	2.7
87	Quest II	4.2	8.7	2.3
88	OS-04	4.2	5.3	2.7
89	Blazer 4	4.1	8.3	1.7
90	R-JD 39 104	4.1	6.0	2.7
91	Salinas	4.0	7.3	2.3
92	PST-SYN-2RAB-04	4.0	5.3	3.0
93	PST-2LA	4.0	6.7	2.0
94	Headstart 2	4.0	7.3	2.0
95	RAD-PR24	3.9	5.3	2.3
96	GLS2-04	3.9	6.3	2.3
97	Pro-tyme	3.9	8.0	1.3
98	WHC A-04	3.9	6.3	3.7
99	PSW# 6-04	3.9	5.7	3.0
100	WHC C-04	3.8	5.3	2.7
101	Pick PR C-97	3.8	8.3	1.7
102	STP-04	3.8	7.0	2.0
103	PSW# 19-04	3.8	6.7	2.7
104	SR 4500	3.7	7.7	2.0
105	Fiesta 3	3.7	8.7	2.0
106	Racer 2	3.7	8.3	2.3
107	PST-2RT	3.7	6.3	2.7
108	PSW# 10-04	3.7	4.7	3.3
109	PSW# 23-04	3.7	5.0	3.0
110	PSW# 14-04	3.7	5.3	2.3
111	PST-SYN-2SON	3.6	5.0	2.3
112	PRS2-04	3.6	7.0	2.0
113	Radiant	3.6	8.3	2.7
114	Manhattan 4	3.6	7.7	2.7
115	PST-SYN-2SOM	3.6	6.0	1.3

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Establishment ² Sept. 2004	Gray Leaf Spot ³ Oct. 2004
116	PSW# 12-04	3.6	6.3	2.0
117	Radiant II	3.6	8.3	1.7
118	SRXOH 422	3.5	6.3	1.7
119	SRXOH COR2	3.5	6.0	2.0
120	CRR-04	3.5	6.7	1.7
121	Wizard	3.5	9.0	2.3
122	Pin Stripe	3.5	8.3	1.3
123	PSW# 1-04	3.4	6.0	2.0
124	PSW# 20-04	3.4	6.3	2.7
125	Lowgrow II	3.4	8.7	1.7
126	Exacta	3.4	8.0	1.3
127	Hawkeye	3.4	9.0	1.7
128	PSW# 13-04	3.4	6.0	2.3
129	Phantom	3.4	8.3	1.7
130	PSW# 15-04	3.4	5.0	1.7
131	Extreme	3.4	9.0	1.3
132	PSW# 2-04	3.3	5.0	2.0
133	PSW# 4-04	3.3	5.3	2.7
134	SRXOH COR1	3.3	4.3	2.0
135	SR 4350	3.3	8.7	2.0
136	PR A-97	3.2	7.3	1.3
137	PSW# 18-04	3.2	5.7	2.3
138	Prelude III	3.2	8.0	1.3
139	Brightstar SLT	3.2	8.0	1.3
140	Goalkeeper	3.2	9.0	1.3
141	Charismatic	3.2	7.0	1.3
142	SRXOH ABER	3.1	7.3	2.3
143	WHC D-04	3.1	5.3	3.0
144	PSW# 8-04	3.1	6.3	2.0
145	PSW# 22-04	3.1	4.0	3.0
146	Line Drive	3.1	8.3	1.7
147	04-14 LP	3.1	4.3	2.0
148	ASAP	3.1	8.0	1.0
149	R-JD 114 104	3.1	7.0	1.7
150	Churchill	3.1	8.0	1.0
151	SW ER7026	3.0	9.0	2.3
152	Monterey II	3.0	9.0	1.3
153	Omega 3	3.0	9.0	1.3
154	PSW# 11-04	3.0	6.3	1.3
155	Continental	3.0	8.7	1.3

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turf Quality ¹ 2005 Avg.	Establishment ² Sept. 2004	Gray Leaf Spot ³ Oct. 2004
156	Headstart	3.0	7.3	1.3
157	Catalina	2.9	7.3	1.3
158	Caddieshack	2.9	8.7	1.0
159	Panther	2.9	8.7	1.0
160	Top Gun	2.9	9.0	1.0
161	MSP 3414	2.8	8.3	1.3
162	Cutter	2.6	8.7	1.7
163	Accent	2.6	8.7	1.7
164	Admire	2.6	9.0	1.0
165	R-JD 7B 104	2.5	8.0	1.0
166	WHC B-04	2.4	5.3	2.7
167	R-JD 13-17 103	2.3	9.0	1.0
168	R-JD 7 103	2.2	8.0	1.0
169	MSP 3275	2.0	8.7	1.3
170	SW ER7045	1.9	8.7	1.0
171	P201	1.9	8.7	1.0
172	Penguin	1.7	9.0	1.0
173	R-JD 3-9 103	1.7	8.3	1.0
174	Linn	1.0	8.3	1.0
	LSD at 5% =	0.7	1.3	1.1

¹9 = best turf quality²9 = best seedling establishment³9 = least disease

Table 4. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2005 at Adelphia, NJ.

	Cultivar or Selection	Gray Leaf Spot ¹ 2005 Avg.	Gray Leaf Spot ¹ Oct. 20 2005	Gray Leaf Spot ¹ Oct. 26 2005	Turf Quality ² Nov. 2005	Establishment ³ Oct. 2005
1	SRX 4SP	9.0	9.0	9.0	6.0	7.3
2	IS-PR 314	9.0	9.0	9.0	6.7	7.3
3	PSG G-05	9.0	9.0	9.0	7.7	8.0
4	PSG F-05	9.0	9.0	9.0	7.7	8.0
5	PSG Q-05	9.0	9.0	9.0	6.7	7.0
6	PSG U-05	9.0	9.0	9.0	5.7	7.3
7	PSG E-05	9.0	9.0	9.0	6.3	7.7
8	PSG BB-05	9.0	9.0	9.0	7.3	8.3
9	PSG 78-SP-Bulk 05	9.0	9.0	9.0	7.7	7.3
10	APR 1884	8.8	9.0	8.7	6.0	6.7
11	DP-1	8.8	8.7	9.0	6.7	7.3
12	PSG 81-Bulk 05	8.8	8.7	9.0	7.0	7.3
13	APR 1851	8.7	8.7	8.7	4.7	8.0
14	APR 1887	8.7	9.0	8.3	5.7	7.3
15	AAZ-B104	8.7	8.7	8.7	5.7	7.7
16	APR 1803	8.5	9.0	8.0	5.7	7.0
17	APR 1875	8.5	9.0	8.0	4.7	7.0
18	APR 1879	8.5	8.7	8.3	5.3	6.3
19	APR 1906	8.5	8.7	8.3	5.7	7.7
20	SRX 4UP3	8.5	9.0	8.0	6.0	8.0
21	Phenom	8.5	8.7	8.3	6.3	7.3
22	APR 1883	8.3	8.7	8.0	5.0	7.7
23	APR 1888	8.3	8.7	8.0	4.3	7.3
24	APR 1899	8.3	8.7	8.0	4.7	7.3
25	APR 1895	8.3	8.7	8.0	4.7	7.7
26	APR 1907	8.3	9.0	7.7	4.3	7.3
27	APR 1916	8.3	8.7	8.0	5.7	7.7
28	APR 1664	8.3	8.3	8.3	5.3	6.7
29	APR 1663	8.3	8.7	8.0	4.0	7.7
30	GL2	8.3	8.0	8.7	5.3	7.3
31	PSG Z-05	8.3	8.3	8.3	5.3	8.0
32	APR 1854	8.2	8.7	7.7	5.0	7.3
33	APR 1866	8.2	8.3	8.0	6.0	8.0
34	APR 1878	8.2	8.7	7.7	5.0	7.0
35	APR 1880	8.2	8.7	7.7	5.0	7.3

(Continued)

Table 4 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2005 Avg.	Gray Leaf Spot ¹ Oct. 20 2005	Gray Leaf Spot ¹ Oct. 26 2005	Turf Quality ² Nov. 2005	Establishment ³ Oct. 2005
36	APR 1882	8.2	8.3	8.0	4.7	8.0
37	APR 1885	8.2	8.3	8.0	5.3	7.0
38	APR 1890	8.2	8.7	7.7	5.0	7.0
39	APR 1918	8.2	8.7	7.7	4.7	8.0
40	APR 1926	8.2	8.3	8.0	5.7	7.7
41	2L3 Comp	8.2	8.0	8.3	4.7	7.3
42	PSG 45-SP-Bulk 05	8.2	7.7	8.7	5.7	7.0
43	APR 1889	8.0	8.7	7.3	5.0	7.0
44	SRX 4692	8.0	8.3	7.7	4.3	7.3
45	IS-PR 315	8.0	8.0	8.0	5.7	7.0
46	2B5 Comp	8.0	8.0	8.0	6.0	6.3
47	2L2 Comp	8.0	7.7	8.3	5.3	7.3
48	APR 1659	8.0	8.0	8.0	5.7	7.3
49	PSG Y-05	8.0	8.0	8.0	4.0	7.7
50	APR 1852	7.8	8.0	7.7	4.7	8.0
51	APR 1853	7.8	7.7	8.0	5.0	8.0
52	APR 1855	7.8	8.0	7.7	4.7	7.0
53	APR 1876	7.8	8.3	7.3	4.3	7.7
54	APR 1893	7.8	8.3	7.3	5.0	6.7
55	APR 1911	7.8	8.7	7.0	4.0	7.0
56	APR 1912	7.8	8.3	7.3	5.7	6.7
57	APR 1925	7.8	8.0	7.7	4.7	6.7
58	2B3 Comp	7.8	7.7	8.0	6.3	7.0
59	2L4 Comp	7.8	7.7	8.0	5.3	7.3
60	PSG X-05	7.8	8.3	7.3	4.0	6.0
61	PSG 45-Bulk 05	7.8	8.0	7.7	4.7	6.7
62	APR 1856	7.7	7.7	7.7	5.7	8.0
63	APR 1900	7.7	8.0	7.3	5.3	7.3
64	APR 1902	7.7	7.7	7.7	5.0	6.3
65	2L1 Comp	7.7	7.3	8.0	4.7	7.0
66	PST-2AM	7.7	8.0	7.3	4.0	7.7
67	SRX 4682	7.5	7.7	7.3	3.7	6.0
68	2B1 Comp	7.5	7.7	7.3	5.0	7.0
69	APR 1670	7.5	7.3	7.7	5.0	8.0
70	MRF PR-025	7.3	7.3	7.3	6.0	8.3

(Continued)

Table 4 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2005 Avg.	Gray Leaf Spot ¹ Oct. 20 2005	Gray Leaf Spot ¹ Oct. 26 2005	Turf Quality ² Nov. 2005	Establishment ³ Oct. 2005
71	2B2 Comp	7.3	7.0	7.7	5.3	6.3
72	APR 1665	7.3	7.7	7.0	5.7	7.3
73	RG3P	7.3	7.0	7.7	5.7	8.0
74	05-J PR	7.3	7.3	7.3	4.7	6.0
75	Paragon GLR	7.3	6.7	8.0	6.0	8.7
76	2B4 Comp	7.2	7.0	7.3	5.7	7.0
77	PST-2M*	7.2	7.0	7.3	4.0	7.3
78	APR 1873	7.0	7.0	7.0	4.3	7.7
79	PST-2GSB	7.0	6.7	7.3	5.0	7.3
80	PSG 92-Bulk 05	6.8	6.3	7.3	5.0	7.3
81	PST-Syn-2AGP	6.8	6.7	7.0	6.3	7.7
82	LCK	6.7	6.3	7.0	5.3	7.7
83	PST-Syn-2BMR	6.7	6.3	7.0	5.0	5.3
84	PST-Syn-2A03	6.7	6.7	6.7	4.3	7.3
85	APR 1857	6.5	6.7	6.3	4.7	7.7
86	APR 1877	6.5	6.7	6.3	4.0	7.0
87	APR 1922	6.5	6.7	6.3	3.7	7.3
88	PST-Syn-2MGS	6.5	6.0	7.0	4.7	7.7
89	05-F PR	6.3	6.0	6.7	4.0	5.3
90	PST-2Q4	6.3	6.3	6.3	3.7	7.0
91	APR 1923	6.2	6.3	6.0	4.0	7.0
92	IS-PR 316	6.2	6.3	6.0	4.7	7.7
93	MHT MSP 3729	6.2	6.3	6.0	3.3	7.7
94	PST-2LGS	6.2	5.7	6.7	4.7	7.7
95	APR 1872	6.0	6.0	6.0	4.0	7.0
96	APR 1874	6.0	6.0	6.0	4.3	7.3
97	PST-2AG\$	6.0	5.7	6.3	3.7	7.0
98	SR 4550	5.8	6.3	5.3	3.7	8.0
99	APR 1671	5.8	6.3	5.3	3.0	7.7
100	PSG V-05	5.8	6.0	5.7	4.0	7.0
101	PST-2MNG	5.8	5.7	6.0	4.3	8.0
102	PST-2C4	5.8	5.3	6.3	4.7	8.0
103	PST-Syn-2COL	5.7	6.0	5.3	3.0	7.0
104	PST-Syn-2RCC	5.7	5.7	5.7	4.0	7.3
105	05 I PR	5.5	5.7	5.3	2.7	5.0

(Continued)

Table 4 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2005 Avg.	Gray Leaf Spot ¹ Oct. 20 2005	Gray Leaf Spot ¹ Oct. 26 2005	Turf Quality ² Nov. 2005	Establishment ³ Oct. 2005
106	Silver Dollar	5.5	4.7	6.3	4.0	7.7
107	05-E PR	5.3	5.0	5.7	3.0	6.0
108	PST-2AGH	5.3	4.7	6.0	4.7	7.7
109	PSG J-05	5.2	5.0	5.3	3.0	6.0
110	PSG M-05	5.2	4.7	5.7	3.7	7.7
111	PST-2GSM	5.2	5.3	5.0	4.0	8.0
112	PST-Syn-2GC	5.2	5.0	5.3	3.7	7.3
113	PSG 80-SP-Bulk 05	5.0	5.3	4.7	3.3	5.7
114	PST-Syn-2SOV	5.0	5.3	4.7	3.0	6.0
115	MRF PR-010	4.8	4.3	5.3	3.0	6.3
116	RAD-PR17	4.8	5.0	4.7	3.0	5.3
117	PSG L-05	4.8	4.7	5.0	3.3	6.3
118	PST-2TQL	4.8	5.0	4.7	3.3	6.3
119	IG2	4.7	4.7	4.7	3.3	7.7
120	PSG 86-SP-Bulk 05	4.7	4.7	4.7	3.0	6.3
121	PSG 86-Bulk 05	4.7	4.7	4.7	3.0	6.7
122	PST-2PC	4.7	4.7	4.7	3.0	7.7
123	PST-2MGG-05	4.7	4.7	4.7	4.0	7.7
124	PST-Syn-2CAX	4.7	5.0	4.3	3.3	6.0
125	Gray Star	4.7	4.3	5.0	3.3	8.0
126	MRF PR-005	4.5	4.7	4.3	2.3	7.3
127	MRF PR-007	4.5	4.3	4.7	3.0	7.0
128	MRF PR-019	4.5	4.3	4.7	3.0	6.0
129	PSG D-05	4.5	4.3	4.7	2.0	6.3
130	PST-Syn-2TQM	4.5	4.3	4.7	3.0	6.7
131	MRF PR-015	4.3	4.3	4.3	2.3	6.7
132	MRF PR-022	4.3	4.3	4.3	2.0	6.7
133	PSG 93 Bulk 05	4.3	4.3	4.3	2.0	6.3
134	PSG 83-SP-Bulk 05	4.3	4.3	4.3	2.3	6.3
135	PST-2RHO	4.3	4.3	4.3	3.0	7.3
136	PST-2F15	4.3	4.0	4.7	3.3	7.3
137	MRF PR-002	4.2	4.3	4.0	2.7	6.7
138	MRF PR-017	4.2	4.0	4.3	2.0	6.0
139	MRF PR-021	4.2	4.3	4.0	2.7	7.3
140	PSG O-05	4.2	4.3	4.0	2.7	5.3

(Continued)

Table 4 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2005 Avg.	Gray Leaf Spot ¹ Oct. 20 2005	Gray Leaf Spot ¹ Oct. 26 2005	Turf Quality ² Nov. 2005	Establishment ³ Oct. 2005
141	Citation Fore	4.2	4.0	4.3	3.0	8.3
142	MRF PR-003	4.0	4.0	4.0	2.7	6.0
143	MRF PR-016	4.0	3.7	4.3	3.0	7.7
144	IS-PR 313	4.0	4.0	4.0	2.7	7.0
145	PSG A-05	4.0	4.3	3.7	2.7	7.7
146	PSG 85-SP-Bulk 05	4.0	4.0	4.0	2.3	5.7
147	PST-2LAN	4.0	3.7	4.3	3.0	7.7
148	PST-2RIV	4.0	3.7	4.3	2.0	6.3
149	MRF PR-006	3.8	3.7	4.0	2.0	6.3
150	MRF PR-012	3.8	4.0	3.7	2.7	6.0
151	MRF PR-020	3.8	4.0	3.7	2.0	7.7
152	PSG I-05	3.8	3.7	4.0	2.3	6.3
153	MRF PR-023	3.7	3.7	3.7	2.3	7.3
154	MRF PR-024	3.7	3.7	3.7	2.3	7.0
155	PSG P-05	3.7	3.7	3.7	2.7	6.7
156	PST-21N4	3.7	3.3	4.0	2.0	7.3
157	MRF PR-004	3.5	3.0	4.0	3.0	6.7
158	MRF PR-008	3.5	3.0	4.0	2.0	7.0
159	SR 4220	3.5	3.3	3.7	2.3	8.0
160	PSG H-05	3.5	3.3	3.7	2.0	7.0
161	MRF PR-027	3.3	3.3	3.3	1.7	8.0
162	PWDR	3.3	3.0	3.7	2.7	6.3
163	PSG K-05	3.3	3.7	3.0	2.0	6.0
164	PST-2101	3.3	3.7	3.0	2.0	6.7
165	MRF PR-001	3.2	3.0	3.3	1.7	7.0
166	MRF PR-009	3.2	3.0	3.3	2.3	7.3
167	MRF PR-011	3.2	3.0	3.3	1.7	6.7
168	SR 4420	3.2	3.0	3.3	2.0	8.0
169	PST-Syn-2RZ	3.2	3.0	3.3	2.3	6.0
170	Manhattan 4	3.2	3.0	3.3	2.0	7.3
171	Chaparral II	3.2	3.3	3.0	2.7	6.7
172	Charger II	3.2	3.0	3.3	1.7	7.7
173	PST-Syn-2SNS	3.2	3.0	3.3	1.7	6.7
174	MRF PR-013	3.0	2.7	3.3	2.7	7.3
175	PSG N-05	3.0	3.0	3.0	2.0	6.7

(Continued)

Table 4 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2005 Avg.	Gray Leaf Spot ¹ Oct. 20 2005	Gray Leaf Spot ¹ Oct. 26 2005	Turf Quality ² Nov. 2005	Establishment ³ Oct. 2005
176	PSG C-05	3.0	3.0	3.0	1.3	6.3
177	PSG 90-Bulk 05	3.0	3.3	2.7	2.0	6.7
178	Top Hat 2	2.8	2.7	3.0	2.3	8.0
179	Amazing	2.8	2.7	3.0	2.0	7.3
180	PSG 82-Bulk 05	2.8	2.7	3.0	1.0	6.0
181	MRF PR-014	2.7	2.7	2.7	2.0	7.7
182	SR 4350	2.7	2.3	3.0	1.7	7.0
183	Peregrine	2.7	2.7	2.7	2.3	8.0
184	Mach 1	2.7	2.7	2.7	2.0	7.7
185	PSG AA-05	2.7	2.7	2.7	1.7	6.0
186	PST-2RT	2.7	2.7	2.7	1.7	7.7
187	Grand Slam	2.7	2.3	3.0	2.0	7.3
188	PST-2-Blue	2.7	2.3	3.0	2.3	7.0
189	Gator 3	2.5	2.3	2.7	2.7	8.0
190	LS 2100	2.5	2.3	2.7	2.0	7.0
191	PSG 84-SP-Bulk 05	2.5	2.3	2.7	1.3	6.3
192	Quicksilver	2.5	2.3	2.7	1.7	7.3
193	APR 1924	2.3	2.7	2.0	1.3	6.7
194	SR 4500	2.3	2.3	2.3	1.3	7.3
195	Delaware XL	2.3	2.0	2.7	2.0	7.7
196	Confetti	2.3	2.3	2.3	2.0	6.3
197	LS 2200	2.3	2.3	2.3	2.0	7.3
198	PSG S-05	2.3	1.3	3.3	2.0	7.0
199	PST-2M4	2.3	2.3	2.3	1.3	6.7
200	Show Time	2.3	2.0	2.7	1.3	7.7
201	MRF PR-018	2.2	2.0	2.3	1.7	7.0
202	Affirmed	2.2	2.0	2.3	1.3	7.7
203	PSG 73-Bulk 05	2.2	2.3	2.0	1.7	6.3
204	PSG W-05	2.2	1.7	2.7	1.7	6.3
205	Headstart 2	2.0	2.0	2.0	2.0	7.7
206	PSG B-05	2.0	2.0	2.0	2.0	6.7
207	Churchill	1.8	2.0	1.7	1.3	8.7
208	PSG T-05	1.8	1.7	2.0	1.3	6.7
209	Brightstar SLT	1.8	1.7	2.0	1.7	8.0
210	Exacta	1.7	1.3	2.0	1.3	6.7

(Continued)

Table 4 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2005 Avg.	Gray Leaf Spot ¹ Oct. 20 2005	Gray Leaf Spot ¹ Oct. 26 2005	Turf Quality ² Nov. 2005	Establishment ³ Oct. 2005
211	PSG R-05	1.7	1.7	1.7	1.3	6.7
212	PSG 77-Bulk 05	1.7	1.7	1.7	1.3	6.3
213	MSP 3639	1.5	1.3	1.7	1.3	8.3
214	Hawkeye	1.3	1.3	1.3	1.0	7.7
215	MRF PR-026	1.2	1.3	1.0	1.0	7.7
216	Charismatic	1.2	1.0	1.3	1.3	7.7
217	Monterey II	1.2	1.0	1.3	1.0	7.0
218	Spreader III	1.0	1.0	1.0	1.0	8.0
	LSD at 5% =	1.0	1.2	1.1	1.5	1.3

¹9 = least disease

²9 = best turf quality

³9 = best seedling establishment

Table 5. Yearly nitrogen (N) applied and mowing height (Ht) on perennial ryegrass tests established at Adelphia and North Brunswick, NJ.

	2004		2005	
	N ¹	Ht ²	N	Ht
Table 1 (2004 Adelphia, NTEP)	1.3	1.5	4.0	1.5
Table 2 (2004 North Brunswick, NTEP)	0.5	1.5	3.0	1.5
Table 3 (2004 Adelphia)	0.5	1.5	3.5	1.5
Table 4 (2005 Adelphia)			0.8	1.5

¹ Annual N applied (lb/1000 ft²)

² Mowing height in inches