

2003 RUTGERS Turfgrass Proceedings



THE NEW JERSEY TURFGRASS ASSOCIATION

In Cooperation With

RUTGERS COOPERATIVE RESEARCH & EXTENSION
NEW JERSEY AGRICULTURAL EXPERIMENT STATION
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY
NEW BRUNSWICK

Distributed in cooperation with U.S. Department of Agriculture in furtherance of the Acts of Congress on May 8 and June 30, 1914. Rutgers Cooperative Research & Extension works in agriculture, family and community health sciences, and 4-H youth development. Dr. Karyn Malinowski, Director of Extension. Rutgers Cooperative Research & Extension provides education and educational services to all people without regard to race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs). Rutgers Cooperative Research & Extension is an Equal Opportunity Program Provider and Employer.

2003 RUTGERS TURFGRASS PROCEEDINGS

of the

New Jersey Turfgrass Expo December 9-11, 2003 Trump Taj Mahal Atlantic City, New Jersey

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 2003 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.

Special thanks are given to those who have submitted papers for this proceedings, to the New Jersey Turfgrass Association for financial assistance, and to those individuals who have provided support to the Rutgers Turfgrass Research Program at Cook College, Rutgers, The State University of New Jersey.

Dr. Ann Brooks Gould, Editor
Dr. Bruce B. Clarke, Coordinator

PERFORMANCE OF PERENNIAL RYEGRASS CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS

Melissa M. Wilson, William A. Meyer, C. Reed Funk, William K. Dickson, Stacy A. Bonos,
Eric Watkins, Ronald F. Bara, and Dirk A. Smith¹

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 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 tissues 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 being made in an effort to acquire new sources of germplasm containing the endophyte.

PROCEDURES

Seven perennial ryegrass trials were established between 1999 and 2003. Six of the tests were seeded at the Rutgers Plant Science Research and Extension Farm at Adelphia, NJ (Tables 1, 3 to 7) and one test was seeded at the Rutgers Horticultural Research Farm II in North Brunswick, NJ (Table 2). The six 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 complete block design with three replications, and plots had 6-inch unseeded borders to limit contamination.

All tests located at Adelphia (Tables 1, 3 to 7) 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, 2001, and 2002 Adelphia tests (Tables 1, 3 to 6) were also treated with a July application of Merit for grub control. An August application of Dimension for crabgrass control was applied to the 2000 (Table 3), 2001 (Table 4), and the 2002 (Table 6) tests. Manage was applied to 2001 (Table 4) and 2003 (Table 7) tests in August to control yellow nutsedge. The 2002 and 2003 tests also received fall applications of Prograss for *Poa annua* control. In the spring of 2003, Dimension was used on the 1999 North Brunswick test (Table 2) for preemergence control of summer annual weeds. In addition, Daconil Ultrex was applied in May and Banner Maxx in June and July to control dollar spot. Also in July, Heritage (for brown patch control) and Merit (for grub control) were applied. In August, Acclaim Extra was applied for postemergence crabgrass control, and Dimension was applied for preemergence *Poa annua* control.

The annual rate of nitrogen (N) and mowing height for each test is presented in Table 8. Single applications of fertilizer did not exceed 1.0 lb N/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

¹Head Greenhouse and Field Technician, Professor, Professor, Turfgrass Research Farm Supervisor, Assistant Professor, Graduate Assistant, Principal Laboratory Technician, and Principal Laboratory Technician, respectively, New Jersey Agricultural Experiment Station, Cook College, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901-8520.

rate of vertical growth, leaf texture, and damage from insects and diseases). Other factors such as establishment (Tables 6 and 7), spring green-up (Table 2), color (Tables 1 and 2), density (Tables 1 and 2), leaf texture (Table 2), and disease damage (Tables 2, 6, and 7) 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 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 7. Entries in Tables 1 to 6 are ranked according to their overall 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 1 and 2 include entries of the 1999 National Perennial Ryegrass test sponsored by the National Turfgrass Evaluation Program (NTEP). The entries in Table 7 are ranked by gray leaf spot average due to the fact that the test was designed to encourage the disease and evaluate plots for resistance.

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, Mach 1, Palmer IV, 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 7 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 (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 brown patch data in Table 6 indicates that many experimental lines and new varieties such as Applaud and All*Star2 have better disease resistance than the older variety Manhattan.

The development of improved resistance to gray leaf spot steadily continues in the Rutgers turfgrass breeding program. Gray leaf spot can be a devastating disease on newly established turf stands of perennial ryegrass. Results in Tables 2, 6, and 7 are very significant because of the detrimental impact gray leaf spot may have on turf-type perennial ryegrass.

In August 2002, a perennial ryegrass test was established at Adelphia, NJ (Table 6) and maintained to encourage a gray leaf spot epidemic. Newer experimentals such as MM1, MS1, and MS2 as well as the variety Paragon GLR had excellent resistance to the disease. In August 2003, another perennial ryegrass test was established and maintained to encourage gray leaf spot (Table 7). The data in Table 7 represent two ratings taken about a week apart. The performance of some cultivars dropped in the second rating while other experimentals such as DP1, DP2, and AF remained consistent or improved. The data in Table 2 represent gray leaf spot data taken on an established, older turf stand. The data presented in this table indicates that while the disease does not devastate the older turf as much as a new seeding, much more work needs to be researched in understanding this disease and its impact on certain cultivars.

Other Turf Characteristics

The color ratings in Tables 1 and 2 indicate that newer cultivars and selections such as Amazing, Applaud, Mach 1, and Pizzazz possess a much darker green color than older cultivars such as Linn, Manhattan, or Pennfine. However, spring green-up ratings in April 2003 (Table 2) 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 Tables 1 and 2. These ratings are especially useful in helping evaluators recognize recovery from damage due to disease and other stresses from throughout the year.

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.

ACKNOWLEDGMENTS

New Jersey Agricultural Experiment Station Publication No. E-12180-19-04. This work was conducted as a part of NJAES Project No. 12264, supported by New Agricultural Experiment Station, State and Hatch Act funds, Rutgers Center for Turfgrass Science, other grants and gifts. Additional support was received by the New Jersey Turfgrass Association, the New Jersey Turfgrass Foundation and the National Turfgrass Evaluation Program.

Table 1. 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 -----					Color ² Oct. 2003	Density ³ Oct. 2003
		2000- 2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.		
1	Mach 1	7.0	7.0	6.7	7.5	6.9	9.0	6.7
2	Applaud	6.6	6.6	6.3	6.9	6.6	8.7	5.7
3	Pizzazz	6.6	6.6	5.9	7.1	6.7	8.0	6.0
4	All*Star2	6.6	6.7	5.9	7.0	6.7	9.0	5.3
5	Amazing	6.4	6.6	6.0	6.7	6.4	9.0	6.3
6	Citation Fore	6.4	6.1	6.0	6.7	6.7	9.0	7.0
7	Charismatic	6.2	6.2	5.7	6.8	6.3	8.3	5.7
8	Kokomo	6.2	6.5	5.5	6.7	6.2	9.0	6.0
9	2PC bulk	6.2	6.4	5.7	6.5	6.4	8.0	6.3
10	Gator 3	6.2	6.4	5.4	6.9	6.1	9.0	6.0
11	Pinnacle II	6.2	6.6	5.6	6.5	6.1	9.0	7.0
12	Arrival	6.1	6.6	5.5	6.5	5.8	9.0	5.0
13	Pentium	6.0	6.0	6.1	6.1	5.8	8.3	5.7
14	SR 4220	5.9	6.0	5.2	6.4	6.2	9.0	6.0
15	Sunkissed	5.9	6.2	5.3	6.4	5.9	8.0	4.0
16	Inspire	5.9	6.1	5.5	6.0	5.9	6.7	5.7
17	SR 4420	5.9	5.9	5.3	6.2	6.1	8.3	6.7
18	Integra	5.9	6.7	5.3	5.8	5.7	9.0	6.0
19	Blazer IV	5.9	6.4	5.2	6.1	5.7	9.0	5.7
20	Jet	5.9	5.8	5.4	6.1	6.0	9.0	5.7
21	Seville II	5.8	5.9	5.4	6.1	5.7	6.7	4.3
22	Grand Slam	5.8	5.5	5.2	6.1	6.2	7.3	5.7
23	Keystone	5.7	5.8	6.0	5.7	5.5	7.3	4.3
24	ABT-99-4.115	5.7	5.7	5.4	6.0	5.9	6.0	5.7
25	CIS-PR-83	5.7	5.9	5.6	5.6	5.7	7.0	5.0
26	ABT-99-4.560	5.7	5.5	5.5	5.8	5.9	5.7	5.7
27	Dazzle	5.7	5.6	5.2	6.1	5.8	7.7	6.0
28	Quest II	5.7	5.5	5.4	6.0	5.7	7.0	5.3
29	Paragon	5.7	5.9	4.9	6.2	5.6	7.7	3.7
30	Hawkeye	5.5	5.8	4.9	5.7	5.5	8.3	5.0
31	Manhattan 4	5.5	5.3	4.9	5.8	5.8	9.0	5.7
32	Gallery	5.4	5.4	4.8	5.8	5.7	8.3	4.7
33	Pacesetter	5.4	5.5	5.1	5.6	5.5	6.7	5.0
34	Stellar	5.4	6.0	4.8	5.4	5.4	8.3	6.7
35	SYN 2IN	5.4	5.5	5.0	5.7	5.5	6.3	5.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Color ² Oct. 2003	Density ³ Oct. 2003
		2000- 2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.		
36	Promise	5.4	5.4	4.5	5.9	5.8	6.3	4.7
37	Nexus	5.4	5.7	4.6	5.7	5.5	8.3	5.3
38	Cabo	5.4	6.0	4.3	5.7	5.4	9.0	5.3
39	Fiesta 3	5.3	5.6	5.1	5.3	5.2	6.7	6.0
40	SYN 2R7	5.3	6.0	4.5	5.2	5.4	7.3	5.3
41	SR 4500	5.3	5.3	5.1	5.4	5.4	6.3	6.3
42	Churchill	5.3	5.5	4.7	5.7	5.2	8.0	5.0
43	Terradyne	5.2	5.5	4.6	5.6	5.2	7.3	4.7
44	Brightstar II	5.2	5.4	4.8	5.7	4.9	7.7	4.7
45	2CUL bulk	5.2	5.3	4.8	6.0	4.8	7.3	4.0
46	Exacta	5.2	5.4	4.9	5.4	5.1	7.0	5.0
47	ABT-99-4.464	5.2	5.0	5.2	5.6	5.1	6.0	4.0
48	Brightstar SLT	5.2	5.6	4.7	5.3	5.2	7.0	5.3
49	CIS-PR-82	5.2	5.9	5.1	5.3	4.5	7.3	3.3
50	Racer II	5.2	5.0	5.2	5.3	5.2	4.0	5.3
51	Pick PR QH-97	5.1	5.5	4.4	5.3	5.3	8.3	4.7
52	SYN 2GT	5.1	5.3	4.9	5.3	4.9	6.3	5.0
53	CIS-PR-119	5.1	5.3	4.9	5.2	5.1	6.0	5.3
54	IQ	5.1	5.2	4.4	5.5	5.2	7.7	5.0
55	Salinas	5.1	5.4	4.4	5.6	4.9	7.0	4.0
56	Affirmed	5.0	5.1	4.9	5.3	4.8	7.0	4.7
57	PST-2LA	5.0	4.9	4.9	5.4	5.0	6.0	5.3
58	CIS-PR-77	5.0	5.0	4.9	5.3	5.0	7.0	4.0
59	Catalina II	5.0	5.2	4.8	5.1	5.0	6.7	4.7
60	Racr 7-44	5.0	5.3	4.7	4.8	5.2	6.0	5.0
61	Premier II	5.0	5.0	4.7	5.0	5.3	6.7	5.3
62	MP107	5.0	5.1	4.2	5.3	5.3	6.3	4.0
63	PRB-97	5.0	5.2	4.3	5.2	5.2	8.0	6.0
64	PST-2M4	5.0	5.2	4.9	5.0	4.7	6.7	4.0
65	2SLW	5.0	5.2	4.5	5.2	5.0	6.3	4.7
66	Pick PR B-97	5.0	5.0	3.9	5.5	5.4	7.3	5.0
67	CIS-PR-76	4.9	5.0	4.8	4.9	5.1	7.0	4.7
68	Lowgrow II	4.9	5.1	4.5	5.1	5.0	6.7	4.3
69	PST-2RT	4.9	4.7	4.7	5.2	5.1	3.3	5.0
70	Majesty	4.9	5.1	4.6	4.9	5.0	6.3	5.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Color ² Oct. 2003	Density ³ Oct. 2003
		2000- 2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.		
71	UT-1000	4.9	4.8	4.2	5.3	5.3	7.3	5.3
72	CIS-PR-74	4.9	4.7	5.3	4.9	4.7	5.3	2.7
73	Pace	4.9	5.1	4.5	5.2	4.8	6.0	3.7
74	Racr 7-48	4.9	5.0	4.9	4.8	4.9	5.3	3.7
75	Pirouette	4.9	5.3	4.5	5.1	4.6	5.3	3.3
76	SYN 2HCR	4.9	4.9	4.6	4.8	5.1	6.0	5.3
77	Palmer III	4.9	4.9	4.5	5.2	4.8	7.0	4.0
78	Summerset	4.9	5.1	4.3	5.2	4.8	5.7	3.3
79	SYN 22L	4.9	5.2	4.2	5.0	4.9	7.7	4.0
80	Pick EX 2-2	4.8	5.2	4.3	4.8	5.1	6.0	5.7
81	ABT-99-4.339	4.8	4.6	4.9	5.0	4.8	6.3	3.7
82	LP O-93	4.8	5.1	4.3	4.9	5.1	7.3	5.7
83	MP110	4.8	5.0	4.4	4.9	5.0	7.0	5.3
84	MP109	4.8	5.2	4.5	4.9	4.8	7.3	3.3
85	Racr 7-45	4.8	4.8	4.7	4.8	5.0	5.3	5.0
86	LTP-ME	4.8	4.5	4.3	5.1	5.4	6.7	4.3
87	PST-2JH	4.8	4.8	4.9	4.9	4.6	6.0	5.7
88	CIS-PR-81	4.8	5.4	4.5	4.7	4.7	7.0	4.0
89	Barlennium	4.8	5.0	4.5	4.9	4.7	7.7	4.3
90	PR 10-99	4.8	5.2	4.6	4.5	4.9	5.0	5.0
91	MS2-2	4.8	4.6	5.1	4.9	4.6	4.0	4.0
92	Calypso II	4.8	4.6	4.6	4.7	5.2	5.0	6.7
93	Secretariat	4.8	4.4	4.9	4.9	4.9	4.0	4.7
94	Pennant II	4.8	4.9	4.3	5.2	4.7	6.3	3.0
95	Elfkin	4.8	4.9	4.4	5.0	4.7	7.3	5.3
96	Pick PR 1-94	4.8	4.8	4.2	5.2	4.8	7.7	4.3
97	Splendid	4.8	5.3	4.5	5.0	4.3	7.7	4.3
98	Radiant	4.8	5.4	3.8	5.3	4.6	7.0	4.7
99	Icon	4.8	4.6	4.1	5.1	5.2	7.7	5.3
100	Courage	4.8	5.0	4.4	4.8	4.8	5.3	5.0
101	Admire	4.7	4.6	4.7	5.0	4.7	5.7	4.3
102	MEPY	4.7	5.0	4.2	4.9	4.8	7.0	3.7
103	Archer	4.7	5.2	4.4	4.8	4.5	7.3	4.3
104	MEKT	4.7	5.0	4.1	5.1	4.8	9.0	3.3
105	Monterey II	4.7	4.7	4.8	4.8	4.5	5.3	5.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Color ² Oct. 2003	Density ³ Oct. 2003
		2000- 2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.		
106	Sierra	4.7	4.6	4.4	5.1	4.8	5.3	4.0
107	PST-2CRR	4.7	5.1	4.4	4.7	4.5	7.0	4.7
108	Ascend	4.7	4.7	4.1	5.0	5.0	7.7	4.7
109	PDQ	4.7	4.7	4.4	5.0	4.7	6.3	3.3
110	MKT	4.7	5.0	4.0	4.6	5.1	9.0	4.7
111	Esteem	4.7	5.1	4.4	4.6	4.6	8.3	4.7
112	ABT-99-4.965	4.7	4.8	4.0	5.0	4.9	7.7	4.7
113	Racr 7-49	4.7	4.8	4.5	4.7	4.7	4.7	4.7
114	Lp BB-93	4.7	4.8	4.5	4.8	4.5	4.3	5.0
115	Pick PRNGS	4.6	4.7	4.6	4.7	4.5	4.0	4.3
116	MP114	4.6	4.7	4.3	4.6	4.8	7.3	4.0
117	ProTyme	4.6	4.6	4.2	4.9	4.7	8.0	4.0
118	MDP	4.6	4.8	4.3	4.6	4.6	8.0	5.0
119	Racr 7-54	4.6	4.5	3.9	4.8	5.1	5.7	4.7
120	Racr 7-46	4.6	4.9	4.3	4.8	4.3	4.3	2.3
121	PR-8-94-99	4.5	5.1	3.8	4.6	4.7	6.0	5.7
122	2TN-98-bulk	4.5	5.0	3.8	4.8	4.5	7.3	4.7
123	SYN 22M	4.5	5.1	4.0	4.7	4.2	7.3	4.7
124	PR O-97	4.5	4.6	4.1	4.5	4.8	6.0	5.3
125	Racr 7-73	4.5	4.5	4.4	4.3	4.8	6.0	5.7
126	MP96	4.5	5.0	4.4	4.5	4.1	7.0	2.7
127	Divine	4.5	4.7	4.3	4.5	4.5	3.0	4.3
128	CAS LP84	4.5	4.5	3.8	4.7	4.9	6.3	4.0
129	Racr 7-39	4.5	4.5	4.0	4.6	4.8	6.0	4.3
130	APR 1233	4.5	4.3	4.5	4.6	4.5	5.7	4.7
131	Paradigm	4.5	4.2	4.2	4.8	4.7	4.7	3.7
132	Sol	4.5	4.7	4.0	4.8	4.4	7.3	4.0
133	LP86	4.4	4.9	3.8	4.5	4.5	7.0	3.0
134	Line Drive	4.4	4.3	4.2	4.6	4.6	4.3	4.3
135	SYN 2WN	4.4	4.6	3.8	4.6	4.7	5.3	4.3
136	Cathedral II	4.4	4.0	4.1	5.0	4.5	4.0	4.0
137	Citation 3	4.4	4.2	4.0	4.5	4.9	6.3	3.7
138	Catalina	4.4	4.5	4.1	4.8	4.1	5.3	3.7
139	MS2-1	4.4	4.5	4.2	4.1	4.5	4.0	3.3
140	Galaxy	4.4	4.4	4.2	4.2	4.7	4.3	3.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Color ² Oct. 2003	Density ³ Oct. 2003
		2000- 2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.		
141	SR 4350	4.3	4.2	4.2	4.3	4.6	5.3	4.3
142	Extreme	4.3	4.5	3.9	4.5	4.5	7.0	4.0
143	Plymouth	4.3	4.5	3.7	4.3	4.9	7.7	4.7
144	Manhattan 3	4.3	4.2	4.1	4.7	4.2	3.7	4.3
145	Panther	4.3	4.2	4.3	4.7	4.0	4.3	2.3
146	Sunshine	4.3	4.6	3.9	4.4	4.4	5.3	5.0
147	LP22	4.3	4.8	3.9	4.8	3.8	5.0	2.3
148	SYN 22E	4.3	4.5	4.0	4.3	4.4	7.0	4.3
149	Pleasure XL	4.3	4.1	4.1	4.4	4.6	6.3	5.0
150	APR 776	4.3	4.3	3.9	4.4	4.6	5.3	4.0
151	SYN 2CT	4.2	4.7	3.9	4.3	4.1	6.0	4.3
152	Caddieshack	4.2	4.3	4.5	4.1	4.1	5.0	3.3
153	Darkstar	4.2	4.7	3.7	4.3	4.2	7.3	4.0
154	MP103	4.2	4.9	3.8	4.3	3.9	7.7	3.7
155	Whistler	4.2	4.7	3.7	4.1	4.4	8.0	3.7
156	Phantom	4.2	4.2	3.8	4.7	4.1	6.7	3.3
157	PR J-97	4.2	4.7	4.1	4.3	3.8	5.7	4.0
158	Edge	4.2	4.1	4.4	4.0	4.3	4.3	5.0
159	Racr 7-69	4.2	4.0	4.1	4.3	4.4	5.0	5.0
160	Assure	4.2	4.2	4.1	4.1	4.4	4.7	4.0
161	ABT-99-4.815	4.2	4.1	3.9	4.7	4.2	5.3	3.3
162	Wilmington	4.2	5.0	3.5	4.4	3.9	8.0	3.7
163	Charger II	4.2	4.2	4.2	4.3	4.1	4.0	4.7
164	Headstart	4.2	4.1	4.0	4.3	4.3	4.3	3.3
165	MP60	4.2	4.7	3.7	4.1	4.2	5.7	4.0
166	Pearl II	4.2	4.7	4.0	4.1	3.9	7.3	3.3
167	MP106	4.2	4.5	3.5	4.4	4.3	6.0	4.0
168	Accent	4.2	4.0	4.1	4.2	4.4	6.3	5.0
169	APR 1232	4.2	3.8	3.9	4.3	4.6	3.7	5.7
170	PR PEI-L-99	4.2	3.9	3.9	4.3	4.5	4.0	4.3
171	MP115	4.1	4.4	3.4	4.6	4.0	7.0	3.0
172	Skyhawk	4.1	4.2	3.4	4.5	4.3	6.0	3.7
173	EP59	4.1	4.0	3.7	4.4	4.3	8.0	4.0
174	LPR 98-144	4.1	3.7	4.1	4.3	4.3	6.3	3.7
175	Pick EX2	4.1	3.9	4.1	4.2	4.1	3.0	5.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Color ² Oct. 2003	Density ³ Oct. 2003
		2000- 2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.		
176	Prowler	4.1	3.9	3.4	4.5	4.5	5.0	3.7
177	Racer	4.1	3.8	3.8	4.2	4.3	5.0	5.0
178	APR 1235	4.1	4.2	3.4	4.4	4.2	5.0	5.0
179	APR 1231	4.0	3.6	4.0	4.4	4.2	3.3	4.7
180	Jiffie	4.0	4.1	3.9	4.0	4.1	6.0	4.7
181	PR 9-99	4.0	4.0	3.9	3.9	4.2	4.3	4.3
182	Pick EX 2-1	4.0	3.8	4.0	3.9	4.3	5.3	5.0
183	Koos R-71	4.0	3.9	4.3	4.0	3.8	3.0	3.7
184	LPR 98-143	4.0	4.1	3.7	3.7	4.4	5.3	4.3
185	Avon	4.0	4.2	4.2	3.8	3.8	3.7	4.3
186	Superstar	4.0	4.4	3.6	4.2	3.8	7.7	3.0
187	Passport	4.0	4.0	3.6	4.3	3.9	5.0	3.3
188	Affinity	3.9	3.6	4.0	4.1	4.0	2.3	4.0
189	Premier	3.9	3.9	3.7	3.8	4.3	5.7	4.0
190	Cutter	3.9	4.2	4.0	3.8	3.8	4.7	3.3
191	BY-100	3.9	4.0	3.9	3.9	3.9	2.7	4.3
192	Prosport	3.9	4.1	3.3	4.1	4.1	6.7	3.3
193	MP102	3.9	4.5	3.3	3.9	3.8	7.3	2.0
194	WVPB-R-84	3.9	3.9	4.0	3.8	3.8	3.0	4.3
195	ABT-99-4.600	3.9	3.8	3.7	4.1	3.9	6.0	3.3
196	Allsport	3.9	4.3	3.2	4.3	3.7	6.0	3.3
197	Pinnacle	3.9	3.6	3.8	4.0	4.1	3.0	4.0
198	SRX 4120	3.8	3.6	3.7	3.8	4.2	4.0	5.7
199	PR 1-99	3.8	4.0	3.9	3.8	3.6	4.7	3.0
200	Blazer II	3.8	3.7	4.0	4.1	3.5	2.0	2.0
201	Pearl	3.8	4.3	3.5	3.7	3.7	5.3	4.0
202	Morning Star	3.8	3.5	4.1	3.4	4.1	3.0	5.3
203	MP41	3.7	4.1	3.1	3.9	3.7	6.7	4.0
204	Express	3.7	3.4	3.7	3.6	4.1	5.0	4.0
205	Peak	3.6	3.7	3.6	3.5	3.7	3.7	3.3
206	Edge	3.6	3.5	3.7	3.5	3.7	3.0	4.0
207	3 BK	3.6	4.9	3.1	3.1	3.3	8.0	3.0
208	PR PEI-E-99	3.6	3.7	3.2	3.6	3.8	3.7	3.7
209	PR-7-99	3.6	3.7	3.5	3.3	3.7	5.0	3.3
210	WVPB-R-82	3.5	3.4	3.8	3.4	3.6	3.3	3.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Color ² Oct. 2003	Density ³ Oct. 2003
		2000- 2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.		
211	Fiesta	3.5	3.6	3.5	3.2	3.7	2.7	4.7
212	Buccaneer	3.5	3.4	3.6	3.6	3.4	4.0	3.7
213	DP 17-9069	3.5	3.5	3.5	3.4	3.5	1.7	4.3
214	DP LP-1	3.5	3.5	3.6	3.4	3.3	2.0	4.0
215	APR 1234	3.4	3.4	3.4	3.2	3.8	3.0	3.7
216	Yatsugreen	3.4	3.0	4.2	3.4	2.9	1.7	3.3
217	Lp H-98 P-	3.4	3.1	3.2	3.4	3.7	1.3	3.0
218	PRG-97	3.2	3.3	3.2	3.0	3.4	3.0	3.7
219	DP 17-9391	3.2	3.1	3.5	3.0	3.2	2.0	4.3
220	Lp H-98 P+	2.8	3.0	3.0	2.4	2.7	2.0	2.3
221	Barclay	2.7	2.3	3.1	2.9	2.6	1.0	1.7
222	Pennfine	2.6	2.9	2.6	2.3	2.4	1.0	1.3
223	Manhattan	2.5	2.7	2.5	2.7	2.3	2.3	3.0
224	DP 17-9496	2.0	1.9	2.2	1.7	2.4	1.0	3.0
225	Linn	1.2	1.4	1.1	1.0	1.2	1.7	1.0
	LSD at 5% =	0.5	0.5	0.6	0.7	0.7	2.2	1.6

¹9 = best turf quality²9 = darkest green color³9 = best density

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

Cultivar or Selection	-----Turf Quality ¹ -----				Worn Turf Quality ¹ 2003 Avg.	Color ² Sept. 2003	Spring Green-up ³ April 2003	Gray Leaf Spot ⁴ Oct. 2003	Leaf Texture ⁵ Nov. 2003	Density ⁶ Nov. 2003
	2000-2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.						
1 Pizzazz	6.7	7.2	6.9	6.7	5.9	4.3	3.7	5.7	7.0	6.3
2 Grand Slam	6.4	6.8	6.3	6.9	5.6	4.3	3.7	6.0	6.3	5.7
3 Applaud	6.4	7.4	6.7	6.3	5.2	3.7	3.0	5.0	4.7	5.7
4 All*Star2	6.3	6.9	6.0	6.7	5.9	4.3	4.0	5.7	5.3	5.7
5 Gator 3	6.3	6.8	6.5	6.2	5.7	4.7	3.0	6.3	7.3	7.0
6 Pinnacle II	6.3	7.5	5.9	6.2	5.4	4.0	2.0	6.7	6.0	6.7
7 Mach I	6.2	7.3	6.3	6.3	5.0	5.0	2.3	4.3	6.0	5.0
8 Arrival	6.2	7.2	6.5	6.3	4.9	3.7	3.0	2.7	5.3	3.7
9 Amazing	6.2	7.2	5.8	6.5	5.1	4.0	2.7	7.0	6.0	6.0
10 Sunkissed	6.2	7.0	6.6	5.9	5.2	4.0	3.0	6.0	5.7	5.7
11 SR 4220	6.1	6.9	6.1	6.0	5.4	6.0	3.0	8.0	7.0	6.3
12 Pentium	6.1	6.1	6.2	6.6	5.7	4.7	4.7	5.7	6.0	5.3
13 Citation Fore	6.1	6.4	5.9	6.1	5.9	6.3	5.0	8.0	7.3	7.0
14 Charismatic	6.1	6.8	5.8	6.5	5.2	4.0	3.7	6.7	6.0	5.7
15 Nexus	6.0	6.6	6.0	6.0	5.5	3.7	3.7	5.3	6.7	5.7
16 Blazer IV	6.0	6.9	6.7	6.0	4.6	4.0	2.7	5.3	7.0	5.3
17 SR 4420	6.0	6.6	6.1	5.8	5.7	4.0	3.7	6.0	6.3	6.0
18 Seville II	5.9	6.3	5.9	5.8	5.4	4.3	4.7	7.3	6.0	6.3
19 Quest II	5.9	6.3	6.1	5.9	5.1	3.3	3.0	5.0	5.3	5.3
20 Hawkeye	5.9	6.7	5.8	5.7	5.3	4.0	3.3	4.3	6.0	4.3

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Worn Turf Quality ¹ 2003 Avg.	Color ² Sept. 2003	Spring Green-up ³ April 2003	Gray Leaf Spot ⁴ Oct. 2003	Leaf Texture ⁵ Nov. 2003	Density ⁶ Nov. 2003
	2000-2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.						
21 Gallery	5.9	6.5	5.7	6.0	5.2	4.0	7.0	2.3	5.3	5.3	5.0
22 Jet	5.9	6.4	5.9	5.9	5.3	4.0	5.7	3.7	5.7	5.3	5.0
23 Kokomo	5.8	6.4	5.8	6.1	5.0	4.0	7.3	2.7	6.7	6.3	5.3
24 Keystone	5.8	6.5	5.9	5.8	4.7	2.7	4.3	3.0	3.7	5.0	4.0
25 Brightstar SLT	5.7	6.4	5.5	5.6	5.4	4.3	6.0	4.7	5.3	7.0	6.0
26 SR 4500	5.7	6.1	5.3	5.4	6.0	6.7	5.0	3.0	8.3	6.3	7.0
27 Brightstar II	5.7	6.1	5.3	6.3	5.0	4.7	5.7	3.7	5.7	5.7	5.3
28 Exacta	5.7	6.0	5.5	5.4	5.9	5.3	6.0	3.3	6.3	6.3	6.7
29 Manhattan 4	5.7	6.2	5.7	6.0	4.9	5.0	6.0	2.7	6.0	6.3	6.3
30 Inspire	5.6	6.2	5.5	5.6	5.4	4.7	5.0	3.3	5.7	6.7	5.3
31 Pick PR B-97	5.6	5.9	5.7	5.9	4.8	4.7	5.0	2.3	5.3	5.3	4.7
32 Sierra	5.6	6.1	6.2	5.6	4.6	5.7	4.7	2.7	7.3	5.0	5.3
33 Wilimgton	5.6	5.7	5.6	5.9	5.2	4.7	7.7	3.7	7.0	6.0	6.3
34 Stellar	5.6	6.0	5.1	6.2	5.1	5.3	6.7	4.7	7.3	6.7	6.0
35 Salinas	5.6	6.0	5.6	6.1	4.6	5.0	5.0	2.7	6.3	7.0	6.0
36 ABT-99-4.560	5.6	5.9	5.5	5.7	5.2	5.0	7.0	2.7	8.0	7.0	7.3
37 Pacesetter	5.5	5.5	5.5	6.0	5.1	5.7	5.0	3.3	6.7	5.7	6.7
38 ABT-99-4.115	5.5	6.1	5.6	5.6	4.8	4.3	3.7	4.3	3.7	5.0	4.0
39 LTP ME	5.5	5.9	5.3	5.4	5.4	4.7	5.3	3.3	4.7	6.0	4.7
40 Terradyne	5.5	5.5	5.0	5.9	5.6	3.3	7.3	3.7	6.0	6.3	5.0
41 PST 2LA	5.5	5.8	5.4	5.8	4.9	5.7	4.7	2.7	7.0	6.0	6.3
42 Esteem	5.5	6.0	5.0	5.6	5.2	5.0	6.0	4.0	6.7	6.3	5.7
43 Summerset	5.5	5.8	5.5	5.6	5.1	3.3	7.3	3.0	6.0	5.7	5.3
44 EIFKin	5.4	5.3	5.5	5.7	5.2	4.7	4.3	3.7	6.7	6.3	6.3
45 Dazzle	5.4	5.8	5.2	5.6	5.0	4.0	4.3	3.0	4.7	5.3	5.3

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Worn Turf Quality ¹ 2003 Avg.	Color ² Sept. 2003	Spring Green-up ³ April 2003	Gray Leaf Spot ⁴ Oct. 2003	Leaf Texture ⁵ Nov. 2003	Density ⁶ Nov. 2003
	2000-2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.						
46 Promise	5.4	6.0	5.7	5.3	4.6	3.7	4.7	3.0	5.0	6.7	6.3
47 Pick PR QH-97	5.4	6.3	5.3	5.4	4.7	5.0	6.7	2.7	6.3	6.0	5.3
48 Barlennium	5.3	5.7	5.0	5.4	5.4	4.7	6.0	5.0	6.7	6.7	6.0
49 Radiant	5.3	5.8	5.4	5.1	5.1	5.7	7.7	2.0	7.3	6.7	6.3
50 Churchill	5.3	6.0	5.0	5.2	5.0	4.7	7.0	3.0	6.0	6.0	5.3
51 ProTyme	5.3	5.2	5.7	5.4	4.8	4.3	6.3	2.3	6.7	7.5	6.0
52 Courage	5.3	5.1	5.1	6.0	4.9	5.3	4.3	3.0	6.0	5.7	5.7
53 PST 2RT	5.3	5.1	5.4	5.4	5.1	5.3	3.7	6.3	5.7	5.7	5.3
54 Pennant II	5.3	5.8	5.2	5.0	5.0	4.0	5.0	3.3	5.0	6.0	6.3
55 Crusier	5.3	5.1	5.4	5.8	4.7	4.3	5.0	3.0	5.0	6.3	6.0
56 IQ	5.2	6.0	4.8	5.1	5.1	5.3	6.3	2.3	8.0	6.3	6.7
57 Premier II	5.2	5.5	5.2	5.3	5.0	4.3	5.0	3.0	5.3	5.3	5.3
58 Fiesta 3	5.2	5.6	5.3	4.9	5.2	4.3	5.0	3.3	5.3	6.0	6.0
59 Splendid	5.2	5.6	4.6	5.9	4.7	3.3	5.7	3.3	4.7	6.3	5.7
60 Pick PR I-94	5.2	5.5	5.3	5.3	4.5	4.0	5.7	2.3	4.7	5.3	5.0
61 ABT-99-4.464	5.2	5.8	5.1	5.0	4.7	4.3	4.7	3.0	4.7	5.3	5.0
62 ABT-99-4.965	5.2	5.5	4.5	5.3	5.2	5.0	7.3	3.3	5.7	5.7	5.0
63 PST-2JH	5.1	5.1	5.2	5.3	5.0	4.7	4.3	4.7	5.7	4.3	5.7
64 Cabo	5.1	5.9	4.7	5.3	4.4	4.0	6.7	1.3	6.7	6.7	5.7
65 Icon	5.1	5.3	4.6	5.5	5.2	4.7	5.3	2.3	5.3	6.0	4.7
66 Paragon	5.1	5.7	5.4	4.7	4.6	5.3	6.3	3.3	7.7	6.3	7.3
67 Paradigm	5.1	5.3	5.0	5.0	5.0	3.7	4.7	4.3	6.0	6.3	5.0
68 PST 2M4	5.1	5.3	5.6	5.0	4.3	4.3	4.3	2.7	6.0	6.7	5.3
69 MP 107	5.1	5.5	4.6	5.4	4.8	4.7	5.3	3.3	6.7	6.3	7.0
70 Superstar	5.0	5.4	4.6	5.1	4.9	5.0	6.3	4.7	6.0	6.7	5.7

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Worn Turf Quality ¹ 2003 Avg.	Color ² Sept. 2003	Spring Green-up ³ April 2003	Gray Leaf Spot ⁴ Oct. 2003	Leaf Texture ⁵ Nov. 2003	Density ⁶ Nov. 2003
	2000-2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.						
71 Racer II	5.0	5.4	4.8	4.8	4.9	3.7	2.7	7.0	7.0	7.7
72 Palmer III	5.0	5.3	4.9	5.1	4.8	3.7	3.7	4.3	6.0	5.3
73 SKYHAWK	5.0	5.3	4.9	5.0	4.9	4.7	3.3	5.3	6.7	5.7
74 Ascend	5.0	5.0	4.8	5.1	5.1	5.0	4.0	7.3	5.0	5.7
75 Majesty	4.9	4.7	5.1	5.0	4.9	4.0	4.7	5.7	4.7	5.3
76 Pearl II	4.9	5.2	4.5	5.0	5.0	5.0	3.0	6.0	5.7	6.3
77 Affirmed	4.9	4.9	4.6	4.9	5.2	3.7	3.7	5.0	5.3	5.0
78 Monterey II	4.9	5.3	4.9	4.9	4.6	3.7	3.0	5.0	5.7	4.7
79 ABT-99-4.339	4.8	4.8	4.4	5.3	4.9	3.0	3.7	4.0	5.7	4.7
80 Prospect	4.8	5.1	4.5	4.9	4.8	5.0	5.0	5.7	6.3	5.3
81 Catalina	4.8	4.9	5.0	4.8	4.5	4.0	4.7	3.3	4.7	4.3
82 Pleasure XL	4.8	5.0	5.0	5.0	4.2	4.0	3.7	4.7	4.7	4.0
83 Pick PRNGS	4.8	5.2	4.9	4.6	4.5	3.0	4.3	4.7	4.3	3.7
84 Line Drive	4.8	4.4	4.4	5.3	5.0	4.3	4.7	5.0	4.0	5.7
85 APR 1231	4.7	4.9	4.4	4.7	4.9	3.0	2.7	4.7	5.7	5.0
86 MOP	4.7	4.9	4.6	5.0	4.4	6.0	2.3	5.3	5.3	4.7
87 MP 103	4.7	5.3	4.6	4.6	4.4	4.7	3.0	6.3	5.0	5.0
88 Divine	4.7	4.7	4.4	4.7	5.0	3.7	6.0	7.0	6.3	6.3
89 Extreme	4.7	4.9	4.5	4.8	4.6	4.0	4.0	4.7	5.7	4.7
90 PST 2CRR	4.7	5.2	4.8	4.8	4.0	5.7	4.0	5.0	4.3	5.3
91 Catalina II	4.7	4.9	4.8	4.8	4.2	5.7	2.0	5.3	4.7	5.3
92 Phantom	4.7	5.0	4.7	4.4	4.7	6.3	3.0	5.0	4.3	4.7
93 ABT-99-4.815	4.7	4.7	5.0	4.7	4.4	4.3	3.7	4.7	5.3	4.7
94 MEPY	4.7	5.2	4.2	5.0	4.3	5.3	2.3	5.7	6.7	6.0
95 Calypso II	4.7	4.9	4.6	4.8	4.4	4.7	3.7	6.0	6.0	6.7

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Worn Turf Quality ¹ 2003 Avg.	Color ² Sept. 2003	Spring Green-up ³ April 2003	Gray Leaf Spot ⁴ Oct. 2003	Leaf Texture ⁵ Nov. 2003	Density ⁶ Nov. 2003
	2000-2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.	2003 Avg.						
96 Admire	4.6	4.6	4.4	4.8	4.7	4.0	3.0	5.7	3.0	5.3	4.3
97 Renaissance	4.6	4.7	4.8	4.5	4.5	4.0	5.3	4.0	5.3	5.7	6.3
98 Galaxy	4.6	4.7	4.6	4.3	4.8	5.7	6.0	4.0	6.0	7.0	5.7
99 Secretariat	4.6	4.8	4.5	4.2	4.8	5.0	6.7	4.0	6.7	5.0	6.0
100 Manhattan 3	4.6	4.5	4.7	4.6	4.4	4.3	6.3	4.7	6.3	6.0	5.7
101 Panther	4.6	4.9	4.6	4.5	4.3	2.7	2.0	5.0	2.0	5.0	3.7
102 APR 776	4.6	4.4	4.3	4.9	4.7	3.7	5.3	4.0	5.3	6.0	6.3
103 Allsport	4.5	4.9	4.6	4.3	4.2	3.7	3.0	3.7	3.0	5.3	4.0
104 APR 1235	4.4	3.9	4.4	4.5	4.9	6.0	8.0	4.3	8.0	6.7	6.0
105 SR 4350	4.4	4.6	4.2	4.4	4.6	5.7	5.7	2.7	5.7	5.7	6.0
106 Passport	4.4	4.4	4.1	4.8	4.4	4.3	5.0	5.7	5.0	4.7	5.7
107 Prowler	4.4	3.9	4.0	5.1	4.7	5.0	6.0	5.7	6.0	5.3	6.3
108 SRX 4120	4.4	3.9	4.2	4.4	5.0	4.0	6.0	6.7	6.0	4.3	5.3
109 Sol	4.4	4.1	4.3	4.6	4.5	5.7	7.3	4.0	7.3	6.0	6.7
110 ABT-99-4.600	4.3	4.4	4.3	4.4	4.0	3.7	4.0	4.3	4.0	5.7	5.3
111 APR 1232	4.3	4.1	4.1	4.2	4.8	6.0	6.0	3.7	6.0	5.0	6.3
112 CAS LP84	4.3	4.5	3.9	4.5	4.3	4.7	5.3	2.7	5.3	4.7	5.0
113 Racer	4.2	4.1	4.3	4.5	4.1	4.3	5.0	4.3	5.0	5.3	4.3
114 Charger II	4.2	4.6	4.3	4.1	4.0	3.3	5.0	5.3	5.0	4.0	4.7
115 Cathedral II	4.2	4.2	4.3	4.3	4.2	4.0	5.0	3.3	5.0	3.3	5.0
116 LPR 98-144	4.2	4.5	4.0	4.2	4.0	2.7	3.3	6.0	3.3	5.3	3.7
117 Koos R-71	4.1	4.4	4.3	3.9	3.8	3.3	4.0	6.0	4.0	3.7	4.3
118 Affinity	3.9	4.2	3.9	3.7	4.1	3.7	4.3	6.0	4.3	5.0	5.0
119 Headstart	3.9	4.2	3.4	4.2	3.9	4.7	4.3	3.0	4.3	4.0	4.7
120 PICK EX2	3.8	3.9	3.6	3.5	4.2	4.0	6.7	6.0	6.7	4.0	6.0

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Worn Turf Quality ¹ 2003 Avg.	Color ² Sept. 2003	Spring Green-up ³ April 2003	Gray Leaf Spot ⁴ Oct. 2003	Leaf Texture ⁵ Nov. 2003	Density ⁶ Nov. 2003
	2000-2003 Avg.	2000 Avg.	2001 Avg.	2002 Avg.						
121 WWPB-R-84	3.8	4.1	3.4	3.8	3.9	2.3	6.3	5.3	4.0	5.7
122 DP 17-9391	3.7	3.9	3.6	3.4	4.1	1.3	5.7	5.0	4.0	4.3
123 Premier	3.7	3.6	3.2	3.9	4.1	2.7	4.7	7.3	5.3	6.3
124 By-100	3.7	3.6	3.6	3.6	4.0	2.0	5.7	4.0	3.7	5.0
125 LPR 98-143	3.7	4.1	3.7	3.5	3.4	2.7	4.0	6.7	5.3	4.3
126 DP LP-1	3.7	3.6	3.3	3.7	4.0	1.7	4.7	5.7	5.3	5.7
127 Edge	3.5	3.5	3.3	3.4	3.9	1.7	6.0	3.7	3.7	3.7
128 Buccaneer	3.5	3.6	3.0	3.5	3.7	2.3	7.7	5.7	3.3	5.0
129 APR 1234	3.4	3.3	3.5	3.2	3.6	1.7	3.7	7.0	4.0	6.3
130 WWPB-R-82	3.4	3.4	3.1	3.5	3.6	1.3	7.0	3.3	3.0	4.0
131 DP 17-9069	3.4	3.4	3.3	3.1	3.7	2.0	6.3	5.0	4.7	4.3
132 Yatsu Green	3.2	3.2	2.9	3.1	3.7	1.3	8.0	6.0	2.0	3.3
133 DP 17-9496	2.2	1.7	2.1	2.4	2.6	1.0	8.0	5.0	1.7	4.0
134 Linn	1.2	1.3	1.1	1.1	1.2	1.0	7.0	4.7	1.0	2.3
LSD at 5% =										
	0.6	0.8	0.9	0.9	0.8	1.6	2.1	2.5	1.9	1.6

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

Table 3. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2000 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----			
		2001-2003 Avg.	2001 Avg.	2002 Avg.	2003 Avg.
1	RNS comp	6.5	6.3	6.9	6.4
2	Mach 1	6.2	5.8	6.3	6.6
3	DMS comp	6.2	5.6	6.4	6.5
4	Top Hat 2	5.9	6.3	5.8	5.6
5	DCM comp	5.9	5.7	5.9	6.0
6	SRX 4510	5.8	5.8	5.9	5.7
7	SR 4420	5.8	5.9	5.6	5.8
8	EMR comp	5.7	5.7	5.9	5.4
9	Jet	5.5	5.3	5.8	5.6
10	OO-C Lp	5.5	5.1	5.5	5.8
11	SR 4220	5.1	5.1	5.1	5.1
12	SRX 4500	5.0	4.6	5.2	5.3
13	PR-122	5.0	5.1	5.0	4.9
14	Fiesta III	4.8	4.5	4.9	5.0
15	Lp P-93	4.8	5.1	4.4	4.8
16	Ecologic	4.8	5.0	4.8	4.4
17	High Life LF	4.7	4.7	4.7	4.7
18	Barefoot	4.5	4.6	4.5	4.6
19	Lowgrow II	4.5	4.4	4.5	4.6
20	Calypso II	4.4	4.3	4.4	4.5
21	Covet	4.4	4.1	4.5	4.6
22	PR-125	4.4	4.6	4.2	4.2
23	PR-121	4.3	4.3	4.4	4.2
24	Arrival	4.3	3.9	4.4	4.5
25	Exacta	4.3	3.5	4.4	4.9
26	SRX 4SPBPEW	4.1	4.3	4.0	4.1
27	Hawkeye	4.1	3.4	4.5	4.3
28	SRX 4CCG	4.0	4.3	3.9	3.7
29	SRX 4AT PREW	3.9	4.2	3.8	3.8
30	Racer	3.9	3.8	3.8	4.1
31	Pick PR 1-94	3.9	3.6	4.0	4.1
32	OO-A Lp	3.9	4.3	3.5	3.8
33	PRC-97	3.9	3.9	3.6	4.0
34	Dancer	3.9	4.1	3.8	3.7
35	SRX 4DMSO	3.8	3.9	3.8	3.8

(Continued)

Table 3 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			
		2001- 2003 Avg.	2001 Avg.	2002 Avg.	2003 Avg.
36	SRX 4DFDWEW	3.8	3.7	3.9	3.9
37	Churchill	3.8	3.6	4.0	3.9
38	SRX 4330	3.8	4.0	3.7	3.8
39	SRX 4120	3.8	3.7	3.7	3.9
40	SRX 4010	3.7	3.9	3.7	3.6
41	Greenland	3.7	3.9	3.7	3.7
42	SR 4400	3.7	3.9	3.7	3.5
43	Jiffie	3.7	3.5	3.7	3.9
44	SRX 4BPEW	3.7	3.5	3.7	3.9
45	Platinum	3.7	3.5	3.7	3.9
46	SR 4200	3.7	3.4	3.7	4.0
47	Affirmed	3.7	3.8	3.5	3.7
48	SRX 4MO971	3.6	3.8	3.4	3.7
49	SR 4100	3.6	3.7	3.5	3.5
50	Edge	3.6	3.5	3.5	3.7
51	PRJ-97-00	3.6	3.6	3.4	3.7
52	Headstart	3.5	3.5	3.5	3.7
53	Bayou	3.5	3.8	3.3	3.5
54	Vibrant	3.5	3.8	3.4	3.2
55	SRX 4MO972	3.5	3.4	3.4	3.6
56	BPF1 Bulk-00	3.5	4.0	3.2	3.2
57	Fiesta II	3.4	3.5	3.2	3.7
58	Penguin	3.4	2.9	3.6	3.8
59	Omni	3.4	3.1	3.4	3.6
60	SRX 4DGBPEW	3.3	2.7	3.4	3.8
61	Easy Livin	3.2	3.5	3.1	3.1
62	SRX CALM	3.2	2.9	3.2	3.5
63	PR1 99 C2-00	3.1	2.8	3.2	3.3
64	P-2	3.0	3.0	2.8	3.2
65	Nui	1.1	1.3	1.0	1.0
	LSD at 5% =	0.5	0.6	0.6	0.6

¹9 = best turf quality

Table 4. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2001 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2002-2003 Avg.	2002 Avg.	2003 Avg.
1	1G2 comp	6.7	6.9	6.6
2	1GH comp	6.6	6.9	6.2
3	APR 1425	6.1	6.4	5.7
4	Palmer IV	6.0	6.7	5.3
5	All*Star2	5.8	6.0	5.7
6	Delaware XL	5.8	5.9	5.6
7	Gator 3	5.8	5.5	6.0
8	Top Hat 2	5.8	6.3	5.2
9	PR-187	5.7	6.1	5.3
10	Applaud	5.6	5.7	5.5
11	O1.O615	5.5	5.4	5.5
12	Blazer IV	5.3	4.9	5.8
13	Pizzazz	5.3	5.0	5.6
14	O1-11	5.2	5.1	5.3
15	PR-155	5.2	5.2	5.2
16	Integra	5.1	5.4	4.8
17	Radiant II	5.1	5.6	4.6
18	O1-3	5.0	5.0	5.1
19	Amazing	4.9	5.0	4.8
20	GGH comp	4.9	4.7	5.1
21	8451 comp	4.9	4.9	4.8
22	Pinnacle II	4.8	4.9	4.7
23	O1-1	4.7	4.8	4.6
24	APR 1421	4.6	4.7	4.6
25	PR-186	4.5	5.0	4.0
26	Prelude IV	4.4	4.1	4.7
27	O1-8	4.4	4.0	4.7
28	O1-9PR	4.4	4.6	4.2
29	APR 1472	4.4	4.3	4.5
30	Pick PR B-97	4.3	4.4	4.2
31	PR-156	4.3	4.5	4.1
32	Pace	4.3	4.2	4.3
33	Paragon	4.2	3.9	4.5
34	Brightstar II	4.1	4.0	4.2
35	O1-7	4.1	4.2	4.0

(Continued)

Table 4 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2002-2003 Avg.	2002 Avg.	2003 Avg.
36	Palmer III	4.1	4.1	4.1
37	Fiesta 3	4.0	3.6	4.4
38	Monterey	4.0	3.7	4.3
39	Barlennium	4.0	4.0	3.9
40	APR 1424	4.0	3.9	4.0
41	ASAP	3.9	3.8	3.9
42	Pirouette	3.9	3.6	4.1
43	Extreme	3.9	3.8	3.9
44	Galaxy	3.9	3.8	3.9
45	Premier II	3.8	3.7	3.9
46	APR 1426	3.7	3.6	3.8
47	Promise	3.7	3.3	4.1
48	Sonata	3.7	3.6	3.7
49	Pleasure XL	3.7	3.4	3.9
50	Admire	3.7	3.4	3.9
51	Racer	3.6	3.4	3.7
52	Caddieshack	3.6	3.4	3.7
53	PR A-97	3.5	3.4	3.6
54	APR 1423	3.5	3.5	3.5
55	Goal Keeper	3.5	3.4	3.6
56	Churchill	3.5	3.1	3.8
57	00-A Lp	3.4	3.5	3.3
58	Calypso II	3.4	3.1	3.7
59	Sunshine	3.4	3.3	3.4
60	Lowgrow II	3.4	3.6	3.1
61	Top Gun	3.3	3.3	3.4
62	Accent	3.3	3.1	3.5
63	PRC-97	3.3	3.5	3.1
64	Windstar	3.2	3.0	3.5
65	APM	3.1	3.2	3.0
66	Shining Star	3.1	2.8	3.3
67	APR 1420	3.1	3.1	3.0
68	Monterey	3.1	2.8	3.3
69	Advert	3.0	2.9	3.1
70	Edge	2.9	2.9	3.0

(Continued)

Table 4 (continued).

		-----Turf Quality ¹ -----		
Cultivar or Selection		2002-2003 Avg.	2002 Avg.	2003 Avg.
71	Cutter	2.9	2.9	2.9
72	Headstart	2.9	2.8	3.0
73	Morning Star	2.8	2.6	3.1
74	Manhattan	2.2	2.2	2.1
LSD at 5% =		0.7	0.7	0.8

¹9 = best turf quality

Table 5. Performance of perennial ryegrass cultivars and selections in a turf trial established in September 2001 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2002-2003 Avg.	2002 Avg.	2003 Avg.
1	Citation Fore	6.8	6.7	6.9
2	DLF-17 9499	6.6	6.4	6.7
3	SRX 4801	6.5	6.3	6.7
4	DLF-17 9502	6.4	6.4	6.3
5	SRX 4820	6.4	6.6	6.1
6	DLF-17 9506	6.4	6.0	6.7
7	2\$1	6.3	6.2	6.4
8	Manhattan 4	6.3	6.1	6.4
9	DLFJ-121	6.3	6.4	6.2
10	EP159	6.2	6.5	5.9
11	DLF-17 9505	6.2	6.3	6.1
12	PST-2J\$	6.1	6.0	6.2
13	ML99	6.1	6.4	5.8
14	Brightstar SLT	6.1	6.0	6.1
15	PST-2MG	6.1	5.9	6.2
16	2IN0-2001	6.0	6.3	5.7
17	Charismatic	6.0	6.1	5.9
18	DLF-17 9498	6.0	6.0	5.9
19	DLF-17 9503	5.9	5.9	5.9
20	Quicksilver	5.9	5.7	6.0
21	PST-2FM	5.9	5.7	6.0
22	DLF-17 9501	5.8	5.7	6.0
23	EP158	5.8	5.9	5.7
24	PST-2INR	5.8	5.9	5.6
25	PST-2PCR	5.8	5.9	5.7
26	Grand Slam	5.8	5.7	5.8
27	Hawkeye	5.8	5.8	5.7
28	DLFJ-122	5.7	5.7	5.8
29	2PC-2001	5.7	5.9	5.5
30	DLF-17 9507	5.7	6.0	5.4
31	SR 4510	5.7	5.9	5.4
32	MP153	5.6	5.7	5.6
33	GLSR	5.6	5.5	5.7
34	Salinas	5.5	5.5	5.5
35	Brightstar II	5.5	5.4	5.6

(Continued)

Table 5 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2002-2003 Avg.	2002 Avg.	2003 Avg.
36	PST-2R91	5.5	5.5	5.6
37	EP145	5.5	5.6	5.4
38	MP148	5.5	5.6	5.5
39	EP151	5.4	5.3	5.5
40	Manhattan 3	5.4	5.3	5.5
41	PST-2FNE	5.4	5.2	5.5
42	PST-2TRS	5.3	5.4	5.2
43	PST-2QH	5.3	5.2	5.5
44	DLF-17 9508	5.3	5.4	5.2
45	DLF-17 9500	5.3	5.6	5.0
46	DLF-17 9504	5.3	5.8	4.7
47	Player	5.2	5.0	5.4
48	PST-2AGL	5.2	5.3	5.1
49	SR 4500	5.2	5.1	5.2
50	MP149	5.2	5.3	5.0
51	PST-2SH	5.1	5.1	5.1
52	DLFJ-102	5.1	5.0	5.1
53	DLFJ-104	5.1	5.0	5.1
54	DLFJ-105	5.0	4.8	5.2
55	SRX 45ABM	5.0	4.6	5.3
56	2RT	5.0	5.1	4.8
57	DLFJ-125	5.0	5.1	4.8
58	PST-2R99	4.9	5.1	4.8
59	DLFJ-103	4.9	4.8	5.1
60	DLFJ-127	4.9	5.0	4.8
61	EP152	4.9	5.0	4.7
62	MP150	4.8	4.8	4.8
63	SRX 4RTABM	4.8	4.5	5.1
64	PST-25GL	4.8	4.6	5.0
65	PST-2GL1	4.7	4.8	4.6
66	Quick Trans	4.5	4.6	4.5
67	DLFJ-126	4.5	4.5	4.5
68	SRX 4120	4.5	4.5	4.6
69	Penguin	4.5	4.5	4.4
70	SRX 4PFL78	4.5	4.7	4.2

(Continued)

Table 5 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2002-2003 Avg.	2002 Avg.	2003 Avg.
71	PST-2GLL	4.4	4.5	4.4
72	SRX 4PFL71	4.4	4.5	4.4
73	SRX 4ABRTM	4.4	4.3	4.5
74	PST-2911	4.4	4.5	4.4
75	SRX 4M0972	4.4	4.5	4.2
76	SRX 4PFE69	4.4	4.5	4.3
77	SRX 4PRM0971	4.3	4.4	4.2
78	SR 4200	4.3	4.1	4.4
79	Omni	4.3	4.2	4.3
80	SRX 4PFL72	4.2	4.5	4.0
81	SRX 4PFL82	4.2	4.3	4.1
82	SRX 4ATPREW	4.2	4.3	4.1
83	SRX 4SPRI	4.2	4.3	4.1
84	SR 4330	4.2	4.1	4.3
85	PST-2RGL	4.1	4.1	4.2
86	EP154	4.1	4.3	4.0
87	DLFJ-124	4.1	4.1	4.2
88	SRX 4CCG	4.1	4.2	4.1
89	SRX 4PFL63	4.1	4.1	4.0
90	SRX 4PFL74	4.0	4.2	3.8
91	SRX 4PFE75	4.0	4.0	4.0
92	SR 4010	4.0	4.0	3.9
93	PST-2GP-bulk	3.8	3.7	3.9
94	Envy	3.8	3.7	3.9
95	SR 4400	3.8	3.8	3.7
96	SRX 4PFL62	3.7	3.5	3.8
97	SR 4100	3.7	3.8	3.5
98	DLFJ-119	3.5	3.2	3.8
99	DLFJ-123	3.2	3.1	3.2
100	Linn	1.3	1.3	1.3
	LSD at 5% =	0.6	0.6	0.7

¹9 = best turf quality

Table 6. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2002 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality ¹ 2003 Avg.	Establishment ² Sept. 2002	Gray Leaf Spot ³ Sept. 2002	Steminess ⁴ July 2003	Brown Patch ³ Aug. 2003
1	PG4 comp	7.0	7.3	7.7	4.7	6.0
2	PG5 comp	6.6	6.3	7.3	7.0	7.3
3	RG2 comp	6.6	8.3	7.7	7.0	7.3
4	Paragon GLR	6.3	6.0	8.0	5.3	5.3
5	PG2 comp	6.3	7.3	7.7	7.3	7.3
6	MS2 comp	6.2	6.7	8.0	4.0	5.0
7	MS3 comp	6.2	6.3	7.7	4.3	5.3
8	MS1 comp	6.1	7.0	8.0	3.7	4.3
9	MM1 comp	6.1	6.0	8.0	5.7	6.3
10	RG1 comp	6.0	6.7	6.7	7.7	7.7
11	PR-208	5.8	6.3	7.0	4.7	5.7
12	PG3 comp	5.8	6.0	7.0	6.0	7.0
13	Palmer IV	5.7	7.0	6.7	4.3	5.7
14	IG2	5.6	6.0	7.0	5.3	6.7
15	Pizzazz C1	5.5	5.7	6.7	6.3	7.7
16	PR-209	5.5	6.3	6.7	5.3	7.3
17	Applaud C1	5.4	5.7	6.7	7.3	6.7
18	PG1 comp	5.4	6.7	6.3	6.7	5.7
19	APR 1563	5.3	5.7	7.0	6.0	5.7
20	RG3 comp	5.2	6.3	6.3	5.7	6.3
21	PR-141	5.2	8.0	5.3	5.7	6.3
22	PR-143	5.2	7.3	5.0	6.0	6.7
23	Applaud	5.1	7.3	4.7	7.3	6.7
24	Amazing C1	5.0	5.7	6.7	6.3	5.0
25	APR 1566	5.0	6.0	5.7	6.0	6.0
26	All*Star2	4.9	8.0	3.7	5.7	6.3
27	APR 1561	4.9	7.3	6.3	5.7	5.3
28	PR-142	4.9	7.7	4.0	5.7	6.7
29	APR 1532	4.9	6.7	6.3	6.7	6.7
30	Integra C1	4.9	5.3	7.0	5.0	5.3
31	Jet C1	4.8	6.0	6.3	7.0	5.7
32	APR 1559	4.8	6.3	6.7	8.0	5.7
33	Gator 3	4.8	8.0	4.7	6.0	6.7
34	Jet	4.8	8.3	5.0	6.3	7.3
35	APR 1533	4.8	6.3	4.3	7.3	6.7

(Continued)

Table 6 (continued).

	Cultivar or Selection	Turf Quality ¹ 2003 Avg.	Establishment ² Sept. 2002	Gray Leaf Spot ³ Sept. 2002	Steminess ⁴ July 2003	Brown Patch ³ Aug. 2003
36	APR 1535	4.7	5.7	5.7	6.7	5.3
37	SR 4220	4.7	7.7	4.0	6.0	6.0
38	APR 1557	4.7	5.3	7.0	6.3	6.0
39	SRX 4510	4.6	7.3	5.7	6.7	7.0
40	APR 1562	4.6	7.3	6.0	6.7	6.0
41	SR 4420	4.5	7.7	3.0	6.3	5.0
42	Pizzazz	4.4	7.3	4.3	5.7	7.0
43	A00 C1	4.3	5.0	6.0	5.0	5.3
44	Amazing	4.3	7.7	5.0	6.3	6.0
45	SRX 4R56	4.3	8.0	5.0	7.3	6.7
46	APR 1531	4.2	5.7	6.7	6.7	4.7
47	APR 1536	4.2	5.7	5.7	7.7	6.0
48	APR 1560	4.2	5.7	5.7	7.0	4.0
49	APR 1551	4.2	6.0	5.3	7.7	5.0
50	MRF 41	4.1	8.3	4.3	7.0	5.3
51	Top Hat 2	4.1	5.0	5.3	5.7	6.7
52	APR 1522	4.1	6.3	4.7	6.0	4.3
53	Palmer III	4.1	8.0	2.7	7.3	5.7
54	Pleasure XL	3.9	6.7	3.7	8.0	4.3
55	SRX 4500	3.8	8.0	4.0	7.0	5.7
56	APR 1534	3.8	5.7	5.3	7.0	7.3
57	Integra	3.8	4.3	5.7	4.3	4.3
58	Radiant II	3.8	6.0	6.0	6.0	5.3
59	PR-189	3.7	5.3	4.7	5.0	5.3
60	Promise C1	3.7	5.0	5.3	7.3	5.3
61	Windance	3.7	8.0	3.7	6.7	5.0
62	SRX 4R52	3.7	7.7	4.0	6.7	3.7
63	01-ORE-PRG	3.6	6.3	5.0	6.3	5.0
64	MRF 44	3.6	8.3	4.0	7.0	4.7
65	SRX 4R57	3.6	8.3	4.0	7.3	6.3
66	Omega 3	3.6	8.7	4.0	7.3	4.3
67	MRF 42	3.6	7.7	3.3	5.3	4.3
68	SRX 4R54	3.5	8.3	3.0	6.7	5.0
69	SRX 4R63	3.5	8.3	4.3	7.0	5.3
70	SRX 4125	3.5	6.3	5.3	5.7	5.0

(Continued)

Table 6 (continued).

	Cultivar or Selection	Turf Quality ¹ 2003 Avg.	Establishment ² Sept. 2002	Gray Leaf Spot ³ Sept. 2002	Steminess ⁴ July 2003	Brown Patch ³ Aug. 2003
71	APR 1520	3.4	5.7	5.3	6.7	5.3
72	SRX 4R62	3.4	8.0	3.7	7.0	5.0
73	APR 1425	3.4	5.0	5.7	5.7	6.0
74	MRF 45	3.4	8.3	2.3	6.0	6.7
75	SRX 4R55	3.4	7.0	3.3	6.7	4.0
76	APR 1528	3.4	5.0	5.3	6.7	7.0
77	SRX 4CCG	3.4	7.0	3.7	7.3	3.3
78	Affinity	3.3	7.3	3.7	8.3	4.0
79	APR 1523	3.3	5.7	3.3	7.0	4.7
80	Manhattan 3	3.3	8.0	3.0	6.3	3.7
81	Prelude IV	3.3	5.7	4.7	4.3	5.0
82	Prowler	3.2	7.3	4.3	7.0	4.3
83	Sonata	3.2	7.0	3.0	7.3	4.3
84	Blackhawk	3.2	8.3	4.0	7.7	4.7
85	Exacta	3.1	8.0	2.7	5.7	4.0
86	Windstar	3.1	8.7	2.0	7.3	6.0
87	Hawkeye	3.1	8.3	2.3	6.0	6.0
88	Promise	3.1	5.7	4.3	5.7	4.3
89	APR 1521	3.1	5.3	2.7	6.3	4.0
90	Laredo	3.1	8.0	2.3	7.3	6.3
91	MRF 43	3.1	7.3	3.7	6.0	4.7
92	MSP 3393	3.0	8.7	2.3	7.7	6.0
93	Paragon	3.0	8.0	2.3	5.3	5.0
94	SRX 4R64	3.0	7.7	3.0	6.7	5.3
95	APR 1519	3.0	5.7	3.7	7.3	6.0
96	Charismatic	3.0	7.3	1.3	6.0	5.7
97	Shining Star	3.0	7.7	2.7	6.7	4.0
98	Arrival	3.0	5.0	6.0	6.0	7.0
99	Morningstar	2.8	8.3	2.7	7.7	4.3
100	LF 122	2.8	4.3	5.3	4.7	6.0
101	SR 4200	2.7	8.7	1.7	7.3	4.0
102	Continental	2.6	7.7	2.0	6.3	2.7
103	Navajo	2.4	7.7	1.7	5.7	3.0
104	Manhattan	1.9	5.7	3.3	5.3	1.7
105	MSP 3478	1.9	7.7	1.3	5.0	4.7

(Continued)

Table 6 (continued).

	Cultivar or Selection	Turf Quality ¹ 2003 Avg.	Establishment ² Sept. 2002	Gray Leaf Spot ³ Sept. 2002	Steminess ⁴ July 2003	Brown Patch ³ Aug. 2003
106	Nui	1.1	6.3	3.0	6.3	1.3
	LSD at 5% =	0.7	1.4	1.4	1.0	1.8

¹9 = best turf quality

²9 = best seedling establishment

³9 = least disease

⁴9 = least amount of stems

Table 7. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2003 at Adelphia, NJ.

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot 2003 Sept. 26	Gray Leaf Spot 2003 Oct. 1	Turf Quality ² 2003 Avg.	Establishment ³ 2003
1	DP2 comp	8.3	8.3	8.3	7.2	5.3
2	UP2 comp	8.2	8.3	8.0	8.1	5.7
3	DP1 comp	8.0	8.0	8.0	7.8	5.7
4	APR 1658	8.0	8.3	7.7	6.7	5.0
5	AF comp	7.8	8.0	7.7	7.5	6.3
6	Panther GLS	7.8	8.3	7.3	6.9	6.3
7	APR 1675	7.8	8.0	7.7	7.0	5.7
8	Paragon GLR	7.8	8.0	7.7	7.9	5.3
9	SP comp	7.7	8.0	7.3	7.2	5.0
10	APR 1699	7.7	7.7	7.7	6.8	5.3
11	Palmer IV	7.5	8.3	6.7	7.3	8.7
12	MM2 comp	7.5	7.3	7.7	6.9	5.0
13	Integra C2	7.5	7.7	7.3	7.1	5.0
14	Phenom GLR	7.5	7.3	7.7	7.5	6.3
15	Repell GLS	7.5	8.0	7.0	7.2	5.0
16	UP5 comp	7.3	7.7	7.0	7.0	6.0
17	APR 1664	7.3	7.7	7.0	7.2	4.7
18	IG2	7.2	7.7	6.7	5.9	7.0
19	IS-PR 236	7.2	7.3	7.0	7.1	4.0
20	APR 1647	7.2	7.7	6.7	5.9	4.3
21	APR 1692	7.2	8.0	6.3	7.1	5.0
22	Applaud C2	7.0	7.3	6.7	7.0	6.3
23	APR 1666	7.0	7.3	6.7	7.2	5.7
24	APR 1682	7.0	6.7	7.3	5.9	5.3
25	IS-PR 234	6.8	6.7	7.0	5.4	2.7
26	IS-PR 237	6.8	7.0	6.7	5.9	4.7
27	UP3 comp	6.8	7.3	6.3	6.9	5.3
28	APR 1661	6.8	7.3	6.3	5.9	6.7
29	APR 1683	6.8	7.0	6.7	6.9	6.0
30	A00 C2	6.8	7.0	6.7	6.8	6.3
31	PST-Syn-2AGP	6.7	6.7	6.7	5.4	3.7
32	B-3.0662	6.7	6.7	6.7	6.4	4.0
33	IS-PR 235	6.7	7.3	6.0	6.3	4.0
34	APR 1663	6.7	7.0	6.3	6.7	6.0
35	Pizzazz C2	6.7	7.0	6.3	6.6	6.3

(Continued)

Table 7 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot Sept. 26 2003	Gray Leaf Spot Oct. 1 2003	Turf Quality ² 2003 Avg.	Establishment ³ 2003
36	Jet C2	6.7	6.7	6.7	6.3	5.3
37	APR 1674	6.7	7.3	6.0	6.0	5.0
38	APR 1695	6.7	7.7	5.7	7.1	5.0
39	APR 1619	6.5	7.0	6.0	6.3	4.0
40	APR 1670	6.5	7.0	6.0	6.8	6.0
41	APR 1673	6.5	7.0	6.0	6.3	5.0
42	IS-PR 266	6.3	7.3	5.3	7.0	4.7
43	IS-PR 233	6.2	6.7	5.7	4.8	3.0
44	UP4 comp	6.2	6.0	6.3	6.0	5.3
45	APR 1694	6.2	7.0	5.3	6.2	4.7
46	PST-Syn-2MAN	6.0	6.7	5.3	4.7	3.7
47	IS-PR 228	6.0	6.7	5.3	6.0	4.3
48	IS-PR 267	6.0	6.3	5.7	5.8	5.0
49	SRX 4557	6.0	6.7	5.3	5.3	5.0
50	Integra C1	6.0	6.7	5.3	6.7	5.7
51	Promise C2	6.0	6.0	6.0	5.4	5.3
52	PST-2PC	5.8	6.3	5.3	5.4	8.0
53	IS-PR 230	5.8	6.3	5.3	6.0	4.3
54	APR 1557	5.8	6.7	5.0	5.2	5.3
55	APR 1705	5.8	6.7	5.0	5.9	5.0
56	APR 1712	5.8	6.7	5.0	5.7	4.7
57	PST-2GSM bulk	5.7	6.3	5.0	4.8	5.0
58	IS-PR 209	5.7	6.0	5.3	5.1	3.7
59	IS-PR 226	5.7	6.7	4.7	5.8	3.7
60	APR 1671	5.7	6.0	5.3	5.0	6.7
61	APR 1684	5.7	6.3	5.0	5.1	5.3
62	2LGL	5.5	6.0	5.0	4.5	4.7
63	IS-PR 208	5.5	6.0	5.0	5.9	4.7
64	IS-PR 229	5.5	5.7	5.3	5.1	5.0
65	IS-PR 239	5.5	6.3	4.7	4.9	4.3
66	IS-PR 241	5.5	6.3	4.7	4.4	4.3
67	Amazing C1	5.5	6.0	5.0	5.6	6.3
68	APR 1563	5.5	6.0	5.0	5.6	5.3
69	APR 1702	5.5	6.0	5.0	5.6	6.3
70	PST-2MNG bulk	5.3	5.7	5.0	4.0	3.7

(Continued)

Table 7 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot Sept. 26 2003	Gray Leaf Spot Oct. 1 2003	Turf Quality ² 2003 Avg.	Establishment ³ 2003
71	B-3.0526	5.3	6.0	4.7	4.2	3.0
72	APR 1551	5.3	6.7	4.0	6.2	5.7
73	APR 1566	5.3	6.3	4.3	4.7	4.7
74	Pizzazz C1	5.3	5.7	5.0	5.4	7.3
75	APR 1672	5.3	5.7	5.0	4.1	5.0
76	PST-2LGS bulk	5.2	5.7	4.7	4.3	5.3
77	PST-Syn-2EMN	5.2	5.7	4.7	3.6	3.7
78	PST-Syn-2MGG	5.2	5.7	4.7	4.3	3.3
79	IS-PR 232	5.2	5.3	5.0	3.8	3.0
80	PSW #52	5.2	6.0	4.3	4.1	4.0
81	Applaud C1	5.2	5.7	4.7	4.9	6.3
82	APR 1560	5.2	6.7	3.7	5.2	6.0
83	2MAN	5.0	5.7	4.3	3.9	5.0
84	APR 1561	5.0	5.7	4.3	5.0	5.0
85	PST-2LU bulk	4.8	5.0	4.5	3.1	2.3
86	PST-Syn-2BL	4.7	5.0	4.3	3.8	3.0
87	PST-2AOI bulk	4.7	5.7	3.7	3.5	4.0
88	PST-Syn-2R9R	4.7	5.3	4.0	3.0	4.7
89	B-03.0530	4.7	5.7	3.7	3.6	4.3
90	B-3.0616	4.7	5.3	4.0	4.0	4.0
91	IS-PR 238	4.7	5.0	4.3	3.3	2.7
92	IS-PR 248	4.7	5.3	4.0	3.6	3.3
93	SRX CA 421	4.7	5.7	3.7	3.4	3.0
94	PSW #5	4.7	5.3	4.0	3.3	2.3
95	PSW #19	4.7	5.0	4.3	5.5	4.7
96	PST-2ERS bulk	4.5	5.3	3.7	2.8	4.7
97	BOB-03	4.5	5.0	4.0	3.2	4.0
98	SRX AB 452	4.5	5.3	3.7	2.6	1.0
99	PSW #10	4.5	5.3	3.7	4.0	5.3
100	PSW #45	4.5	5.3	3.7	4.6	8.0
101	PSW #54	4.5	5.7	3.3	3.1	4.3
102	APR 1425	4.5	5.0	4.0	2.8	4.7
103	PST-2UF	4.3	4.7	4.0	4.2	7.3
104	IS-PR 246	4.3	5.3	3.3	3.2	3.0
105	SRX ABHT	4.3	4.3	4.3	2.7	1.3

(Continued)

Table 7 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot Sept. 26 2003	Gray Leaf Spot Oct. 1 2003	Turf Quality ² 2003 Avg.	Establishment ³ 2003
106	PSW #24	4.3	5.3	3.3	3.3	5.0
107	PSW #39	4.3	5.3	3.3	3.8	4.0
108	DSU comp	4.3	4.7	4.0	3.9	4.0
109	Jet C1	4.3	5.3	3.3	4.0	7.0
110	APR 1559	4.3	5.0	3.7	4.0	7.0
111	PST-Syn-2MD	4.2	5.0	3.3	3.2	4.0
112	ALS2-03	4.2	5.3	3.0	3.1	4.3
113	Wizard	4.2	4.7	3.7	3.1	9.0
114	Applaud	4.2	4.7	3.7	4.1	8.7
115	SR 4500	4.2	4.7	3.7	2.7	8.7
116	SRX 45AB1	4.2	5.0	3.3	2.9	1.7
117	PSW #8	4.2	4.7	3.7	2.9	3.0
118	PSW #12	4.2	4.7	3.7	4.1	6.0
119	PSW #20	4.2	4.7	3.7	3.4	4.7
120	PSW #28	4.2	4.7	3.7	3.4	4.3
121	Citation Fore	4.0	4.3	3.7	4.4	8.3
122	Greenville	4.0	4.0	4.0	3.2	4.0
123	B-3.0527	4.0	4.7	3.3	2.9	4.3
124	Top Hat 2	4.0	4.3	3.7	4.0	8.7
125	IS-PR 240	4.0	4.7	3.3	3.0	3.3
126	SRX 4510	4.0	4.3	3.7	4.1	8.7
127	SRX CAE W1	4.0	4.7	3.3	2.9	6.3
128	PSW #2	4.0	4.7	3.3	3.2	4.7
129	Integra	4.0	4.3	3.7	4.2	7.7
130	Delaware XL	4.0	4.3	3.7	4.2	4.7
131	Manhattan 4	4.0	4.7	3.3	3.4	9.0
132	PST-Syn-2MUI	3.8	4.7	3.0	2.3	4.3
133	PST-2LITA bulk	3.8	5.0	2.7	3.2	3.7
134	Phantom	3.8	4.3	3.3	2.9	8.7
135	B-3.0611	3.8	4.7	3.0	2.8	2.7
136	B-3.0617	3.8	4.3	3.3	3.0	3.7
137	SR 4220	3.8	4.0	3.7	3.2	8.7
138	Peregreen	3.8	4.3	3.3	3.2	8.7
139	SRX OH 421	3.8	4.3	3.3	2.3	5.7
140	SRX OH 422	3.8	4.3	3.3	3.3	6.7

(Continued)

Table 7 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot Sept. 26 2003	Gray Leaf Spot Oct. 1 2003	Turf Quality ² 2003 Avg.	Establishment ³ 2003
141	Racer II	3.8	4.0	3.7	3.5	9.0
142	PSW #27	3.8	4.0	3.7	3.5	8.0
143	PSW #18	3.8	4.3	3.3	3.6	5.0
144	PSW #25	3.8	4.3	3.3	2.7	3.3
145	A00 C1	3.8	4.0	3.7	4.0	6.7
146	Pizzazz	3.8	4.3	3.3	3.8	9.0
147	PST-2LING bulk	3.7	4.7	2.7	2.6	3.3
148	Allsport	3.7	4.0	3.3	2.7	4.7
149	Prosport	3.7	4.0	3.3	2.7	3.3
150	Line Drive	3.7	4.0	3.3	2.9	8.7
151	Pennant II	3.7	4.3	3.0	3.7	8.7
152	SRX CA 441	3.7	4.7	2.7	2.7	4.3
153	SRX CA 423	3.7	4.3	3.0	2.4	5.7
154	SRX OH 433	3.7	4.3	3.0	2.8	6.3
155	SRX AB 451	3.7	4.0	3.3	2.5	1.7
156	PSW #13	3.7	4.3	3.0	3.3	5.0
157	PSW #22	3.7	4.3	3.0	2.9	3.7
158	PSW #31	3.7	4.3	3.0	3.1	5.0
159	PST-2SS bulk	3.5	4.0	3.0	1.9	2.3
160	Icon	3.5	4.0	3.0	2.1	4.0
161	Radiant	3.5	4.0	3.0	3.6	8.7
162	B-3.0614	3.5	4.0	3.0	2.7	4.0
163	B-03.0666	3.5	4.0	3.0	2.7	3.3
164	Gator 3	3.5	3.7	3.3	3.1	7.7
165	IS-PR 225	3.5	4.3	2.7	3.1	4.0
166	SRX CA 452	3.5	4.0	3.0	2.5	5.0
167	SRX CA 422	3.5	3.7	3.3	2.4	4.7
168	PSW #9	3.5	4.0	3.0	3.0	4.0
169	PSW #29	3.5	4.3	2.7	2.5	4.3
170	PSW #23	3.5	4.3	2.7	2.7	3.0
171	PSW #33	3.5	4.3	2.7	2.4	4.0
172	PSW #51	3.5	4.0	3.0	2.8	4.0
173	Promise C1	3.5	4.3	2.7	3.5	6.0
174	Jet	3.3	3.7	3.0	3.1	8.3
175	IS-PR 245	3.3	4.0	2.7	3.0	4.0

(Continued)

Table 7 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot Sept. 26 2003	Gray Leaf Spot Oct. 1 2003	Turf Quality ² 2003 Avg.	Establishment ³ 2003
176	IS-PR 247	3.3	3.7	3.0	2.2	3.3
177	SR 4420	3.3	3.7	3.0	3.3	8.3
178	SRX AB 453	3.3	4.0	2.7	2.2	1.7
179	Lowgrow	3.3	4.0	2.7	2.9	7.7
180	PSW #48	3.3	4.0	2.7	2.2	3.0
181	Brightstar SLT	3.3	3.7	3.0	3.0	8.7
182	PST-Syn-2GE	3.2	3.3	3.0	1.5	3.0
183	Pacesetter	3.2	4.0	2.3	2.1	3.7
184	NMSP-03	3.2	3.3	3.0	2.3	4.3
185	Palmer III	3.2	3.7	2.7	2.7	8.7
186	IS-PR 261	3.2	3.7	2.7	3.0	5.7
187	SRX CA HT1	3.2	4.0	2.3	2.4	5.7
188	SRX OH COR	3.2	4.3	2.0	2.2	4.7
189	PSW #6	3.2	4.0	2.3	2.8	3.7
190	Fiesta 3	3.2	3.7	2.7	2.4	8.3
191	PSW #21	3.2	4.0	2.3	2.1	3.0
192	PSW #42	3.2	4.3	2.0	2.1	3.3
193	Nui	3.2	3.3	3.0	1.0	9.0
194	Extreme	3.2	3.3	3.0	3.1	9.0
195	Amazing	3.2	3.7	2.7	3.7	9.0
196	PST-2MX bulk	3.0	3.7	2.3	2.8	3.7
197	Arrival	3.0	4.0	2.0	2.1	5.3
198	Dazzle	3.0	3.7	2.3	2.4	5.0
199	B-3.0615	3.0	3.3	2.7	2.2	3.7
200	B-3.0606	3.0	3.7	2.3	2.0	4.3
201	B-3.0533	3.0	4.0	2.0	2.6	3.0
202	B-3.0609	3.0	3.7	2.3	2.0	3.7
203	SRX CA 451	3.0	3.7	2.3	2.5	3.7
204	SRX CA 424	3.0	4.0	2.0	2.4	6.0
205	PSW #7	3.0	3.3	2.7	2.1	3.7
206	PSW #15	3.0	3.7	2.3	2.3	5.0
207	Cutter	3.0	3.3	2.7	2.5	9.0
208	PSW #44	3.0	3.3	2.7	2.9	9.0
209	PSW #50	3.0	3.7	2.3	1.9	4.3
210	Prelude IV	2.8	3.0	2.7	2.3	9.0

(Continued)

Table 7 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot Sept. 26 2003	Gray Leaf Spot Oct. 1 2003	Turf Quality ² 2003 Avg.	Establishment ³ 2003
211	B-3.0608	2.8	3.3	2.3	1.8	2.7
212	B-3.0607	2.8	4.0	1.7	2.1	3.0
213	SRX CA MO	2.8	3.7	2.0	1.9	3.0
214	SRX OH 411	2.8	3.7	2.0	2.0	6.0
215	PSW #3	2.8	3.7	2.0	2.5	5.7
216	Seville II	2.8	3.3	2.3	2.9	9.0
217	Calypso II	2.8	3.3	2.3	2.8	8.7
218	PSW #37	2.8	3.7	2.0	2.4	4.7
219	PSW #40	2.8	3.7	2.0	2.0	3.3
220	Manhattan	2.8	3.7	2.0	2.1	5.0
221	Goal Keeper	2.8	3.3	2.3	2.3	9.0
222	Wilmington	2.7	3.7	2.5	2.2	4.0
223	Sunkissed	2.7	3.0	2.3	2.6	8.3
224	B-3.0531	2.7	3.3	2.0	1.7	3.3
225	B-3.0528	2.7	3.3	2.0	2.3	4.0
226	Passport	2.7	3.3	2.0	2.3	8.3
227	Sunshine	2.7	3.3	2.0	2.2	8.3
228	PSW #30	2.7	3.7	1.7	2.2	3.0
229	PSW #34	2.7	3.3	2.0	2.5	4.7
230	APR 1648	2.7	3.7	1.7	2.0	5.7
231	PST-Syn-2CRH	2.5	3.0	2.0	1.1	2.0
232	SR 4350	2.5	3.0	2.0	1.9	9.0
233	PSW #14	2.5	3.3	1.7	2.0	7.0
234	Edge	2.5	3.3	1.7	2.1	8.3
235	Prizm	2.5	2.7	2.3	2.0	8.3
236	PSW #38	2.5	3.3	1.7	1.9	4.7
237	Paragon	2.5	3.0	2.0	2.0	8.7
238	Repell II	2.3	2.3	2.3	2.1	8.3
239	SRX OH 412	2.3	3.0	1.7	1.9	4.7
240	PSW #11	2.3	3.0	1.7	2.1	5.3
241	Racer	2.3	3.0	1.7	2.1	8.0
242	Lowgrow II	2.3	2.7	2.0	2.4	9.0
243	B-3.0535	2.2	3.0	1.3	1.8	5.0
244	PSW #1	2.2	3.0	1.3	1.4	3.3
245	PSW #17	2.2	3.0	1.3	1.5	3.0

(Continued)

Table 7 (continued).

	Cultivar or Selection	Gray Leaf Spot ¹ 2003 Avg.	Gray Leaf Spot Sept. 26 2003	Gray Leaf Spot Oct. 1 2003	Turf Quality ² 2003 Avg.	Establishment ³ 2003
246	PSW #26	2.2	2.7	1.7	1.9	5.0
247	PSW #36	2.0	2.7	1.3	1.4	5.3
248	PSW #53	2.0	2.3	1.7	1.9	4.0
249	MPRH 93	2.0	4.0	2.0	1.5	2.3
250	ASAP	2.0	2.3	1.7	1.8	9.0
251	Monterey II	2.0	2.3	1.7	2.0	9.0
252	Promise	2.0	2.7	1.3	2.0	8.7
253	PSW #16	1.8	2.3	1.3	1.9	6.0
254	PSW #41	1.8	2.3	1.3	1.3	4.0
255	PSW #43	1.8	2.0	1.7	1.7	8.7
256	Prelude III	1.7	1.7	1.7	1.4	8.7
257	Omni	1.7	2.0	1.3	1.2	7.7
258	Hawkeye	1.7	2.0	1.3	1.3	9.0
259	PSW #32	1.7	2.3	1.0	1.7	6.3
260	PSW #46	1.7	2.0	1.3	1.6	7.7
261	SRX CA HT2	1.5	1.7	1.3	1.4	5.0
262	PSW #35	1.5	2.0	1.0	1.2	5.7
263	Panther	1.3	1.7	1.0	1.4	9.0
264	Penguin	1.3	1.7	1.0	1.0	8.7
265	Imagine	1.2	1.3	1.0	1.2	9.0
266	Pennfine	1.2	1.3	1.0	1.0	6.7
	LSD at 5% =	1.2	1.5	1.3	1.2	1.4

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

Table 8. Yearly nitrogen (N) applied and mowing height (Ht) on perennial ryegrass tests established at Adelphia and North Brunswick, NJ.

	2000		2001		2002		2003	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht
Table 1 (1999 Adelphia)	2.9	1.5	4.1	1.5	2.5	1.5	2.25	1.5
Table 2 (1999 North Brunswick)	4.5	1.5	3.3	1.5	2.5	1.5	4.13	1.5
Table 3 (2000 Adelphia)			4.4	1.5	2.8	1.5	2.25	1.5
Table 4 (2001 Adelphia)					3.5	1.5	3.25	1.5
Table 5 (2001 Adelphia)					1.0	1.5	2.50	1.5
Table 6 (2002 Adelphia)							4.25	1.5
Table 7 (2003 Adelphia)							1.50	1.5

¹ Annual N applied (lb/1000 ft²)

² Mowing height in inches