

2002 RUTGERS Turfgrass Proceedings



THE NEW JERSEY TURFGRASS ASSOCIATION

In Cooperation With
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2002 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 2002 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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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. The development of improved perennial ryegrass cultivars continues at the New Jersey Agricultural Experiment Station as well as at other research stations. The incorporation of new germplasm collections from Western and Eastern Europe is allowing turf breeders to expand the genetic base of perennial ryegrass used in cultivar development. International collection trips are also being made in an effort to acquire new sources of germplasm containing the beneficial fungus endophyte. The presence of a *Neotyphodium lolii* endophyte found in many ryegrasses has enhanced insect resistance and stress tolerance. Turfgrass breeders and university professors are continuing to research the beneficial role of endophytes in turfgrass cultivar development.

PROCEDURES

Eight perennial ryegrass trials were established between 1998 and 2002. Seven of the tests were seeded at Adelphia, NJ (Tables 1, 2, 4 to 8) and one test was seeded at North Brunswick, NJ (Table 3). The seven 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 3) 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 complete block design with three replications, and plots had 6-inch unseeded borders to limit contamination.

All tests located at Adelphia (Tables 1, 2, 4 to 8) received a fall application of the postemergence herbicides 2, 4-D and Banvel for broadleaf weed control. A spring application of Dimension was used for preemergence control of summer annuals. The 1999,

2000, and both 2001 Adelphia tests were also treated with a July application of Merit for grub control and an August application of Dimension for *Poa annua* control. In the spring of 2002, Dimension was used on the 1999 North Brunswick test (Table 3) for preemergence control of summer annual weeds. In addition, a July application of Merit for grub control, an August application of Chipco for Dollar spot control, and an August application of Drive for postemergence crabgrass control were applied to the North Brunswick test (Table 3). Two fall applications of Progress were also made to the North Brunswick test for *Poa annua* control.

The annual rate of nitrogen and mowing height for each test is presented in Table 9. Single applications of fertilizer did not exceed 1.0 lb nitrogen/1000 ft². The amount and timing of nitrogen 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 remove reproductive 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 tests 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 freedom from insect and disease damage). Other ratings such as establishment, spring green-up, color, density, leaf texture, and disease damage were rated when significant differences were evident. All ratings were based on a 1 to 9 scale, with 9 representing 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

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variance. Means were separated using the least significant difference (LSD) multiple comparisons test.

RESULTS AND DISCUSSION

Results for all tests are presented in Tables 1 through 8. Except for the 2002 trial at Adelphia (Table 8), entries in these tables are ranked according to their overall (multi-year) quality average. A high quality average is generally indicative of better disease resistance, a darker green color, greater density, uniformity, finer leaf texture, lower growth habit, improved mowing quality, and less damage due to insects. Tables 2 and 3 include entries of the 1999 National Perennial Ryegrass test sponsored by the National Turfgrass Evaluation Program (NTEP).

Turf Quality

Considerable improvements have been made on the overall quality of turf type perennial ryegrass over the last 40 years. Newer perennial ryegrasses such as All*Star2, Amazing, Applaud, Arrival, Mach 1, and Pizzazz as well as many promising experimentals have darker green color, more uniform appearance, increased density, lower growth habit, cleaner mowing and better tolerance to disease and insects.

Establishment

Perennial ryegrass has become increasingly popular on home lawns, golf courses, and athletic fields because of its ability to rapidly establish an attractive turf stand. It is evident in Tables 6 and 8 that most cultivars were well established within a month or two after seeding. Seedling vigor can be affected by factors such as genetics, seed quality, the environment, after ripening dormancy and management procedures.

Disease

Many of the newly developed perennial ryegrasses are showing significant differences in disease resistance and recovery. New Jersey provides excellent environmental conditions for the development of diseases such as red thread, dollar spot, and certain strains of rusts that attack perennial ryegrass as well as many other turf species. Table 3 provides valuable data on dollar spot and indicates that many experimental lines and new varieties have either bet-

ter disease resistance or a better ability to recover more rapidly from this disease.

Gray leaf spot can be a devastating disease on newly established turf stands of perennial ryegrass. The data in Tables 6 and 8 is very significant because little or no stable resistance to gray leaf spot has been shown to date by any turf-type perennial ryegrass. In September of 2001, a gray leaf spot epidemic occurred on the August 2001 planting of the perennial ryegrass test at Adelphia, NJ (Table 6). In September 2002, another outbreak of gray leaf spot occurred on the same test and there were considerable deviations in disease resistance from the 2001 epidemic. Most cultivars and selections had better resistance to the disease; there were, however, a small number of cultivars that were less resistant than previously reported.

In August 2002, a perennial ryegrass test was established at Adelphia, NJ (Table 8) and maintained to encourage a gray leaf spot epidemic, which did occur. The data in Table 8 is ranked by gray leaf spot average instead of turf quality due to the severity of the disease on the trial. Newer experimentals such as MM1, MS1, MS2, and 12001 had excellent resistance to the disease. Many other experimentals also showed very good resistance and recovery from gray leaf spot.

Other Turf Characteristics

The color ratings in Tables 2 and 3 indicate that newer cultivars and selections such as Applaud, Kokomo, and Pizzazz possess a much darker green color than older cultivars such as Linn, Manhattan, or Pennfine. However, spring green-up ratings in March 2002 (Table 2) and April 2002 (Table 3) indicate that many of the newer perennial ryegrasses that have better color were slower to come out of winter dormancy. Improvements are also shown in leaf texture and turf density ratings represented in Table 3. Newer cultivars also show improved leaf texture and turf density (Table 3).

SUMMARY

Although significant improvements have been made on 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 1998 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----				
		1999-2002 Avg.	1999 Avg.	2000 Avg.	2001 Avg.	2002 Avg.
1	All*Star 2	6.3	6.9	6.3	6.0	6.1
2	Pizzazz	6.3	6.8	6.0	5.5	6.8
3	6501 Comp	6.1	6.2	6.4	5.8	6.1
4	SR 4220	6.0	6.5	6.1	5.4	6.1
5	LTP-ME	6.0	6.0	5.9	6.1	5.8
6	Integra	5.8	5.9	6.0	5.2	6.3
7	Keystone	5.8	6.0	5.7	5.9	5.8
8	8326 Comp	5.8	6.3	5.9	5.2	5.7
9	Exacta	5.6	5.6	5.5	5.6	5.6
10	Affirmed	5.5	5.4	5.6	5.5	5.5
11	Sommerville	5.5	5.6	5.5	5.3	5.7
12	Cabo	5.5	5.7	5.4	5.3	5.3
13	Stellar	5.4	6.0	5.4	5.1	5.3
14	Pacesetter	5.4	5.6	5.1	5.0	5.9
15	LRF-98-439-PR	5.3	5.3	5.3	5.2	5.5
16	Wilmington	5.3	5.5	5.5	5.2	4.9
17	Palmer III	5.3	5.0	5.3	5.0	5.7
18	Churchill	5.2	5.6	5.0	5.0	5.4
19	CIS-PR 79	5.2	5.1	5.2	5.2	5.3
20	Promise	5.2	5.4	5.3	4.9	5.1
21	Paragon	5.1	4.9	5.3	5.3	5.0
22	Brightstar II	5.1	5.1	5.1	5.0	5.1
23	LRF-98-437-PR	5.1	5.4	4.7	5.2	4.9
24	Elfkin	5.0	4.7	5.1	4.9	5.3
25	Esteem	4.9	5.2	5.0	4.7	4.7
26	MP 72	4.9	5.1	4.9	4.6	4.9
27	CIS-PR 81	4.9	4.4	4.9	5.1	5.0
28	LP 84	4.7	5.0	4.9	4.7	4.3
29	Superstar	4.7	5.1	4.7	4.8	4.2
30	MP 58	4.7	4.9	4.7	4.3	4.9
31	Sol	4.7	5.1	4.6	4.5	4.5
32	LRF-98-438-PR	4.7	4.5	4.9	4.8	4.5
33	Pleasure XL	4.6	4.7	4.9	4.5	4.3
34	LP 86	4.6	4.6	4.7	4.6	4.5
35	CIS-PR 70	4.5	4.0	4.3	5.1	4.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----				
		1999-2002 Avg.	1999 Avg.	2000 Avg.	2001 Avg.	2002 Avg.
36	Plymouth	4.5	4.7	4.6	4.4	4.3
37	Whistler	4.5	4.7	4.6	4.4	4.4
38	Allsport	4.5	4.4	4.6	4.6	4.3
39	CIS-PR 77	4.4	4.3	4.6	4.4	4.2
40	Caddieshack	4.4	4.3	4.2	4.3	4.7
41	MP 42	4.4	4.9	4.0	4.3	4.3
42	Top Gun	4.2	3.9	4.3	4.3	4.4
43	Gator II	4.1	3.9	4.1	4.3	4.2
44	AG-P981	4.1	4.4	4.1	3.9	4.1
45	EP 39	4.1	4.2	4.3	4.0	4.0
46	SC 96-1	4.1	3.8	4.3	4.3	4.0
47	CIS-PR 76	4.1	4.0	4.1	4.4	3.9
48	MP 41	4.1	4.5	4.3	4.0	3.5
49	EP 59	4.1	4.0	4.0	3.8	4.5
50	LP 85	4.0	4.1	3.9	4.2	4.0
51	LP 62	4.0	4.3	3.8	3.5	4.3
52	SC 97-1	3.9	3.5	4.2	3.9	3.9
53	APM	3.8	3.5	4.1	4.0	3.5
54	Accent	3.8	3.5	3.8	4.0	3.9
55	Advent	3.6	3.2	3.8	3.8	3.7
56	Delaware Dwarf	3.6	3.3	3.8	3.7	3.6
57	Nobility	3.6	3.3	4.1	3.7	3.3
58	Envy	3.5	3.5	3.7	3.3	3.5
59	Bullet	3.3	3.0	3.5	3.4	3.5
60	Pleasure	3.0	2.8	3.6	3.0	2.7
61	Nui	1.3	1.1	1.0	1.2	1.9
	LSD at 5% =	0.5	0.6	0.7	0.7	0.9

¹9 = best turf quality

Table 2. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 1999 at Adelphia, NJ. (Includes all entries in the 1999 National Perennial Ryegrass Test.)

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² March 2002	Color ³ Nov. 2002
	1999-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.		
1 Mach 1	7.1	7.0	6.7	7.5	6.7	9.0
2 Applaud	6.6	6.6	6.3	6.9	8.0	9.0
3 All*Star2	6.5	6.7	5.9	7.0	6.3	9.0
4 Pizzazz	6.5	6.6	5.9	7.1	7.3	9.0
5 Amazing	6.4	6.6	6.0	6.7	6.7	9.0
6 Citation Fore	6.3	6.1	6.0	6.7	7.0	9.0
7 Kokomo	6.2	6.5	5.5	6.7	8.0	9.0
8 Gator 3	6.2	6.4	5.4	6.9	6.0	9.0
9 Charismatic	6.2	6.2	5.7	6.8	7.0	9.0
10 Pinnacle II	6.2	6.6	5.6	6.5	5.7	9.0
11 Arrival	6.2	6.6	5.5	6.5	6.7	9.0
12 2PC bulk	6.2	6.4	5.7	6.5	6.7	9.0
13 Pentium	6.0	6.0	6.1	6.1	6.3	9.0
14 ABT-99-4.834	6.0	6.2	5.3	6.4	7.3	9.0
15 Blazer IV	5.9	6.4	5.2	6.1	6.0	9.0
16 Integra	5.9	6.7	5.3	5.8	7.0	9.0
17 Inspire	5.9	6.1	5.5	6.0	6.7	9.0
18 SR 4220	5.9	6.0	5.2	6.4	6.3	9.0
19 Keystone	5.8	5.8	6.0	5.7	7.0	8.3
20 Seville II	5.8	5.9	5.4	6.1	6.7	9.0
21 SR 4420	5.8	5.9	5.3	6.2	6.3	9.0
22 Jet	5.8	5.8	5.4	6.1	6.7	9.0
23 CIS-PR 83	5.7	5.9	5.6	5.6	6.0	9.0
24 Paragon	5.7	5.9	4.9	6.2	6.7	9.0
25 ABT-99-4.115	5.7	5.7	5.4	6.0	6.7	7.3
26 ABT-99-4.721	5.6	5.5	5.4	6.0	6.0	9.0
27 ABT-99-4.724	5.6	5.6	5.2	6.1	6.3	8.3
28 Grand Slam	5.6	5.5	5.2	6.1	5.3	8.3
29 ABT-99-4.560	5.6	5.5	5.5	5.8	5.0	9.0
30 Hawkeye	5.5	5.8	4.9	5.7	7.7	9.0
31 Stellar	5.4	6.0	4.8	5.4	7.3	9.0
32 CIS-PR 82	5.4	5.9	5.1	5.3	7.3	9.0
33 Pacesetter	5.4	5.5	5.1	5.6	6.0	8.3
34 SYN 2IN	5.4	5.5	5.0	5.7	4.3	9.0
35 2CUL bulk	5.4	5.3	4.8	6.0	6.3	8.3

(Continued)

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² March 2002	Color ³ Nov. 2002
		1999-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.		
36	Cabo	5.3	6.0	4.3	5.7	5.0	8.7
37	Manhattan 4	5.3	5.3	4.9	5.8	6.3	9.0
38	Gallery	5.3	5.4	4.8	5.8	4.7	9.0
39	Fiesta 3	5.3	5.6	5.1	5.3	6.3	9.0
40	Nexus	5.3	5.7	4.6	5.7	4.3	9.0
41	Brightstar II	5.3	5.4	4.8	5.7	4.0	9.0
42	Churchill	5.3	5.5	4.7	5.7	6.7	8.3
43	Promise	5.3	5.4	4.5	5.9	7.3	8.0
44	ABT-99-4.464	5.3	5.0	5.2	5.6	6.0	7.0
45	SR 4500	5.3	5.3	5.1	5.4	7.3	8.0
46	SYN 2R7	5.2	6.0	4.5	5.2	6.7	8.3
47	Exacta	5.2	5.4	4.9	5.4	5.7	8.3
48	Terradyne	5.2	5.5	4.6	5.6	4.7	9.0
49	Brightstar SLT	5.2	5.6	4.7	5.3	5.0	9.0
50	SYN 2GT	5.2	5.3	4.9	5.3	4.3	7.0
51	Racer II	5.2	5.0	5.2	5.3	7.0	5.3
52	EDT	5.1	5.5	4.6	5.4	6.3	9.0
53	Salinas	5.1	5.4	4.4	5.6	4.0	9.0
54	Affirmed	5.1	5.1	4.9	5.3	5.3	8.3
55	CIS-PR 119	5.1	5.3	4.9	5.2	6.0	8.3
56	Pick PR QH-97	5.1	5.5	4.4	5.3	4.7	9.0
57	PST-2LA	5.1	4.9	4.9	5.4	4.7	7.7
58	CIS-PR 77	5.1	5.0	4.9	5.3	7.0	9.0
59	PST-2M4	5.0	5.2	4.9	5.0	6.0	9.0
60	CIS-PR 75	5.0	5.2	4.4	5.5	5.3	8.3
61	Catalina II	5.0	5.2	4.8	5.1	5.0	8.7
62	CIS-PR 74	5.0	4.7	5.3	4.9	6.7	5.7
63	2SLW	5.0	5.2	4.5	5.2	4.3	9.0
64	Pirouette	5.0	5.3	4.5	5.1	7.7	7.7
65	Pace	4.9	5.1	4.5	5.2	7.3	9.0
66	Splendid	4.9	5.3	4.5	5.0	4.0	8.3
67	Racr 7-44	4.9	5.3	4.7	4.8	6.7	8.7
68	Racr 7-48	4.9	5.0	4.9	4.8	6.3	7.3
69	PRB-97	4.9	5.2	4.3	5.2	2.7	9.0
70	Lowgrow II	4.9	5.1	4.5	5.1	5.7	9.0

(Continued)

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² March 2002	Color ³ Nov. 2002
		1999-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.		
71	CIS-PR 76	4.9	5.0	4.8	4.9	4.7	7.7
72	Premier II	4.9	5.0	4.7	5.0	6.3	6.7
73	Majesty	4.9	5.1	4.6	4.9	4.7	8.3
74	MP107	4.9	5.1	4.2	5.3	3.7	9.0
75	PST-2JH	4.9	4.8	4.9	4.9	6.7	8.3
76	PST-2RT	4.9	4.7	4.7	5.2	5.7	5.7
77	Palmer III	4.9	4.9	4.5	5.2	7.0	9.0
78	Summerset	4.9	5.1	4.3	5.2	4.7	9.0
79	MS2-2	4.9	4.6	5.1	4.9	7.7	4.7
80	CIS-PR 81	4.8	5.4	4.5	4.7	7.0	9.0
81	MP109	4.8	5.2	4.5	4.9	2.0	9.0
82	Barlennium	4.8	5.0	4.5	4.9	5.0	8.3
83	ABT-99-4.339	4.8	4.6	4.9	5.0	6.3	7.7
84	Archer	4.8	5.2	4.4	4.8	3.7	8.7
85	SYN 22L	4.8	5.2	4.2	5.0	5.3	8.3
86	Pick PR B-97	4.8	5.0	3.9	5.5	2.3	9.0
87	Pennant II	4.8	4.9	4.3	5.2	4.3	9.0
88	Radiant	4.8	5.4	3.8	5.3	4.7	9.0
89	Monterey II	4.8	4.7	4.8	4.8	5.0	7.0
90	Elfkin	4.8	4.9	4.4	5.0	6.3	8.3
91	SYN 2HCR	4.8	4.9	4.6	4.8	4.7	6.7
92	Racr 7-45	4.8	4.8	4.7	4.8	5.3	7.7
93	PST-2CRR	4.8	5.1	4.4	4.7	5.7	9.0
94	UT-1000	4.8	4.8	4.2	5.3	5.7	9.0
95	MP110	4.8	5.0	4.4	4.9	4.7	9.0
96	Pick PR 1-94	4.8	4.8	4.2	5.2	3.0	9.0
97	Admire	4.8	4.6	4.7	5.0	7.0	9.0
98	Courage	4.7	5.0	4.4	4.8	5.3	8.3
99	LP O-93	4.7	5.1	4.3	4.9	5.3	7.7
100	PR 10-99	4.7	5.2	4.6	4.5	4.7	7.7
101	Pick EX 2-2	4.7	5.2	4.3	4.8	3.7	6.3
102	Secretariat	4.7	4.4	4.9	4.9	6.7	5.3
103	MEKT	4.7	5.0	4.1	5.1	2.3	9.0
104	MEPY	4.7	5.0	4.2	4.9	3.7	9.0
105	Lp BB-93	4.7	4.8	4.5	4.8	3.7	5.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² March 2002	Color ³ Nov. 2002
		1999-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.		
106	Pick PRNGS	4.7	4.7	4.6	4.7	6.0	5.7
107	Esteem	4.7	5.1	4.4	4.6	3.7	9.0
108	PDQ	4.7	4.7	4.4	5.0	3.7	9.0
109	PST-2SBE	4.7	4.6	4.4	5.1	4.3	9.0
110	Calypso II	4.6	4.6	4.6	4.7	5.7	6.7
111	Racr 7-46	4.6	4.9	4.3	4.8	7.7	7.3
112	Racr 7-49	4.6	4.8	4.5	4.7	7.7	8.0
113	MP96	4.6	5.0	4.4	4.5	2.7	9.0
114	LTP-ME	4.6	4.5	4.3	5.1	5.3	7.7
115	SYN 22M	4.6	5.1	4.0	4.7	6.0	8.3
116	Ascend	4.6	4.7	4.1	5.0	4.3	9.0
117	Icon	4.6	4.6	4.1	5.1	4.0	9.0
118	ABT-99-4.965	4.6	4.8	4.0	5.0	4.3	9.0
119	MDP	4.6	4.8	4.3	4.6	2.3	9.0
120	ABT-99-4.625	4.6	4.6	4.2	4.9	3.7	9.0
121	MKT	4.5	5.0	4.0	4.6	2.7	9.0
122	MP114	4.5	4.7	4.3	4.6	3.0	9.0
123	2TN-98-bulk	4.5	5.0	3.8	4.8	5.3	9.0
124	PR-8-94-99	4.5	5.1	3.8	4.6	2.3	8.3
125	LP22	4.5	4.8	3.9	4.8	2.7	7.0
126	Divine	4.5	4.7	4.3	4.5	6.0	5.7
127	Catalina	4.5	4.5	4.1	4.8	4.3	8.0
128	Sol	4.5	4.7	4.0	4.8	5.0	9.0
129	APR 1233	4.5	4.3	4.5	4.6	3.3	6.0
130	Panther	4.4	4.2	4.3	4.7	7.0	7.7
131	PR O-97	4.4	4.6	4.1	4.5	5.7	7.0
132	Racr 7-54	4.4	4.5	3.9	4.8	7.0	6.3
133	Racr 7-73	4.4	4.5	4.4	4.3	5.7	4.7
134	LP86	4.4	4.9	3.8	4.5	2.3	7.7
135	Paradigm	4.4	4.2	4.2	4.8	3.7	8.7
136	Racr 7-39	4.4	4.5	4.0	4.6	6.7	6.3
137	PR J-97	4.4	4.7	4.1	4.3	6.3	8.0
138	Manhattan 3	4.4	4.2	4.1	4.7	5.3	5.7
139	Cathedral II	4.4	4.0	4.1	5.0	5.0	7.3
140	Line Drive	4.4	4.3	4.2	4.6	5.7	9.0

(Continued)

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² March 2002	Color ³ Nov. 2002
		1999-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.		
141	CAS LP84	4.3	4.5	3.8	4.7	3.7	8.3
142	MP103	4.3	4.9	3.8	4.3	3.0	9.0
143	SYN 2WN	4.3	4.6	3.8	4.6	4.3	7.0
144	MS2-1	4.3	4.5	4.2	4.1	5.3	7.0
145	SYN 2CT	4.3	4.7	3.9	4.3	6.7	7.0
146	Extreme	4.3	4.5	3.9	4.5	4.3	7.7
147	Wilmington	4.3	5.0	3.5	4.4	2.7	9.0
148	Sunshine	4.3	4.6	3.9	4.4	5.3	7.7
149	Caddieshack	4.3	4.3	4.5	4.1	6.3	4.7
150	SYN 22E	4.3	4.5	4.0	4.3	6.3	7.3
151	Pearl II	4.3	4.7	4.0	4.1	3.0	9.0
152	Galaxy	4.2	4.4	4.2	4.2	5.7	7.0
153	Phantom	4.2	4.2	3.8	4.7	3.7	8.3
154	Citation 3	4.2	4.2	4.0	4.5	6.3	9.0
155	SR 4350	4.2	4.2	4.2	4.3	3.3	5.3
156	Darkstar	4.2	4.7	3.7	4.3	3.0	7.7
157	Charger II	4.2	4.2	4.2	4.3	7.0	6.3
158	ABT-99-4.815	4.2	4.1	3.9	4.7	7.0	7.0
159	APR 776	4.2	4.3	3.9	4.4	5.7	7.3
160	Pleasure XL	4.2	4.1	4.1	4.4	3.0	7.3
161	Edge	4.2	4.1	4.4	4.0	6.7	5.3
162	MP60	4.2	4.7	3.7	4.1	3.3	9.0
163	Whistler	4.2	4.7	3.7	4.1	2.3	9.0
164	Headstart	4.2	4.1	4.0	4.3	5.3	7.0
165	Plymouth	4.2	4.5	3.7	4.3	5.0	9.0
166	MP115	4.2	4.4	3.4	4.6	1.7	9.0
167	Racr 7-69	4.1	4.0	4.1	4.3	5.3	6.0
168	Assure	4.1	4.2	4.1	4.1	6.3	5.3
169	MP106	4.1	4.5	3.5	4.4	3.0	9.0
170	Pick EX2	4.1	3.9	4.1	4.2	6.7	4.3
171	Accent	4.1	4.0	4.1	4.2	5.7	4.7
172	Koos R-71	4.1	3.9	4.3	4.0	6.0	5.3
173	LPR 98-144	4.0	3.7	4.1	4.3	6.0	7.7
174	Superstar	4.0	4.4	3.6	4.2	4.7	9.0
175	Skyhawk	4.0	4.2	3.4	4.5	1.0	8.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² March 2002	Color ³ Nov. 2002
		1999-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.		
176	Avon	4.0	4.2	4.2	3.8	3.7	5.0
177	EP59	4.0	4.0	3.7	4.4	1.3	9.0
178	PR PEI-L-99	4.0	3.9	3.9	4.3	4.7	5.0
179	APR 1232	4.0	3.8	3.9	4.3	4.0	5.3
180	APR 1235	4.0	4.2	3.4	4.4	2.7	5.3
181	Jiffie	4.0	4.1	3.9	4.0	4.3	7.3
182	Passport	4.0	4.0	3.6	4.3	6.0	5.7
183	Cutter	4.0	4.2	4.0	3.8	5.7	6.3
184	APR 1231	4.0	3.6	4.0	4.4	1.7	4.3
185	Racer	4.0	3.8	3.8	4.2	4.0	5.3
186	Prowler	4.0	3.9	3.4	4.5	3.0	5.0
187	PR 9-99	4.0	4.0	3.9	3.9	5.0	5.7
188	Blazer II	3.9	3.7	4.0	4.1	8.3	5.0
189	PR 1-99	3.9	4.0	3.9	3.8	7.3	7.7
190	BY-100	3.9	4.0	3.9	3.9	6.0	4.7
191	Affinity	3.9	3.6	4.0	4.1	7.3	4.3
192	Allsport	3.9	4.3	3.2	4.3	4.7	8.0
193	Pick EX 2-1	3.9	3.8	4.0	3.9	4.3	4.7
194	MP102	3.9	4.5	3.3	3.9	4.3	7.7
195	WVPB-R-84	3.9	3.9	4.0	3.8	4.3	5.3
196	LPR 98-143	3.8	4.1	3.7	3.7	3.7	7.7
197	Pearl	3.8	4.3	3.5	3.7	2.0	7.0
198	ABT-99-4.600	3.8	3.8	3.7	4.1	6.0	7.7
199	Prosport	3.8	4.1	3.3	4.1	4.3	6.3
200	Premier	3.8	3.9	3.7	3.8	5.3	7.7
201	Pinnacle	3.8	3.6	3.8	4.0	5.7	4.3
202	SRX 4120	3.7	3.6	3.7	3.8	7.3	5.3
203	MP41	3.7	4.1	3.1	3.9	2.7	9.0
204	3 BK	3.7	4.9	3.1	3.1	5.3	8.3
205	Morning Star	3.7	3.5	4.1	3.4	6.0	4.3
206	Peak	3.6	3.7	3.6	3.5	4.7	4.0
207	Edge	3.6	3.5	3.7	3.5	7.3	3.7
208	Yatsugreen	3.5	3.0	4.2	3.4	6.3	3.0
209	Express	3.5	3.4	3.7	3.6	6.3	4.0
210	Buccaneer	3.5	3.4	3.6	3.6	6.3	4.7

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² March 2002	Color ³ Nov. 2002
	1999-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.		
211 PR PEI-E-99	3.5	3.7	3.2	3.6	5.7	5.3
212 WVPB-R-82	3.5	3.4	3.8	3.4	5.3	5.3
213 DP LP-1	3.5	3.5	3.6	3.4	4.3	4.0
214 PR-7-99	3.5	3.7	3.5	3.3	6.7	6.3
215 DP 17-9069	3.5	3.5	3.5	3.4	4.3	4.0
216 Fiesta	3.5	3.6	3.5	3.2	9.0	3.7
217 APR 1234	3.3	3.4	3.4	3.2	4.3	2.0
218 Lp H-98 P-	3.3	3.1	3.2	3.4	8.7	3.7
219 DP 17-9391	3.2	3.1	3.5	3.0	7.7	1.7
220 PRG-97	3.2	3.3	3.2	3.0	6.7	4.0
221 Lp H-98 P+	2.8	3.0	3.0	2.4	9.0	2.3
222 Barclay	2.8	2.3	3.1	2.9	2.7	1.0
223 Manhattan	2.6	2.7	2.5	2.7	6.7	1.7
224 Pennfine	2.6	2.9	2.6	2.3	7.7	1.7
225 DP 17-9496	1.9	1.9	2.2	1.7	7.0	1.0
226 Linn	1.2	1.4	1.1	1.0	8.3	1.0
LSD at 5% =	0.5	0.6	0.8	0.7	1.7	1.8

¹9 = best turf quality²9 = earliest spring green-up³9 = darkest green color

Table 3. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 1999 at North Brunswick, NJ. (Includes all entries of the 1999 National Perennial Ryegrass Test.)

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² April 2002	Dollar Spot ³ July 2002	Density ⁴ Oct. 2002	Color ⁵ Oct. 2002	Leaf Texture ⁶ Oct. 2002
	2000-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.					
1 Pizzazz	7.0	7.2	6.9	6.7	6.7	6.7	7.0	6.7	7.7
2 Applaud	6.8	7.4	6.7	6.3	4.7	5.3	5.7	7.0	6.3
3 Arrival	6.7	7.2	6.5	6.3	5.0	6.0	4.3	7.7	6.7
4 Grand Slam	6.7	6.8	6.3	6.9	4.3	6.0	5.0	6.3	5.3
5 Mach 1	6.6	7.3	6.3	6.3	5.0	6.0	6.0	7.7	7.0
6 Blazer IV	6.5	6.9	6.7	6.0	6.0	6.7	5.0	6.3	6.3
7 Gator 3	6.5	6.8	6.5	6.2	5.0	6.3	5.7	7.0	6.3
8 Pinnacle II	6.5	7.5	5.9	6.2	5.7	4.7	5.0	6.7	5.7
9 All*Star2	6.5	6.9	6.0	6.7	5.3	5.0	6.3	7.3	6.7
10 Amazing	6.5	7.2	5.8	6.5	6.3	7.7	5.3	6.7	6.7
11 ABT-99-4.834	6.5	7.0	6.6	5.9	7.3	6.0	6.0	6.3	7.0
12 Charismatic	6.4	6.8	5.8	6.5	6.3	6.7	5.7	6.3	6.3
13 SR 4220	6.3	6.9	6.1	6.0	4.7	5.0	5.7	7.0	6.7
14 Pentium	6.3	6.1	6.2	6.6	5.7	7.7	8.0	6.0	8.0
15 Nexus	6.2	6.6	6.0	6.0	4.3	6.3	6.7	7.3	6.3
16 SR 4420	6.2	6.6	6.1	5.8	6.3	5.7	6.0	6.0	6.3
17 Citation Fore	6.1	6.4	5.9	6.1	6.3	6.0	5.0	6.7	6.3
18 Kokomo	6.1	6.4	5.8	6.1	5.0	6.7	6.3	6.0	6.7
19 Keystone	6.1	6.5	5.9	5.8	5.3	6.3	5.7	5.3	6.3
20 ABT-99-4.721	6.1	6.3	6.1	5.9	5.7	7.3	5.0	5.7	6.3

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² April 2002	Dollar Spot ³ July 2002	Density ⁴ Oct. 2002	Color ⁵ Oct. 2002	Leaf Texture ⁶ Oct. 2002
	2000-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.					
21 Gallery	6.1	6.5	5.7	6.0	5.0	6.3	5.3	7.3	6.7
22 Jet	6.1	6.4	5.9	5.9	5.7	5.7	6.0	5.7	6.0
23 Hawkeye	6.1	6.7	5.8	5.7	5.3	5.3	4.7	6.7	6.0
24 Seville II	6.0	6.3	5.9	5.8	5.7	7.0	6.0	5.3	6.0
25 Manhattan 4	6.0	6.2	5.7	6.0	5.0	6.3	5.7	6.0	5.7
26 PST-2SBE	5.9	6.1	6.2	5.6	5.3	8.0	5.7	4.7	5.3
27 Brightstar II	5.9	6.1	5.3	6.3	5.0	6.7	6.0	6.0	6.7
28 Salinas	5.9	6.0	5.6	6.1	4.0	7.7	5.3	4.3	5.7
29 Brightstar SLT	5.8	6.4	5.5	5.6	4.3	4.3	5.3	6.3	6.3
30 Pick PR B-97	5.8	5.9	5.7	5.9	3.7	6.0	5.0	7.0	7.0
31 ABT-99-4.115	5.8	6.1	5.6	5.6	5.7	3.7	6.3	5.0	5.7
32 Stellar	5.8	6.0	5.1	6.2	7.3	8.3	6.3	5.7	6.0
33 Inspire	5.8	6.2	5.5	5.6	5.7	5.0	5.0	5.7	6.0
34 Wilmington	5.7	5.7	5.6	5.9	5.3	6.0	5.3	8.7	6.0
35 LRPR-A95	5.7	5.9	5.5	5.7	5.3	5.7	4.7	6.0	6.3
36 PST-2LA	5.7	5.8	5.4	5.8	5.0	5.7	6.7	4.0	5.7
37 Promise	5.7	6.0	5.7	5.3	5.7	7.7	5.3	4.0	6.7
38 Pick PR QH-97	5.7	6.3	5.3	5.4	5.0	4.3	4.7	7.0	5.7
39 Pacesetter	5.6	5.5	5.5	6.0	5.0	6.0	7.0	4.3	7.0
40 Summerset	5.6	5.8	5.5	5.6	4.0	7.0	5.3	7.0	6.3
41 Exacta	5.6	6.0	5.5	5.4	4.3	6.0	5.7	5.7	5.7
42 SR 4500	5.6	6.1	5.3	5.4	5.3	5.7	5.7	4.0	6.0
43 Esteem	5.5	6.0	5.0	5.6	4.7	6.0	5.3	6.7	6.0
44 ABT-99-4.724	5.5	5.8	5.2	5.6	6.0	5.3	5.0	5.7	6.3
45 LTP-ME	5.5	5.9	5.3	5.4	4.3	3.7	5.7	5.7	6.0

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² April 2002	Dollar Spot ³ July 2002	Density ⁴ Oct. 2002	Color ⁵ Oct. 2002	Leaf Texture ⁶ Oct. 2002
	2000-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.					
46 Elfkin	5.5	5.3	5.5	5.7	5.0	7.0	4.0	6.3	
47 A5C	5.5	5.5	5.0	5.9	6.3	6.0	7.3	6.0	
48 UT-1000	5.4	5.1	5.4	5.8	5.3	5.3	5.3	5.7	
49 ABT-99-4.625	5.4	5.2	5.7	5.4	4.7	7.3	7.0	5.7	
50 Radiant	5.4	5.8	5.4	5.1	4.3	4.7	7.7	6.0	
51 Courage	5.4	5.1	5.1	6.0	6.3	6.7	4.7	6.0	
52 Churchill	5.4	6.0	5.0	5.2	4.3	4.7	5.7	6.0	
53 Pick PR 1-94	5.4	5.5	5.3	5.3	3.7	4.3	5.7	6.7	
54 Splendid	5.4	5.6	4.6	5.9	3.7	5.3	5.0	6.0	
55 Barlennium	5.3	5.7	5.0	5.4	4.0	5.3	4.3	6.3	
56 Pennant II	5.3	5.8	5.2	5.0	5.0	4.3	6.3	5.7	
57 Cabo	5.3	5.9	4.7	5.3	4.0	6.0	6.3	5.3	
58 CIS-PR-75	5.3	6.0	4.8	5.1	3.7	5.7	6.0	5.7	
59 Premier II	5.3	5.5	5.2	5.3	7.3	7.0	4.0	5.7	
60 PST-2RT	5.3	5.1	5.4	5.4	7.0	5.7	4.0	6.7	
61 ABT-99-4.464	5.3	5.8	5.1	5.0	4.3	5.3	4.3	5.0	
62 Paragon	5.3	5.7	5.4	4.7	5.3	6.0	5.3	4.3	
63 PST-2M4	5.3	5.3	5.6	5.0	7.0	6.7	4.0	5.7	
64 Fiesta 3	5.2	5.6	5.3	4.9	4.7	4.3	5.0	5.7	
65 PST 2JH	5.2	5.1	5.2	5.3	5.7	7.7	4.7	5.0	
66 MP107	5.2	5.5	4.6	5.4	3.7	5.3	6.0	5.3	
67 ABT-99-4.965	5.1	5.5	4.5	5.3	5.3	6.3	7.7	6.0	
68 MB 414	5.1	5.3	4.6	5.5	4.3	4.0	7.7	6.0	
69 Paradigm	5.1	5.3	5.0	5.0	4.7	7.3	4.7	5.7	
70 Palmer III	5.1	5.3	4.9	5.1	7.3	5.0	4.7	6.0	

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² April 2002	Dollar Spot ³ July 2002	Density ⁴ Oct. 2002	Color ⁵ Oct. 2002	Leaf Texture ⁶ Oct. 2002
	2000-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.					
71 Superstar	5.1	5.4	4.6	5.1	5.0	4.3	4.7	6.0	6.7
72 Skyhawk	5.1	5.3	4.9	5.0	1.7	4.0	5.0	6.0	7.0
73 Monterey II	5.0	5.3	4.9	4.9	5.7	4.7	4.7	4.0	5.0
74 Racer II	5.0	5.4	4.8	4.8	5.3	5.0	5.7	3.7	6.0
75 Ascend	5.0	5.0	4.8	5.1	4.7	5.7	5.3	5.3	6.7
76 Pleasure XL	5.0	5.0	5.0	5.0	3.7	5.7	5.3	5.0	6.3
77 PST-2CRR	4.9	5.2	4.8	4.8	4.0	6.0	3.7	5.0	5.0
78 Majesty	4.9	4.7	5.1	5.0	4.3	4.7	5.3	5.0	5.7
79 EPD	4.9	5.2	4.5	5.0	4.0	5.3	5.3	5.3	5.7
80 Pick PRNGS	4.9	5.2	4.9	4.6	5.0	5.3	5.7	4.0	5.7
81 Catalina	4.9	4.9	5.0	4.8	6.7	5.0	4.7	4.3	5.7
82 Prosport	4.8	5.1	4.5	4.9	5.0	5.3	4.3	5.0	6.7
83 Catalina II	4.8	4.9	4.8	4.8	4.0	6.3	3.3	5.0	5.0
84 MP103	4.8	5.3	4.6	4.6	2.7	3.0	4.0	5.0	5.7
85 ABT-99-4.339	4.8	4.8	4.4	5.3	5.7	5.0	5.3	4.0	5.3
86 MEPY	4.8	5.2	4.2	5.0	4.3	3.7	4.3	7.3	5.3
87 ABT-99-4.815	4.8	4.7	5.0	4.7	5.3	4.7	5.0	4.3	5.0
88 Affirmed	4.8	4.9	4.6	4.9	4.3	3.3	4.7	4.7	6.0
89 MDP	4.8	4.9	4.6	5.0	3.0	5.0	4.0	8.3	5.0
90 Calypso II	4.8	4.9	4.6	4.8	6.3	6.0	5.7	4.0	6.3
91 Extreme	4.7	4.9	4.5	4.8	4.3	4.3	4.0	4.7	5.0
92 Phantom	4.7	5.0	4.7	4.4	5.0	4.0	4.3	6.3	5.7
93 Line Drive	4.7	4.4	4.4	5.3	4.7	5.0	6.3	4.0	5.0
94 Panther	4.7	4.9	4.6	4.5	6.7	4.7	5.3	3.7	5.3
95 APR 1231	4.7	4.9	4.4	4.7	2.0	6.0	5.7	3.3	6.0

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² April 2002	Dollar Spot ³ July 2002	Density ⁴ Oct. 2002	Color ⁵ Oct. 2002	Leaf Texture ⁶ Oct. 2002
	2000-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.					
96 APR 1233	4.6	4.7	4.8	4.5	4.3	7.3	6.3	3.3	6.0
97 Admire	4.6	4.6	4.4	4.8	4.3	5.3	5.3	4.0	6.0
98 Allsport	4.6	4.9	4.6	4.3	5.7	4.7	4.3	5.0	6.0
99 Manhattan 3	4.6	4.5	4.7	4.6	5.0	6.7	5.0	4.0	5.0
100 Divine	4.6	4.7	4.4	4.7	5.7	5.7	4.7	4.0	5.7
101 Galaxy	4.5	4.7	4.6	4.3	5.3	3.7	4.7	5.3	5.3
102 APR 776	4.5	4.4	4.3	4.9	5.3	6.7	6.3	4.3	6.3
103 Secretariat	4.5	4.8	4.5	4.2	5.0	5.0	4.7	3.7	5.0
104 Passport	4.4	4.4	4.1	4.8	6.3	4.7	5.3	3.7	5.7
105 APR 1237	4.4	4.6	4.2	4.4	1.3	5.3	5.3	3.7	5.7
106 ABT-99-4.600	4.4	4.4	4.3	4.4	7.7	3.3	5.0	4.3	5.0
107 Sol	4.4	4.1	4.3	4.6	4.0	5.0	4.7	4.3	6.3
108 Charger II	4.3	4.6	4.3	4.1	6.7	5.7	4.3	3.3	4.7
109 Prowler	4.3	3.9	4.0	5.1	5.0	8.0	6.7	3.7	5.3
110 Racer	4.3	4.1	4.3	4.5	3.7	5.3	5.7	3.3	5.7
111 CAS-LP84	4.3	4.5	3.9	4.5	3.0	5.0	3.7	5.7	5.0
112 LPR 98-144	4.3	4.5	4.0	4.2	6.3	6.0	3.7	3.3	5.0
113 APR 1235	4.3	3.9	4.4	4.5	4.7	8.0	5.7	3.7	5.0
114 Cathedral II	4.2	4.2	4.3	4.3	3.7	4.0	4.7	3.3	5.7
115 Koos R-71	4.2	4.4	4.3	3.9	6.3	4.7	4.0	2.3	4.7
116 SRX 4120	4.2	3.9	4.2	4.4	7.0	3.7	6.0	3.3	4.7
117 APR 1232	4.1	4.1	4.1	4.2	3.7	5.7	6.0	2.7	4.7
118 Affinity	3.9	4.2	3.9	3.7	6.7	4.0	5.0	3.3	5.0
119 Headstart	3.9	4.2	3.4	4.2	5.3	5.0	3.7	3.7	5.3
120 WVPB-R-84	3.8	4.1	3.4	3.8	6.3	4.7	4.0	3.0	4.7

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Spring Green-up ² April 2002	Dollar Spot ³ July 2002	Density ⁴ Oct. 2002	Color ⁵ Oct. 2002	Leaf Texture ⁶ Oct. 2002
	2000-2002 Avg.	2000 Avg.	2001 Avg.	2002 Avg.					
121 LPR 98-143	3.8	4.1	3.7	3.5	7.3	5.0	3.3	3.0	4.7
122 Pick EX2	3.7	3.9	3.6	3.5	5.7	6.0	4.7	2.7	4.0
123 DP 17-9391	3.6	3.9	3.6	3.4	8.3	4.7	5.0	2.3	4.3
124 BY-100	3.6	3.6	3.6	3.6	7.0	5.0	4.7	2.7	4.0
125 Premier	3.6	3.6	3.2	3.9	6.3	5.3	4.0	2.7	4.3
126 DP LP-1	3.5	3.6	3.3	3.7	5.0	6.7	4.0	2.3	5.7
127 Edge	3.4	3.5	3.3	3.4	7.7	6.0	4.3	1.7	5.0
128 Buccaneer	3.4	3.6	3.0	3.5	7.3	5.0	5.7	2.3	4.0
129 APR 1234	3.3	3.3	3.5	3.2	6.0	5.3	4.0	1.3	3.0
130 WVPB-R-82	3.3	3.4	3.1	3.5	6.7	5.0	4.3	2.3	4.7
131 DP 17-9069	3.3	3.4	3.3	3.1	4.0	5.3	4.0	2.7	5.0
132 Yatsugreen	3.1	3.2	2.9	3.1	7.7	6.7	5.3	2.3	3.7
133 Manhattan	2.6	2.7	2.3	2.8	8.0	5.3	3.3	1.0	2.3
134 DP 17-9496	2.1	1.7	2.1	2.4	7.7	7.0	3.0	1.0	2.3
135 Linn	1.2	1.3	1.1	1.1	7.0	7.0	1.0	1.0	1.0
LSD at 5% =									
	0.7	0.8	0.9	0.9	1.7	2.1	1.7	1.3	1.2

¹9 = best turf quality
²9 = earliest spring green-up
³9 = least disease
⁴9 = highest density
⁵9 = darkest green color
⁶9 = finest leaf texture

Table 4. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2000 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2001-2002 Avg.	2001 Avg.	2002 Avg.
1	RNS comp	6.6	6.3	6.9
2	Mach 1	6.1	5.8	6.3
3	Top Hat 2	6.1	6.3	5.8
4	DMS comp	6.0	5.6	6.4
5	SRX 4510	5.8	5.8	5.9
6	DCM comp	5.8	5.7	5.9
7	EMR comp	5.8	5.7	5.9
8	SR 4420	5.8	5.9	5.6
9	Jet	5.5	5.3	5.8
10	OO-C Lp	5.3	5.1	5.5
11	SR 4220	5.1	5.1	5.1
12	PR-122	5.1	5.1	5.0
13	Ecologic	4.9	5.0	4.8
14	SR 4500	4.9	4.6	5.2
15	Lp P-93	4.8	5.1	4.4
16	Fiesta III	4.7	4.5	4.9
17	High Life LF	4.7	4.7	4.7
18	Barefoot	4.5	4.6	4.5
19	Lowgrow II	4.5	4.4	4.5
20	PR-125	4.4	4.6	4.2
21	Calypso II	4.4	4.3	4.4
22	PR-121	4.4	4.3	4.4
23	Covet	4.3	4.1	4.5
24	Arrival	4.2	3.9	4.4
25	SRX 4SPBPEW	4.1	4.3	4.0
26	SRX 4CCG	4.1	4.3	3.9
27	Hawkeye	4.0	3.4	4.5
28	SRX 4AT PREW	4.0	4.2	3.8
29	Exacta	4.0	3.5	4.4
30	Dancer	3.9	4.1	3.8
31	OO-A Lp	3.9	4.3	3.5
32	SRX 4DMSO	3.9	3.9	3.8
33	SRX 4330	3.8	4.0	3.7
34	Racer	3.8	3.8	3.8
35	SR 4400	3.8	3.9	3.7

(Continued)

Table 4 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2001-2002 Avg.	2001 Avg.	2002 Avg.
36	Pick PR 1-94	3.8	3.6	4.0
37	Churchill	3.8	3.6	4.0
38	SRX 4010	3.8	3.9	3.7
39	SRX 4DFDWEW	3.8	3.7	3.9
40	PRC-97	3.8	3.9	3.6
41	Greenland	3.8	3.9	3.7
42	SRX 4120	3.7	3.7	3.7
43	Affirmed	3.7	3.8	3.5
44	Vibrant	3.6	3.8	3.4
45	SR 4100	3.6	3.7	3.5
46	SRX 4MO971	3.6	3.8	3.4
47	Platinum	3.6	3.5	3.7
48	Jiffie	3.6	3.5	3.7
49	BPF1 Bulk-00	3.6	4.0	3.2
50	SRX 4BPEW	3.6	3.5	3.7
51	Bayou	3.6	3.8	3.3
52	SR 4200	3.5	3.4	3.7
53	PRJ-97-00	3.5	3.6	3.4
54	Edge	3.5	3.5	3.5
55	Headstart	3.5	3.5	3.5
56	SRX 4MO972	3.4	3.4	3.4
57	Fiesta II	3.3	3.5	3.2
58	Easy Livin	3.3	3.5	3.1
59	Omni	3.3	3.1	3.4
60	Penguin	3.2	2.9	3.6
61	SRX 4DGBPEW	3.1	2.7	3.4
62	SRX CALM	3.0	2.9	3.2
63	PR1 99 C2-00	3.0	2.8	3.2
64	P-2	2.9	3.0	2.8
65	Nui	1.2	1.3	1.0
	LSD at 5% =	0.5	0.5	0.7

¹9 = best turf quality

Table 5. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2000 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2001-2002 Avg.	2001 Avg.	2002 Avg.
1	Syn 2INO	5.6	5.4	5.7
2	Citation Fore	5.5	5.6	5.5
3	2TRS	4.9	4.9	4.9
4	Grand Slam	4.9	4.9	4.9
5	Brightstar II	4.8	4.9	4.7
6	2VX bulk	4.8	4.7	4.8
7	Manhattan 4	4.7	4.4	5.1
8	Syn 2COR	4.7	4.7	4.7
9	2UF	4.6	4.7	4.6
10	Syn 2RH	4.6	4.6	4.7
11	2CTL bulk	4.6	4.5	4.7
12	2FO bulk	4.5	4.4	4.5
13	Brightstar SLT	4.4	4.2	4.7
14	2GO	4.4	4.3	4.5
15	Syn 2VLO	4.3	4.8	3.8
16	2CNR	4.3	4.2	4.4
17	2CO bulk	4.2	4.3	4.0
18	Charger II	4.1	4.0	4.2
19	2M4	4.0	3.8	4.3
20	Catalina	4.0	3.9	4.2
21	Syn 2NCO	3.9	3.7	4.1
22	2VL-00	3.8	3.9	3.8
23	22N bulk	3.8	3.8	3.8
24	2WO bulk	3.8	3.6	4.0
25	Manhattan 3	3.7	3.4	4.1
26	Citation III	3.6	3.2	3.9
27	Syn 2GL	3.6	3.6	3.5
	LSD at 5% =	0.5	0.5	0.5

¹9 = best turf quality

Table 6. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2001 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality ¹ 2002 Avg.	Establishment ² Sept. 2001	Gray Leaf Spot ³ 2001 Avg.	Gray Leaf Spot ³ Sept. 2002
1	1GH comp	6.9	7.7	7.2	8.7
2	1G2 comp	6.9	7.7	7.5	8.3
3	1G3 comp	6.7	7.7	7.2	8.0
4	APR 1425	6.4	6.3	7.0	7.3
5	Top Hat 2	6.3	6.3	6.7	6.3
6	PR-187	6.1	6.7	5.7	6.7
7	All*Star2	6.0	7.7	4.8	7.7
8	O1-2	5.9	5.3	6.0	5.0
9	Applaud	5.7	7.3	4.2	7.3
10	APR 1461	5.6	7.3	5.0	7.0
11	Gator 3	5.5	7.3	3.8	7.3
12	O1.O615	5.4	6.0	5.5	7.3
13	Integra	5.4	7.7	6.0	6.7
14	PR-155	5.2	5.3	5.3	6.3
15	O1-11	5.1	6.0	5.5	7.3
16	Amazing	5.0	7.7	4.2	6.3
17	PR-186	5.0	5.3	5.8	6.3
18	O1-3	5.0	5.3	5.0	5.7
19	Pizzazz	5.0	7.3	3.5	7.7
20	Pinnacle II	4.9	7.0	5.0	6.7
21	Blazer IV	4.9	6.0	3.8	6.7
22	8451 comp	4.9	7.7	4.7	6.7
23	O1-1	4.8	6.3	4.8	6.3
24	APR 1421	4.7	7.0	5.0	6.7
25	GGH comp	4.7	7.7	3.2	6.7
26	O1-9PR	4.6	5.7	5.7	4.7
27	PR-156	4.5	6.7	4.3	5.7
28	Pick PR B-97	4.4	5.7	4.8	6.3
29	APR 1472	4.3	7.3	4.5	6.7
30	Pace	4.2	7.0	4.3	5.3
31	O1-7	4.2	5.3	4.5	5.0
32	A00	4.1	6.7	3.2	6.0
33	Palmer III	4.1	7.0	3.2	7.0
34	O1-8	4.0	5.3	3.8	4.7
35	Brightstar II	4.0	6.3	4.3	4.3

(Continued)

Table 6 (continued).

	Cultivar or Selection	Turf Quality ¹ 2002 Avg.	Establishment ² Sept. 2001	Gray Leaf Spot ³ 2001 Avg.	Gray Leaf Spot ³ Sept. 2002
36	Barlennium	4.0	7.7	3.7	4.7
37	Paragon	3.9	7.3	2.7	4.7
38	APR 1424	3.9	7.0	4.2	4.7
39	Extreme	3.8	7.3	3.8	3.7
40	ASAP	3.8	7.0	2.8	4.3
41	Galaxy	3.8	7.0	2.3	4.0
42	Monterey	3.7	7.0	2.2	4.3
43	Premier II	3.7	7.3	2.5	6.0
44	Lowgrow II	3.6	6.7	4.0	1.3
45	Fiesta 3	3.6	7.0	3.3	4.3
46	Sonata	3.6	6.3	4.8	3.3
47	Pirouette	3.6	7.3	2.5	4.3
48	APR 1426	3.6	6.7	3.8	4.3
49	00-A Lp	3.5	5.3	5.0	5.7
50	PRC-97	3.5	6.0	5.0	2.3
51	APR 1423	3.5	7.3	3.2	3.3
52	Racer	3.4	6.7	4.5	3.7
53	PR A-97	3.4	6.0	4.2	3.7
54	Pleasure XL	3.4	6.7	4.2	5.3
55	Goal Keeper	3.4	7.7	2.8	5.3
56	Caddieshack	3.4	7.3	3.2	3.7
57	Admire	3.4	7.7	1.5	4.7
58	Sunshine	3.3	6.7	3.3	4.0
59	Top Gun	3.3	7.7	2.7	5.0
60	Promise	3.3	7.0	3.2	1.7
61	APM	3.2	7.3	3.0	2.3
62	APR 1420	3.1	7.0	2.5	4.3
63	Churchill	3.1	7.0	3.0	3.0
64	Accent	3.1	7.7	3.0	4.7
65	Calypso II	3.1	7.3	3.7	2.7
66	Windstar	3.0	6.7	2.5	4.7
67	Advent	2.9	7.3	2.8	3.3
68	Edge	2.9	7.3	3.5	3.0
69	Cutter	2.9	6.7	4.2	3.7
70	Shining Star	2.8	6.7	3.3	2.3

(Continued)

Table 6 (continued).

Cultivar or Selection		Turf Quality ¹ 2002 Avg.	Establishment ² Sept. 2001	Gray Leaf Spot ³ 2001 Avg.	Gray Leaf Spot ³ Sept. 2002
71	Monterey	2.8	7.3	1.8	3.0
72	Headstart	2.8	6.7	2.8	3.0
73	Morning Star	2.6	6.7	2.8	4.3
74	Manhattan	2.2	6.3	3.7	2.3
LSD at 5% =		0.7	1.1	1.4	1.5

¹9 = best turf quality

¹9 = best seedling establishment

¹9 = least disease

Table 7. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2001 at Adelphia, NJ.

		Turf Quality ¹			Turf Quality ¹
	Cultivar or Selection	2002 Avg.		Cultivar or Selection	2002 Avg.
1	Citation Fore	6.7	36	DLF-17 9500	5.6
2	SR 4420	6.6	37	Salinas	5.5
3	EP159	6.5	38	GLSR	5.5
4	ML99	6.4	39	PST-2R91	5.5
5	DLF-17 9499	6.4	40	PST-2TRS	5.4
6	DLF-17 9502	6.4	41	Brightstar II	5.4
7	DLFJ-121	6.4	42	DLF-17 9508	5.4
8	SR 4220	6.3	43	PST-2AGL	5.3
9	2INO-2001	6.3	44	Manhattan 3	5.3
10	DLF-17 9505	6.3	45	MP149	5.3
11	2S1	6.2	46	EP151	5.3
12	Manhattan 4	6.1	47	PST-2FNE	5.2
13	Charismatic	6.1	48	PST-2QH	5.2
14	PST-2JS	6.0	49	PST-2SH	5.1
15	DLF-17 9506	6.0	50	2RT	5.1
16	Brightstar SLT	6.0	51	PST-2R99	5.1
17	DLF-17 9498	6.0	52	DLFJ-125	5.1
18	DLF-17 9507	6.0	53	SR 4500	5.1
19	SR 4510	5.9	54	EP152	5.0
20	2PC-2001	5.9	55	DLFJ-102	5.0
21	PST-2INR	5.9	56	DLFJ-104	5.0
22	PST-2MG	5.9	57	Player	5.0
23	EP158	5.9	58	DLFJ-127	5.0
24	PST-2PCR	5.9	59	MP150	4.8
25	DLF-17 9503	5.9	60	DLFJ-105	4.8
26	Hawkeye	5.8	61	PST-2GL1	4.8
27	DLF-17 9504	5.8	62	DLFJ-103	4.8
28	PST-2GI	5.7	63	SRX 4PFL78	4.7
29	PST-2FM	5.7	64	SRX 45ABM	4.6
30	Grand Slam	5.7	65	Quick Trans	4.6
31	DLFJ-122	5.7	66	PST-25GL	4.6
32	DLF-17 9501	5.7	67	DLFJ-126	4.5
33	MP153	5.7	68	SRX 4M0972	4.5
34	EP145	5.6	69	SRX 4RTABM	4.5
35	MP148	5.6	70	PST-2GLL	4.5

(Continued)

Table 7 (continued).

Turf Quality ¹			Turf Quality ¹		
Cultivar or Selection	2002 Avg.		Cultivar or Selection	2002 Avg.	
71	Penguin	4.5	111	A 10722	1.3
72	PST-2911	4.5	112	A 10730	1.3
73	SRX 4PFL71	4.5	113	A 10729	1.3
74	SRX 4PFL72	4.5	114	A 11409	1.3
75	SRX 4120	4.5	115	A 11422	1.3
76	SRX 4PFE69	4.5	116	A 11413	1.3
77	SRX 4PRM0971	4.4	117	A 9630	1.2
78	SRX 4ABRTM	4.3	118	A 11418	1.2
79	EP154	4.3	119	A 8700	1.2
80	SRX 4PFL82	4.3	120	A 11420	1.2
81	SRX 4SPRI	4.3	121	A 10728	1.2
82	SRX 4ATPREW	4.3	122	A 10721	1.2
83	SRX 4PFL74	4.2	123	A 9629	1.2
84	SRX 4CCG	4.2	124	A 10725	1.2
85	Omni	4.2	125	A 10723	1.2
86	PST-2RGL	4.1	126	A 5322	1.2
87	DLFJ-124	4.1	127	A 10737	1.2
88	SR 4200	4.1	128	A 10748	1.2
89	SR 4330	4.1	129	A 12038	1.2
90	SRX 4PFL63	4.1	130	A 6781	1.2
91	SR 4010	4.0	131	A 8991	1.2
92	SRX 4PFE75	4.0	132	A 8830	1.2
93	SR 4400	3.8	133	A 10726	1.1
94	SR 4100	3.8	134	A 9628	1.1
95	PST-2GP-bulk	3.7	135	A 11421	1.1
96	Envy	3.7	136	A 10736	1.1
97	SRX 4PFL62	3.5	137	A 8987	1.1
98	DLFJ-119	3.2	138	A 11228	1.1
99	DLFJ-123	3.1	139	A 9627	1.1
100	A 11410	1.6	140	A 10726	1.1
101	A 12037	1.5	141	A 8988	1.1
102	A 11427	1.4	142	A 10727	1.1
103	A 11411	1.4	143	A 11429	1.1
104	A 11415	1.4	144	A 8989	1.0
105	A 10397	1.4			
106	Linn	1.3		LSD at 5% =	0.7
107	A 11425	1.3			
108	A 11419	1.3			
109	A 11423	1.3			
110	A 11424	1.3			

¹9 = best turf quality

Table 8. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2002 at Adelphia, NJ.

	Cultivar or Selection	Gray Leaf Spot ¹ 2002	Turf Quality ² 2002 Avg.	Establishment ³ 2002
1	MM1 comp	8.0	6.3	6.0
2	MS1 comp	8.0	7.0	7.0
3	MS2 comp	8.0	6.9	6.7
4	12001	8.0	6.7	6.0
5	PG2 comp	7.7	6.7	7.3
6	PG4 comp	7.7	7.0	7.3
7	RG2 comp	7.7	7.0	8.3
8	MS3 comp	7.7	6.8	6.3
9	PG5 comp	7.3	6.9	6.3
10	Integra C1	7.0	5.2	5.3
11	APR 1557	7.0	4.3	5.3
12	APR 1563	7.0	5.3	5.7
13	IG2	7.0	5.9	6.0
14	PR-208	7.0	6.5	6.3
15	PG3 comp	7.0	5.9	6.0
16	Amazing C1	6.7	5.0	5.7
17	Applaud C1	6.7	5.2	5.7
18	Pizzazz C1	6.7	5.4	5.7
19	APR 1531	6.7	4.0	5.7
20	APR 1559	6.7	4.4	6.3
21	PR-209	6.7	5.3	6.3
22	RG1 comp	6.7	5.8	6.7
23	IG3	6.7	5.9	7.0
24	APR 1561	6.3	4.5	7.3
25	APR 1532	6.3	4.6	6.7
26	Jet C1	6.3	4.7	6.0
27	PG1 comp	6.3	5.2	6.7
28	RG3 comp	6.3	5.1	6.3
29	A00 C1	6.0	4.3	5.0
30	APR 1461	6.0	3.0	6.0
31	APR 1562	6.0	3.9	7.3
32	PR-84	6.0	2.1	5.0
33	Integra	5.7	3.3	4.3
34	APR 1560	5.7	4.1	5.7
35	APR 1425	5.7	2.1	5.0

(Continued)

Table 8 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2002	Turf Quality ² 2002 Avg.	Establishment ³ 2002
36	APR 1535	5.7	4.0	5.7
37	APR 1536	5.7	3.2	5.7
38	APR 1566	5.7	4.5	6.0
39	SRX 4510	5.7	3.9	7.3
40	Promise C1	5.3	2.8	5.0
41	APR 1534	5.3	2.3	5.7
42	APR 1551	5.3	3.9	6.0
43	APR 1520	5.3	2.1	5.7
44	APR 1528	5.3	2.2	5.0
45	SRX 4125	5.3	2.3	6.3
46	Top Hat 2	5.3	3.2	5.0
47	PR-141	5.3	4.3	8.0
48	LF 122	5.3	1.6	4.3
49	Amazing	5.0	3.5	7.7
50	SRX 4R56	5.0	3.5	8.0
51	PR-143	5.0	4.7	7.3
52	Jet	5.0	4.0	8.3
53	01-ORE-PRG	5.0	2.5	6.3
54	A00	4.7	2.2	5.7
55	Applaud	4.7	4.2	7.3
56	APR 1522	4.7	2.9	6.3
57	Gator 3	4.7	4.4	8.0
58	PR-189	4.7	2.8	5.3
59	Pizzazz	4.3	3.2	7.3
60	Promise	4.3	1.9	5.7
61	APR 1533	4.3	3.9	6.3
62	SRX 4R63	4.3	2.1	8.3
63	MRF 41	4.3	3.1	8.3
64	Prowler	4.3	2.4	7.3
65	SR 4220	4.0	3.2	7.7
66	SR 4500	4.0	2.8	8.0
67	SRX 4R52	4.0	2.4	7.7
68	SRX 4R57	4.0	2.7	8.3
69	PR-142	4.0	4.5	7.7
70	MRF 44	4.0	2.9	8.3
71	Blackhawk	4.0	2.8	8.3
72	Omega 3	4.0	3.0	8.7
73	APR 1519	3.7	1.7	5.7
74	SRX 4CCG	3.7	2.9	7.0
75	SRX 4R62	3.7	2.4	8.0

(Continued)

Table 8 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2002	Turf Quality ² 2002 Avg.	Establishment ³ 2002
76	All*Star2	3.7	4.0	8.0
77	Pleasure XL	3.7	3.2	6.7
78	MRF 43	3.7	1.9	7.3
79	Windance	3.7	2.8	8.0
80	Affinity	3.7	2.9	7.3
81	APR 1523	3.3	1.9	5.7
82	SRX 4R55	3.3	2.5	7.0
83	MRF 42	3.3	2.5	7.7
84	Manhattan	3.3	1.6	5.7
85	SR 4420	3.0	3.8	7.7
86	SRX 4R54	3.0	2.2	8.3
87	SRX 4R64	3.0	1.9	7.7
88	Nui	3.0	1.1	6.3
89	Sonata	3.0	2.7	7.0
90	Manhattan 3	3.0	2.2	8.0
91	APR 1521	2.7	1.4	5.3
92	Palmer III	2.7	3.2	8.0
93	Exacta	2.7	1.9	8.0
94	Morningstar	2.7	2.3	8.3
95	Shining Star	2.7	2.4	7.7
96	Hawkeye	2.3	1.8	8.3
97	MRF 45	2.3	2.2	8.3
98	Laredo	2.3	2.1	8.0
99	Paragon	2.3	2.0	8.0
100	MSP 3393	2.3	2.2	8.7
101	Windstar	2.0	2.0	8.7
102	Continental	2.0	2.2	7.7
103	SR 4200	1.7	2.0	8.7
104	Navajo	1.7	1.7	7.7
105	Charismatic	1.3	1.5	7.3
106	MSP 3478	1.3	1.1	7.7
	LSD at 5% =	1.4	1.0	1.4

¹9 = least disease²9 = best turf quality³9 = best seedling establishment

Table 9. Yearly nitrogen (N) applied and mowing height (Ht) on perennial ryegrass tests established at Adelphia and North Brunswick, NJ.

	1999		2000		2001		2002	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht
Table 1 (1998 Adelphia)	2.8	1.5	2.4	1.5	1.9	1.5	1.8	1.5
Table 2 (1999 Adelphia)			2.9	1.5	4.1	1.5	2.5	1.5
Table 3 (1999 North Brunswick)			4.5	1.5	3.3	1.5	2.5	1.5
Tables 4 and 5 (2000 Adelphia)					4.4	1.5	2.8	1.5
Table 6 (2001 Adelphia)							3.5	1.5
Table 7 (2001 Adelphia)							1.0	1.5
Table 8 (2002 Adelphia)							2.5	1.5

¹ Annual N applied (lb/1000 ft²)

² Mowing height in inches