

2001 RUTGERS Turfgrass Proceedings



THE NEW JERSEY TURFGRASS ASSOCIATION

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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 2001 New Jersey Turfgrass Expo. Publication of these lectures provides a readily available source of information covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

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

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

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

Melissa M. Mohr, 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*) is a popular 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 other research stations. The incorporation of new germplasm collections from around the world allows turf breeders to expand the genetic base of perennial ryegrass used in cultivar development. Perennial ryegrass, as well as other important turf species, has been collected from locations in Western and Eastern Europe.

International collection trips are also being made in an effort to acquire new sources of germplasm containing the beneficial fungus endophyte, *Neotyphodium lolii*. Ryegrasses that contain this endophyte have enhanced insect resistance and stress tolerance. Turfgrass breeders and university professors are continuing to research the beneficial role of endophytes in plant cultivar development.

PROCEDURES

Eight perennial ryegrass trials were established between 1998 and 2001. Five of the tests were seeded at Adelphia, NJ (Tables 1, 3, 4, and 7 to 9), and three of the tests were seeded at North Brunswick, NJ (Tables 2, 5, and 6).

The five Adelphia tests were hand sown with 0.88 oz of seed into 3 X 5 ft plots (3.7 lb seed/1000 ft²). Two of the North Brunswick tests (Tables 2 and 5) were hand sown with 2.1 oz into 3.5 X 5.5 ft plots (6.8 lb seed /1000 ft²), and the third North Brunswick test (Table 6) was hand sown with 0.28 oz of seed into 2 X 3 ft plots (3.7 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 received a fall application of the postemergence herbicides 2,4-D and MCPP for broadleaf weed control. A spring application of Dimension was used for preemergence control of summer annuals. The 1998, 1999, and 2000 Adelphia tests were also treated with an August application of Dursban for grub control. In the spring of 2001, Dimension was used on the 1998 and both 1999 North Brunswick tests for preemergence crabgrass control. The 1999 North Brunswick national test (Table 5) received two applications of Heritage in July 2001, and the other 1999 test (Table 6) received an August application of Prostar for brown patch control.

The annual rate of nitrogen (N) and mowing height for each test is presented in Table 10. Single applications of fertilizer did not exceed 1.0 lb N/1000 ft². The amount and timing of N applied to turf varied to encourage disease and other stresses. Tests were mowed regularly with reel mowers to maintain a 1.5 or 2.0 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 insect and disease damage). Other ratings such as establishment, spring green-up, and damage due to disease were rated when appropriate. All ratings were based on a 1 to 9 scale, where 9 represents the best turf characteristic. Plots were evaluated by a number of

¹Soils and Plants Technician, Research Professor, Research 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.

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 9. Entries in Tables 1 to 8 are ranked according to their overall (multi-year) quality average; entries in Table 9 are ranked according to the gray leaf spot 2001 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 3, 5, and 6 include entries of the 1999 National Perennial Ryegrass test sponsored by the National Turfgrass Evaluation Program (NTEP).

Turf Quality

Turf breeders have made significant improvements on the overall quality of perennial ryegrass over the last four decades. Older cultivars such as Linn, Manhattan, and Pennfine ranked at the bottom of the trials in turf quality compared to newer cultivars such as Amazing, Applaud, Gator 3, Pinnacle II, Pizzazz, and promising experimentals. Newer perennial ryegrasses had a 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 more popular with home owners, golf courses, and landscapers because of its ability to rapidly establish an attractive, hardy turf stand. It is evident in Tables 7 to 9 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 showed significant differences in disease resistance and recovery. New Jersey provides excellent environmental conditions for diseases such as red thread, dollar spot, and certain strains of rusts

that attack perennial ryegrass as well as many other turf species. Tables 3, 5, and 7 to 9 all provide valuable data on these diseases and indicate that many experimental grasses and new varieties have either better disease resistance characteristics or are capable of recovering more rapidly from epidemics.

Gray leaf spot is a devastating disease on newly established turf stands of perennial ryegrass. An outbreak of gray leaf spot in mid-September 2000 devastated most of the cultivars and selections in the 2000 trials at Adelphia (Tables 7 and 8). Two experimental selections, RNS comp and PR-154, showed very good resistance to this disease (Table 7). This data is very significant because little or no stable resistance to gray leaf spot had yet been shown 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 9). The data in this table is ranked by the gray leaf spot average rather than the turf quality average because of the significant effect of the disease on the trial.

Other Turf Characteristics

The color rating in Table 5 indicates that newer cultivars and selections possessed a darker green color than the older cultivars Linn or Pennfine. However, a spring green-up rating in April 2001 (Table 5) indicated 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 3 and 5.

SUMMARY

Although significant improvements have been made to perennial ryegrasses, increased genetically stable resistance to gray leaf spot, crown rust, dollar spot, pink patch, red thread, and brown patch is still needed. In addition, increased heat tolerance, cold hardiness, and the ability to survive under ice sheets for extended periods are also necessary.

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Table 1. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 1998 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----			
		1999-2001 Avg.	1999 Avg.	2000 Avg.	2001 Avg.
1	Allstar 2	6.4	6.9	6.3	6.0
2	6501 Comp	6.1	6.2	6.4	5.8
3	Pizzazz	6.1	6.8	6.0	5.5
4	LTP-ME	6.0	6.0	5.9	6.1
5	SRX 4801	6.0	6.5	6.1	5.4
6	DLF-LDD	5.8	6.0	5.7	5.9
7	8326 Comp	5.8	6.3	5.9	5.2
8	Integra	5.7	5.9	6.0	5.2
9	Exacta	5.6	5.6	5.5	5.6
10	Stellar	5.5	6.0	5.4	5.1
11	Affirmed	5.5	5.4	5.6	5.5
12	Cabo	5.5	5.7	5.4	5.3
13	Sommerville	5.5	5.6	5.5	5.3
14	Wilmington	5.4	5.5	5.5	5.2
15	LRF-98-439-PR	5.3	5.3	5.3	5.2
16	Pacesetter	5.2	5.6	5.1	5.0
17	Promise	5.2	5.4	5.3	4.9
18	Churchill	5.2	5.6	5.0	5.0
19	CIS PR-79	5.2	5.1	5.2	5.2
20	Paragon	5.2	4.9	5.3	5.3
21	Palmer III	5.1	5.0	5.3	5.0
22	LRF-98-437-PR	5.1	5.4	4.7	5.2
23	Brightstar II	5.1	5.1	5.1	5.0
24	MP88	5.0	5.2	5.0	4.7
25	Elfkin	4.9	4.7	5.1	4.9
26	MP57	4.9	5.1	4.7	4.8
27	LP84	4.9	5.0	4.9	4.7
28	MP72	4.9	5.1	4.9	4.6
29	CIS PR-81	4.8	4.4	4.9	5.1
30	Pleasure XL	4.7	4.7	4.9	4.5
31	LRF-98-438-PR	4.7	4.5	4.9	4.8
32	EP53	4.7	5.1	4.6	4.5
33	MP58	4.6	4.9	4.7	4.3
34	LP86	4.6	4.6	4.7	4.6
35	EP70	4.6	4.7	4.6	4.4

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			
		1999-2001 Avg.	1999 Avg.	2000 Avg.	2001 Avg.
36	LP56	4.5	4.7	4.6	4.4
37	Allsport	4.5	4.4	4.6	4.6
38	CIS PR-70	4.4	4.0	4.3	5.1
39	CIS PR-77	4.4	4.3	4.6	4.4
40	MP42	4.4	4.9	4.0	4.3
41	MP41	4.3	4.5	4.3	4.0
42	Caddieshack	4.3	4.3	4.2	4.3
43	Top Gun	4.2	3.9	4.3	4.3
44	CIS PR-76	4.2	4.0	4.1	4.4
45	EP 39	4.1	4.2	4.3	4.0
46	AG-P981	4.1	4.4	4.1	3.9
47	SC 96-1	4.1	3.8	4.3	4.3
48	Gator II	4.1	3.9	4.1	4.3
49	LP85	4.0	4.1	3.9	4.2
50	EP59	3.9	4.0	4.0	3.8
51	APM	3.9	3.5	4.1	4.0
52	SC 97-1	3.9	3.5	4.2	3.9
53	LP62	3.8	4.3	3.8	3.5
54	Accent	3.8	3.5	3.8	4.0
55	Nobility	3.7	3.3	4.1	3.7
56	Delaware Dwarf	3.6	3.3	3.8	3.7
57	Advent	3.6	3.2	3.8	3.8
58	Envy	3.5	3.5	3.7	3.3
59	Bullet	3.3	3.0	3.5	3.4
60	Pleasure	3.1	2.8	3.6	3.0
61	Nui	1.1	1.1	1.0	1.2
	LSD at 5% =	0.5	0.6	0.7	0.7

¹9 = best turf quality

Table 2. Performance of perennial ryegrass cultivars and selections in a turf trial established in September 1998 at North Brunswick, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			
	1999-2001 Avg.	1999 Avg.	2000 Avg.	2001 Avg.
1 Jet	6.6	7.3	6.6	5.9
2 Exacta	6.2	6.9	5.9	5.9
3 Paragon	6.2	6.8	5.8	5.9
4 Sommerville	6.2	7.3	5.6	5.6
5 Affirmed	5.8	6.1	5.7	5.5
6 Churchill	5.6	7.3	5.4	4.2
7 Palmer III	5.6	5.9	5.3	5.6
LSD at 5% =	0.2	0.6	0.5	0.5

¹9 = best turf quality

Table 3. 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 -----			Dollar Spot ² Aug. 2001	Density ³ Nov. 2001	Leaf Texture ⁴ Nov. 2001
		2000- 2001 Avg.	2000 Avg.	2001 Avg.			
1	Roberts-627	6.9	7.0	6.7	7.3	8.3	7.0
2	Applaud	6.4	6.6	6.3	6.7	7.7	7.3
3	Allstar2	6.3	6.7	5.9	6.7	7.0	7.0
4	Amazing	6.3	6.6	6.0	7.7	7.0	7.0
5	Pizzazz	6.3	6.6	5.9	8.3	7.0	7.0
6	Pinnacle II	6.1	6.6	5.6	6.0	6.7	7.0
7	CIS-PR-84	6.1	6.6	5.5	7.7	6.0	5.7
8	Citation Fore	6.1	6.1	6.0	6.0	6.7	6.3
9	Pentium	6.0	6.0	6.1	9.0	7.0	6.3
10	2PC bulk	6.0	6.4	5.7	7.3	7.7	6.7
11	Kokomo	6.0	6.5	5.5	5.7	6.7	6.3
12	Integra	6.0	6.7	5.3	6.7	5.7	5.7
13	Charismatic	6.0	6.2	5.7	6.0	7.3	6.3
14	Gator 3	5.9	6.4	5.4	7.0	6.3	6.3
15	DLF-LDD	5.9	5.8	6.0	7.7	7.3	7.0
16	Inspire	5.8	6.1	5.5	7.7	6.0	5.7
17	Blazer IV	5.8	6.4	5.2	6.0	5.7	6.0
18	CIS-PR-83	5.8	5.9	5.6	6.7	6.0	6.7
19	ABT-99-4.834	5.7	6.2	5.3	6.7	6.7	7.0
20	Seville II	5.7	5.9	5.4	8.0	6.7	6.3
21	Jet	5.6	5.8	5.4	6.7	7.0	6.0
22	SR 4820	5.6	5.9	5.3	7.7	5.3	6.3
23	SRX 4801	5.6	6.0	5.2	6.3	6.0	5.7
24	ABT-99-4.115	5.5	5.7	5.4	8.3	7.0	5.7
25	ABT-99-4.721	5.5	5.5	5.4	7.0	5.3	5.3
26	ABT-99-4.560	5.5	5.5	5.5	8.3	6.0	6.3
27	CIS-PR-82	5.5	5.9	5.1	7.7	4.7	4.7
28	ABT-99-4.724	5.4	5.6	5.2	5.7	5.7	6.0
29	Paragon	5.4	5.9	4.9	5.7	5.3	4.7
30	Stellar	5.4	6.0	4.8	6.0	5.3	4.7
31	Fiesta 3	5.4	5.6	5.1	7.0	5.7	5.7
32	PST-2L96	5.4	5.5	5.2	6.7	6.7	6.3
33	SRX 4RHT	5.4	5.8	4.9	6.7	6.0	6.0
34	SYN 2R7	5.3	6.0	4.5	6.7	5.7	5.7
35	Pacesetter	5.3	5.5	5.1	7.0	6.0	6.3

Table 3 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Dollar Spot ² Aug. 2001	Density ³ Nov. 2001	Leaf Texture ⁴ Nov. 2001
		2000- 2001 Avg.	2000 Avg.	2001 Avg.			
36	SYN 2IN	5.2	5.5	5.0	5.3	6.3	5.7
37	Cabo	5.2	6.0	4.3	6.0	4.7	5.3
38	SR 4500	5.2	5.3	5.1	6.3	6.3	6.0
39	Pick RC2	5.2	5.4	5.0	5.3	6.0	5.7
40	Exacta	5.2	5.4	4.9	6.0	5.0	5.3
41	Brightstar SLT	5.2	5.6	4.7	5.3	5.7	5.0
42	Nexus	5.1	5.7	4.6	6.7	5.0	5.3
43	Manhattan 4	5.1	5.3	4.9	6.7	5.3	5.0
44	Gallery	5.1	5.4	4.8	6.0	5.3	5.3
45	SYN 2GT	5.1	5.3	4.9	8.0	6.7	6.3
46	Pick RC2	5.1	5.0	5.2	7.7	7.7	6.3
47	Brightstar II	5.1	5.4	4.8	6.7	4.3	4.7
48	Churchill	5.1	5.5	4.7	5.0	4.3	5.3
49	PST-2M4	5.1	5.2	4.9	8.7	6.3	5.7
50	ABT-99-4.464	5.1	5.0	5.2	6.3	7.0	6.0
51	A5C	5.1	5.5	4.6	6.7	4.3	5.7
52	CIS-PR-119	5.1	5.3	4.9	7.3	5.7	5.7
53	2CUL bulk	5.1	5.3	4.8	8.0	5.3	5.3
54	CIS-PR-74	5.0	4.7	5.3	7.3	6.7	6.7
55	EDT	5.0	5.5	4.6	6.0	4.7	5.0
56	Affirmed	5.0	5.1	4.9	5.0	5.7	5.3
57	Racr 7-44	5.0	5.3	4.7	6.7	5.0	5.3
58	Catalina SLT	5.0	5.2	4.8	6.0	5.3	5.7
59	Promise	5.0	5.4	4.5	6.3	6.0	6.3
60	Pick PR QH-97	5.0	5.5	4.4	4.7	5.0	5.0
61	Racr 7-48	5.0	5.0	4.9	7.3	5.7	4.7
62	CIS-PR-77	4.9	5.0	4.9	6.0	5.7	6.0
63	CIS-PR-81	4.9	5.4	4.5	7.0	5.0	5.7
64	Salinas SLT	4.9	5.4	4.4	7.0	5.7	6.0
65	Splendid	4.9	5.3	4.5	6.7	5.7	5.3
66	Pirouette	4.9	5.3	4.5	5.3	5.3	5.7
67	PST-2LA	4.9	4.9	4.9	5.3	5.3	5.7
68	PST-2JH	4.9	4.8	4.9	8.3	5.7	5.3
69	PR 10-99	4.9	5.2	4.6	5.7	4.7	4.7
70	CIS-PR-76	4.9	5.0	4.8	5.7	5.3	6.0

Table 3 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Dollar Spot ² Aug. 2001	Density ³ Nov. 2001	Leaf Texture ⁴ Nov. 2001
		2000- 2001 Avg.	2000 Avg.	2001 Avg.			
71	Majesty	4.9	5.1	4.6	7.0	5.3	4.7
72	2SLW	4.9	5.2	4.5	6.7	4.7	5.3
73	Premier II	4.9	5.0	4.7	6.7	5.7	5.3
74	MS2-2	4.9	4.6	5.1	7.3	4.7	5.7
75	Archer	4.8	5.2	4.4	6.0	4.7	4.7
76	MP109	4.8	5.2	4.5	5.7	5.0	5.0
77	Pace	4.8	5.1	4.5	6.0	5.3	4.7
78	Lowgrow II	4.8	5.1	4.5	5.7	6.7	6.3
79	Barlennium	4.8	5.0	4.5	5.7	5.0	5.3
80	PST-2CRR	4.8	5.1	4.4	6.3	4.0	4.0
81	CIS-PR-75	4.8	5.2	4.4	5.3	5.7	5.3
82	Monterey II	4.8	4.7	4.8	5.7	5.0	4.3
83	ABT-99-4.339	4.8	4.6	4.9	5.7	6.3	5.7
84	Racr 7-45	4.8	4.8	4.7	6.7	5.3	5.0
85	SYN 2HCR	4.8	4.9	4.6	5.3	5.7	6.0
86	Pick EX 2-2	4.7	5.2	4.3	3.0	5.0	5.3
87	PRB-97	4.7	5.2	4.3	6.0	4.7	5.3
88	PST-2RT	4.7	4.7	4.7	7.3	6.3	5.3
89	MP88	4.7	5.1	4.4	4.7	5.0	4.3
90	SYN 22L	4.7	5.2	4.2	4.3	5.0	5.0
91	Courage	4.7	5.0	4.4	6.3	6.0	5.3
92	MP96	4.7	5.0	4.4	4.3	4.3	5.7
93	MP110	4.7	5.0	4.4	4.3	5.3	5.7
94	Pick PRNGS	4.7	4.7	4.6	6.0	6.7	5.0
95	Palmer III	4.7	4.9	4.5	5.7	5.7	5.3
96	Elfkin	4.7	4.9	4.4	4.7	4.7	5.0
97	MP107	4.7	5.1	4.2	6.7	4.3	5.0
98	LP O-93	4.7	5.1	4.3	4.7	5.7	5.7
99	Secretariat	4.7	4.4	4.9	7.7	5.7	6.3
100	Summerset	4.7	5.1	4.3	6.3	4.7	4.3
101	Admire	4.7	4.6	4.7	6.0	6.0	5.3
102	Lp BB-93	4.6	4.8	4.5	5.7	5.7	5.3
103	Racr 7-49	4.6	4.8	4.5	7.7	6.0	4.7
104	Calypto II	4.6	4.6	4.6	6.0	5.7	6.0
105	Pennant II	4.6	4.9	4.3	5.7	5.0	5.0

Table 3 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Dollar Spot ² Aug. 2001	Density ³ Nov. 2001	Leaf Texture ⁴ Nov. 2001
		2000- 2001 Avg.	2000 Avg.	2001 Avg.			
106	MEPY	4.6	5.0	4.2	6.0	4.3	4.7
107	Racr 7-46	4.6	4.9	4.3	6.3	3.3	4.7
108	SYN 22M	4.6	5.1	4.0	5.3	4.3	4.7
109	MDP	4.6	4.8	4.3	5.3	4.3	4.3
110	Radiant	4.6	5.4	3.8	5.3	4.3	4.7
111	MP55	4.6	4.7	4.4	5.0	5.3	5.7
112	Pick PR 1-94	4.5	4.8	4.2	6.3	4.7	5.0
113	MEKT	4.5	5.0	4.1	5.3	4.3	5.7
114	ABT-99-4.709	4.5	4.8	4.2	6.7	4.3	4.7
115	MP114	4.5	4.7	4.3	6.0	4.7	5.3
116	MKT	4.5	5.0	4.0	3.0	5.0	4.3
117	Divine	4.5	4.7	4.3	7.3	5.7	5.7
118	PST-2SBE	4.5	4.6	4.4	6.7	4.7	4.7
119	Pick PR B-97	4.5	5.0	3.9	5.7	5.3	5.7
120	PR-8-94-99	4.5	5.1	3.8	6.7	4.7	5.0
121	Racr 7-73	4.5	4.5	4.4	5.7	5.7	6.0
122	Ascend	4.4	4.7	4.1	5.7	5.0	5.7
123	LTP-ME	4.4	4.5	4.3	6.7	4.7	5.3
124	ABT-99-4.625	4.4	4.6	4.2	8.0	4.3	6.0
125	ABT-99-4.965	4.4	4.8	4.0	7.3	3.0	4.0
126	Caddieshack	4.4	4.3	4.5	4.7	5.7	5.0
127	APR 1233	4.4	4.3	4.5	8.0	5.0	5.3
128	MB 414	4.4	4.6	4.1	5.7	4.0	5.3
129	PR J-97	4.4	4.7	4.1	6.0	5.3	5.7
130	MS2-1	4.4	4.5	4.2	6.3	6.0	5.0
131	LP86	4.4	4.9	3.8	2.7	4.3	5.0
132	2TN-98-bulk	4.4	5.0	3.8	7.0	4.3	4.3
133	PR O-97	4.4	4.6	4.1	5.0	4.7	5.7
134	EPD	4.4	4.7	4.0	4.0	3.7	4.7
135	LP22	4.4	4.8	3.9	6.0	5.7	5.0
136	MP103	4.3	4.9	3.8	4.3	4.0	4.7
137	EP53	4.3	4.7	4.0	5.0	4.0	4.7
138	Galaxy	4.3	4.4	4.2	4.7	5.0	5.3
139	Catalina	4.3	4.5	4.1	6.0	4.7	5.3
140	Edge	4.3	4.1	4.4	5.3	5.7	4.7

Table 3 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Dollar Spot ² Aug. 2001	Density ³ Nov. 2001	Leaf Texture ⁴ Nov. 2001
		2000- 2001 Avg.	2000 Avg.	2001 Avg.			
141	SYN 2CT	4.3	4.7	3.9	6.7	4.3	4.7
142	Panther	4.3	4.2	4.3	5.3	5.7	5.7
143	Racr 7-39	4.3	4.5	4.0	6.0	5.3	5.0
144	SYN 22E	4.3	4.5	4.0	7.0	4.3	4.3
145	Line Drive	4.3	4.3	4.2	5.7	5.0	4.7
146	Wilmington	4.2	5.0	3.5	4.3	2.7	4.7
147	Sunshine	4.2	4.6	3.9	6.0	4.0	4.7
148	MP60	4.2	4.7	3.7	2.0	4.3	4.3
149	LP85	4.2	4.7	3.7	3.3	4.3	4.3
150	APR 1237	4.2	4.2	4.2	7.0	5.3	5.7
151	Extreme	4.2	4.5	3.9	4.7	4.3	4.7
152	Racr 7-54	4.2	4.5	3.9	4.3	5.0	4.0
153	LP56	4.2	4.7	3.7	4.3	4.0	4.7
154	LP1	4.2	4.2	4.2	5.7	6.0	6.0
155	SYN 2WN	4.2	4.6	3.8	4.0	4.3	4.3
156	Paradigm	4.2	4.2	4.2	7.7	4.3	5.0
157	Manhattan 3	4.2	4.2	4.1	8.3	5.0	4.7
158	Charger II	4.2	4.2	4.2	7.3	5.0	4.3
159	Assure	4.2	4.2	4.1	5.3	5.0	4.3
160	CAS LP84	4.2	4.5	3.8	5.7	3.3	4.0
161	Pleasure XL	4.1	4.1	4.1	6.3	4.3	4.3
162	Citation 3	4.1	4.2	4.0	5.0	4.3	4.7
163	Koos R-71	4.1	3.9	4.3	6.7	5.0	3.7
164	APR 776	4.1	4.3	3.9	5.3	4.7	5.0
165	EP70	4.1	4.5	3.7	4.0	4.3	4.7
166	Cutter	4.1	4.2	4.0	5.7	4.7	3.7
167	Headstart	4.1	4.1	4.0	6.0	4.3	4.3
168	Passport	4.1	4.3	3.8	5.3	4.3	4.7
169	Racr 7-69	4.1	4.0	4.1	6.3	4.7	5.0
170	Cathedral II	4.0	4.0	4.1	7.0	5.3	5.0
171	Phantom	4.0	4.2	3.8	5.0	3.7	4.0
172	Jiffie	4.0	4.1	3.9	7.3	4.3	5.0
173	Accent	4.0	4.0	4.1	6.3	5.3	4.3
174	MP106	4.0	4.5	3.5	4.3	4.7	5.0
175	Pick EX2	4.0	3.9	4.1	7.0	6.3	5.0

Table 3 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Dollar Spot ² Aug. 2001	Density ³ Nov. 2001	Leaf Texture ⁴ Nov. 2001
		2000- 2001 Avg.	2000 Avg.	2001 Avg.			
176	3 BK	4.0	4.9	3.1	6.3	2.3	3.3
177	Superstar	4.0	4.4	3.6	5.0	4.0	5.0
178	PR 1-99	4.0	4.0	3.9	5.7	4.0	3.7
179	ABT-99-4.815	4.0	4.1	3.9	3.7	5.7	5.3
180	PR 9-99	4.0	4.0	3.9	4.3	5.3	4.7
181	LPR 98-144	3.9	3.7	4.1	7.3	4.7	4.7
182	LPR 98-143	3.9	4.1	3.7	6.3	3.7	4.0
183	WVPB-R-84	3.9	3.9	4.0	7.7	3.0	3.7
184	BY-100	3.9	4.0	3.9	6.0	6.3	4.3
185	Pick EX 2-1	3.9	3.8	4.0	5.7	5.0	4.3
186	MP102	3.9	4.5	3.3	5.0	3.0	4.0
187	MP115	3.9	4.4	3.4	4.3	3.0	4.7
188	PR PEI-L-99	3.9	3.9	3.9	4.3	6.0	6.0
189	Pearl	3.9	4.3	3.5	4.3	4.0	3.3
190	APR 1232	3.9	3.8	3.9	6.7	5.7	5.0
191	EP59	3.9	4.0	3.7	4.3	4.0	4.0
192	Blazer II	3.9	3.7	4.0	3.7	6.7	5.0
193	Premier	3.8	3.9	3.7	5.3	4.0	3.7
194	Racer	3.8	3.8	3.8	6.7	3.7	4.0
195	Passport	3.8	4.0	3.6	5.3	3.7	3.3
196	Morning Star	3.8	3.5	4.1	4.3	4.7	3.3
197	Affinity	3.8	3.6	4.0	4.7	6.0	5.3
198	APR 1235	3.8	4.2	3.4	7.7	4.0	4.3
199	Skyhawk	3.8	4.2	3.4	5.7	4.3	4.0
200	APR 1231	3.8	3.6	4.0	6.0	6.0	6.0
201	Allsport	3.7	4.3	3.2	4.3	3.7	4.3
202	ABT-99-4.600	3.7	3.8	3.7	5.3	4.3	4.3
203	Prosport	3.7	4.1	3.3	4.0	4.0	4.7
204	SRX 4120	3.7	3.6	3.7	6.0	5.0	4.7
205	Pinnacle	3.7	3.6	3.8	5.0	5.3	4.3
206	Prowler	3.7	3.9	3.4	7.0	4.3	4.7
207	Peak	3.6	3.7	3.6	5.0	4.0	3.3
208	Yatsugreen	3.6	3.0	4.2	7.3	6.3	4.3
209	PR-7-99	3.6	3.7	3.5	5.7	4.3	4.3
210	WVPB-R-82	3.6	3.4	3.8	6.3	2.7	3.0

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Dollar Spot ² Aug. 2001	Density ³ Nov. 2001	Leaf Texture ⁴ Nov. 2001
	2000- 2001 Avg.	2000 Avg.	2001 Avg.			
211 Edge	3.6	3.5	3.7	5.0	4.7	3.7
212 Fiesta	3.6	3.6	3.5	5.0	3.7	3.7
213 MP41	3.6	4.1	3.1	4.7	3.7	3.7
214 DP LP-1	3.5	3.5	3.6	6.0	5.7	4.0
215 Express	3.5	3.4	3.7	5.0	4.3	3.7
216 Buccaneer	3.5	3.4	3.6	6.0	4.0	3.7
217 DP 17-9069	3.5	3.5	3.5	5.7	5.3	3.7
218 PR PEI-E-99	3.5	3.7	3.2	4.3	4.7	4.7
219 APR 1234	3.4	3.4	3.4	6.3	3.7	3.0
220 DP 17-9391	3.3	3.1	3.5	5.7	4.7	4.0
221 PRG-97	3.3	3.3	3.2	4.3	4.3	3.3
222 Lp H-98 P-	3.2	3.1	3.2	5.7	5.0	4.3
223 Lp H-98 P	3.0	3.0	3.0	6.3	3.3	2.7
224 Pennfine	2.8	2.9	2.6	5.7	3.3	3.0
225 Barclay	2.7	2.3	3.1	3.3	5.7	2.3
226 Manhattan	2.6	2.7	2.5	5.0	4.0	2.7
227 DP 17-9496	2.1	1.9	2.2	7.0	3.7	1.7
228 Linn	1.3	1.4	1.1	7.7	1.0	1.0
LSD at 5% =	0.5	0.6	0.8	2.3	1.7	1.4

¹9 = best turf quality

²9 = least disease

³9 = best density

⁴9 = best leaf texture

Table 4. Performance of perennial ryegrass cultivars and selections in a turf trial established in September 1999 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----		
	2000-2001 Avg.	2000 Avg.	2001 Avg.
1 Amazing	5.8	5.9	5.7
2 Applause	5.7	6.2	5.1
3 Pizzazz	5.5	5.9	5.1
4 Charismatic	5.4	5.5	5.3
5 Pentium	5.3	5.4	5.2
6 Integra	5.3	5.6	5.0
7 DLF-LDD	5.2	5.5	4.8
8 Promise	5.1	5.4	4.8
9 Exacta	4.9	5.4	4.3
10 Palmer III	4.6	4.9	4.3
11 Paragon	4.6	4.8	4.4
12 Roberts-627	4.5	4.2	4.8
13 Manhattan	2.9	3.0	2.8
14 Penn Fine	2.2	2.2	2.2
15 Nui	1.2	1.1	1.2
LSD at 5% =	0.6	0.8	0.6

¹9 = best turf quality

Table 5. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 1999 at North Brunswick, NJ. (Includes all entries from the 1999 National Perennial Ryegrass Test.)

Cultivar or Selection	-----Turf Quality ¹ -----		Spring Green-up ² April 2001	Color ³ Aug. 2001	Density ⁴ Aug. 2001	Leaf Texture ⁵ Aug. 2001	Dollar Spot ⁶ 2001 Avg.	Red Thread ⁶ June 2001
	2000-2001 Avg.	2001 Avg.						
1 Pizzazz	7.1	7.2	6.3	6.7	8.0	6.3	6.7	6.0
2 Applaud	7.1	7.4	4.7	6.3	7.7	6.7	6.5	7.7
3 CIS-PR-84	6.9	7.2	5.0	6.7	6.7	6.0	6.3	7.7
4 Blazer IV	6.8	6.9	5.3	6.0	7.0	6.7	7.2	8.3
5 Roberts-627	6.8	7.3	4.0	7.3	7.3	5.7	6.0	7.7
6 ABT-99-4.834	6.8	7.0	5.0	7.0	8.0	5.3	6.2	9.0
7 Pinnacle II	6.7	7.5	4.7	6.7	6.3	6.0	4.7	7.3
8 Gator 3	6.7	6.8	4.3	6.3	7.3	6.0	6.2	9.0
9 PST 2L96	6.6	6.8	3.3	6.7	6.7	5.3	6.5	9.0
10 Amazing	6.5	7.2	6.0	6.7	6.0	6.0	5.2	9.0
11 SRX 4801	6.5	6.9	4.7	5.0	7.0	6.3	5.8	9.0
12 Allstar2	6.4	6.9	5.0	6.3	5.7	6.0	6.7	9.0
13 SRX 4820	6.4	6.6	5.7	6.0	7.0	6.0	5.5	8.3
14 Charismatic	6.3	6.8	4.7	5.7	6.3	6.0	6.3	8.7
15 Nexus	6.3	6.6	5.0	6.7	6.7	6.0	7.0	9.0
16 SRX 4RHT	6.3	6.7	5.3	6.7	6.0	5.3	5.7	8.7
17 DLF-LDD	6.2	6.5	4.7	5.3	7.3	6.3	6.3	8.3
18 ABT-99-4.721	6.2	6.3	4.0	5.3	6.0	5.0	6.3	8.0
19 Jet	6.2	6.4	6.3	5.7	7.3	6.0	6.7	9.0
20 Citation Fore	6.2	6.4	5.3	5.3	6.7	5.0	5.5	9.0
21 Pentium	6.1	6.1	5.0	5.7	7.7	7.0	7.5	9.0
22 Kokomo	6.1	6.4	5.0	6.3	5.7	5.0	5.7	7.3
23 Gallery	6.1	6.5	3.3	8.0	5.7	5.7	7.8	8.7
24 PST-2SBE	6.1	6.1	4.0	5.0	6.0	5.3	7.8	9.0
25 Seville II	6.1	6.3	5.0	5.7	6.0	5.7	6.5	9.0

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----		Spring Green-up ² April 2001	Color ³ Aug. 2001	Density ⁴ Aug. 2001	Leaf Texture ⁵ Aug. 2001	Dollar Spot ⁶ 2001 Avg.	Red Thread ⁶ June 2001
	2000-2001 Avg.	2001 Avg.						
26 Brightstar SLT	6.0	5.5	3.3	6.3	6.0	5.3	5.7	9.0
27 Manhattan 4	5.9	5.7	4.0	5.7	5.0	4.7	5.8	8.0
28 ABT-99-4.115	5.9	5.6	6.3	5.0	7.0	5.7	6.8	9.0
29 Promise	5.9	5.7	6.3	5.0	6.7	6.0	6.8	8.3
30 Inspire	5.8	5.5	5.0	5.0	5.7	5.0	6.2	8.0
31 Pick PR QH-97	5.8	5.3	4.7	6.0	5.7	5.3	5.5	7.7
32 Salinas SLT	5.8	5.6	2.7	5.7	5.7	5.3	7.7	9.0
33 Pick PR B-97	5.8	5.7	3.0	6.0	5.3	6.3	6.7	8.7
34 Exacta	5.8	6.0	4.0	5.3	5.3	5.0	4.7	8.0
35 Brightstar II	5.7	5.3	3.7	6.7	6.7	4.7	6.3	8.3
36 LRPR-A95	5.7	5.5	5.7	5.7	6.0	5.3	5.7	9.0
37 SR 4500	5.7	5.3	5.3	4.7	7.0	5.3	6.7	9.0
38 Summerset	5.6	5.5	4.0	7.3	6.0	5.7	7.0	8.3
39 Wilmington	5.6	5.6	3.0	7.0	5.0	4.3	7.2	9.0
40 PST-2LA	5.6	5.4	4.0	5.0	7.3	6.0	6.0	9.0
41 Radiant	5.6	5.8	3.0	8.0	5.7	4.7	5.7	9.0
42 LTP-ME	5.6	5.3	3.7	5.7	5.3	4.7	5.5	9.0
43 Paragon	5.6	5.4	5.3	5.7	6.7	5.3	5.7	9.0
44 Stellar	5.5	5.1	6.0	8.0	5.3	5.0	6.5	9.0
45 MP88	5.5	5.0	3.3	4.3	5.0	5.7	4.7	8.7
46 Pennant II	5.5	5.2	4.3	5.7	5.7	5.0	5.8	7.7
47 ABT-99-4.724	5.5	5.2	5.7	4.7	6.0	5.0	6.0	9.0
48 Churchill	5.5	5.0	4.3	5.0	4.7	5.0	5.0	8.7
49 Pacesetter	5.5	5.5	5.0	4.7	6.7	6.3	6.5	8.3
50 ABT-99-4.464	5.5	5.1	5.3	5.0	6.7	6.3	5.7	9.0

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----		Spring Green-up ² April 2001	Color ³ Aug. 2001	Density ⁴ Aug. 2001	Leaf Texture ⁵ Aug. 2001	Dollar Spot ⁶ 2001 Avg.	Red Thread ⁶ June 2001
	2000-2001 Avg.	2001 Avg.						
51 ABT-99-4.625	5.5	5.7	3.3	6.3	4.7	4.0	6.3	9.0
52 PST-2M4	5.4	5.6	5.7	4.3	5.7	5.7	7.2	9.0
53 Fiesta 3	5.4	5.3	5.3	5.0	6.0	5.3	5.2	8.3
54 CIS-PR-75	5.4	4.8	2.7	5.3	4.3	4.3	5.0	9.0
55 Elfkin	5.4	5.5	4.7	4.7	5.3	5.0	5.8	8.3
56 Pick PR 1-94	5.4	5.3	4.0	6.0	5.3	5.0	7.0	8.3
57 Barlennium	5.3	5.0	4.7	5.0	5.3	5.7	5.2	7.3
58 Cabo	5.3	4.7	3.7	6.7	4.3	3.7	5.7	9.0
59 Premier II	5.3	5.2	5.7	5.3	6.0	5.3	5.2	7.3
60 A5C	5.3	5.0	3.7	7.3	4.7	5.0	5.0	9.0
61 ABT-99-4.709	5.3	5.4	5.3	6.3	5.7	4.7	6.2	9.0
62 PST-2RT	5.3	5.4	6.7	4.3	7.3	6.0	6.2	9.0
63 Paradigm	5.2	5.0	4.0	4.7	6.0	5.0	7.7	9.0
64 PST 2JH	5.2	5.2	4.3	4.3	6.3	6.0	6.8	9.0
65 Pick RC2	5.1	4.8	5.7	4.0	6.0	6.0	6.3	7.7
66 Courage	5.1	5.1	4.7	6.0	5.3	5.7	5.2	9.0
67 Splendid	5.1	4.6	3.0	6.0	5.7	5.0	5.8	8.3
68 Monterey II	5.1	4.9	4.3	4.0	5.3	5.0	5.5	7.7
69 MP107	5.1	4.6	3.3	4.7	4.7	5.0	4.2	9.0
70 Palmer III	5.1	4.9	6.3	4.3	5.3	5.3	5.0	8.7
71 Pick PRNGS	5.1	4.9	5.3	4.0	6.3	6.0	6.3	9.0
72 Skyhawk	5.1	4.9	2.3	4.3	4.7	5.0	6.0	9.0
73 PST-2CRR	5.0	4.8	5.0	6.0	5.3	5.0	7.2	8.7
74 Superstar	5.0	4.6	5.3	5.3	4.0	4.3	4.0	7.7
75 ABT-99-4.965	5.0	4.5	5.0	8.0	5.0	5.0	6.8	9.0

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----		Spring Green-up ² April 2001	Color ³ Aug. 2001	Density ⁴ Aug. 2001	Leaf Texture ⁵ Aug. 2001	Dollar Spot ⁶ 2001 Avg.	Red Thread ⁶ June 2001
	2000-2001 Avg.	2001 Avg.						
76 Pleasure XL	5.0	5.0	4.3	4.3	6.0	4.7	6.8	9.0
77 MP103	5.0	5.3	3.7	4.3	3.7	5.0	4.0	9.0
78 Catalina	5.0	4.9	5.0	5.0	4.7	4.7	6.2	8.3
79 Splendid	5.0	5.3	4.7	6.3	4.7	4.7	5.7	8.7
80 Ascend	4.9	5.0	3.3	6.0	5.3	4.3	5.8	9.0
81 ABT-99-4.815	4.9	4.7	4.7	4.3	5.7	4.3	6.8	8.7
82 EPD	4.9	5.2	3.0	5.0	3.7	4.7	3.7	7.0
83 Majesty	4.9	4.7	4.0	4.7	5.3	5.3	6.3	9.0
84 Catalina	4.9	4.9	3.7	5.0	5.0	4.3	6.8	8.3
85 Phantom	4.9	5.0	4.0	5.3	4.0	4.0	5.3	9.0
86 Prosport	4.8	5.1	5.0	5.0	4.0	4.3	5.0	7.0
87 Panther	4.8	4.9	6.0	3.7	5.0	4.3	6.0	9.0
88 Allsport	4.8	4.9	5.0	5.3	4.7	4.3	5.7	9.0
89 Calypso II	4.8	4.9	6.3	4.3	6.0	6.0	6.0	7.3
90 Affirmed	4.7	4.9	4.7	4.3	5.3	5.3	5.0	9.0
91 APR 1233	4.7	4.7	5.0	3.7	5.7	5.3	7.7	9.0
92 MEPY	4.7	5.2	3.0	5.3	4.0	4.7	4.5	9.0
93 MDP	4.7	4.9	2.3	5.3	4.3	4.0	4.3	8.0
94 Extreme	4.7	4.9	2.7	3.7	4.3	4.7	4.0	7.7
95 Secretariat	4.7	4.8	6.7	4.0	6.0	5.0	5.5	7.3
96 APR 1231	4.7	4.9	4.7	3.7	6.3	5.7	7.0	9.0
97 Galaxy	4.7	4.7	5.0	4.3	6.0	5.3	5.3	8.3
98 ABT-99-4.339	4.6	4.8	5.7	4.0	5.3	5.3	4.5	8.3
99 Manhattan 3	4.6	4.5	5.7	4.7	5.3	5.0	7.2	9.0
100 Divine	4.6	4.7	5.0	4.0	5.0	5.3	5.8	9.0

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----		Spring Green-up ² April 2001	Color ³ Aug. 2001	Density ⁴ Aug. 2001	Leaf Texture ⁵ Aug. 2001	Dollar Spot ⁶ 2001 Avg.	Red Thread ⁶ June 2001
	2000-2001 Avg.	2001 Avg.						
101 Admire	4.5	4.4	5.3	4.3	4.3	5.0	5.8	9.0
102 Charger II	4.5	4.3	6.0	4.0	5.7	5.3	7.0	9.0
103 APR 1237	4.4	4.2	2.3	3.3	5.3	4.7	5.7	9.0
104 Line Drive	4.4	4.4	4.0	4.0	4.7	4.7	5.2	6.7
105 ABT-99-4.600	4.4	4.3	6.0	3.7	5.3	5.0	5.5	9.0
106 APR 776	4.4	4.3	4.0	4.0	5.7	5.7	6.7	9.0
107 Koos R-71	4.3	4.3	7.7	3.0	4.3	4.7	5.5	8.3
108 LPR 98-144	4.3	4.0	6.0	4.0	5.3	5.0	6.0	8.0
109 Passport	4.3	4.1	6.0	5.0	5.0	4.3	6.0	9.0
110 Cathedral II	4.2	4.3	4.3	3.3	5.3	4.7	5.8	8.3
111 EP53	4.2	4.3	5.0	3.3	4.3	4.7	3.8	8.3
112 Racer	4.2	4.3	4.7	4.0	4.7	5.0	6.5	9.0
113 CAS-LP84	4.2	3.9	2.3	4.0	3.7	4.3	2.7	9.0
114 APR 1235	4.1	4.4	4.7	3.3	5.7	4.0	7.5	9.0
115 APR 1232	4.1	4.1	4.7	3.3	5.3	4.3	5.7	8.3
116 Affinity	4.1	3.9	7.0	3.3	5.7	4.7	5.5	9.0
117 SRX 4120	4.1	4.2	8.0	3.0	4.7	4.7	4.8	7.7
118 Prowler	4.0	4.0	4.3	3.7	4.7	4.3	6.8	8.0
119 LPR 98-143	3.9	3.7	6.0	4.0	4.3	4.3	6.0	9.0
120 Headstart	3.8	3.4	4.0	3.3	3.3	4.0	2.5	9.0
121 DP 17-9391	3.8	3.6	7.7	1.7	6.0	4.0	5.5	9.0
122 Pick EX2	3.7	3.6	6.7	2.3	4.3	5.0	5.3	7.7
123 WVPB-R-84	3.7	3.4	7.7	2.3	5.0	4.7	5.8	8.0
124 BY-100	3.6	3.6	7.0	2.7	3.7	5.0	4.0	8.7
125 DP LP-1	3.5	3.3	5.0	2.3	5.0	4.7	6.3	9.0

Table 5 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----		Spring Green-up ² April 2001	Color ³ Aug. 2001	Density ⁴ Aug. 2001	Leaf Texture ⁵ Aug. 2001	Dollar Spot ⁶ 2001 Avg.	Red Thread ⁶ June 2001
	2000-2001 Avg.	2001 Avg.						
126 APR 1234	3.4	3.5	6.0	2.3	5.7	4.0	6.5	7.0
127 Edge	3.4	3.3	7.7	2.7	4.0	4.0	4.2	9.0
128 Premier	3.4	3.2	5.7	2.7	2.7	3.3	2.7	7.3
129 DP 17-9069	3.4	3.3	5.0	2.0	5.0	5.0	4.8	9.0
130 Buccaneer	3.3	3.0	8.0	2.7	4.0	4.3	4.5	8.3
131 WVPB-R-82	3.3	3.1	5.7	2.0	3.3	3.7	4.2	9.0
132 Yatsugreen	3.0	2.9	9.0	2.0	5.3	4.3	5.3	9.0
133 Manhattan	2.5	2.3	8.0	1.0	2.0	3.3	2.3	9.0
134 DP 17-9496	1.9	2.1	8.3	1.0	2.0	2.0	6.2	9.0
135 Linn	1.2	1.1	9.0	1.0	1.0	1.0	5.8	9.0
LSD at 5% =								
	0.7	0.8	1.7	1.1	1.7	1.2	1.9	1.4

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

Table 6. 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 -----		
		2000-2001 Avg.	2000 Avg.	2001 Avg.
1	Roberts-627	7.1	7.9	6.3
2	Gator 3	6.6	6.8	6.5
3	Amazing	6.6	7.0	6.2
4	Pinnacle II	6.6	7.1	6.1
5	Pizzazz	6.6	6.9	6.2
6	Charismatic	6.5	6.8	6.2
7	Allstar2	6.5	6.6	6.3
8	Gallery	6.4	6.8	6.0
9	CIS-PR-84	6.4	6.9	5.9
10	ABT-99-4.834	6.4	6.7	6.0
11	DLF-LDD	6.4	6.6	6.1
12	Applaud	6.4	6.7	6.0
13	SRX 4801	6.3	6.4	6.2
14	SRX 4RHT	6.3	6.2	6.3
15	Cabo	6.2	6.9	5.5
16	CIS-PR-75	6.2	6.5	5.8
17	Radiant	6.1	6.3	6.0
18	Summerset	6.1	6.5	5.7
19	Nexus	6.1	6.4	5.7
20	Manhattan 4	6.1	6.3	5.8
21	Blazer IV	6.1	6.2	5.9
22	Wilmington	6.0	6.4	5.6
23	Pick PR QH-97	6.0	6.2	5.7
24	Inspire	6.0	6.1	5.9
25	Kokomo	6.0	6.2	5.7
26	Pentium	6.0	6.2	5.7
27	PST-2SLX	6.0	6.4	5.6
28	Splendid	5.9	6.2	5.6
29	PST-2L96	5.9	6.4	5.5
30	SRX 4820	5.9	6.1	5.7
31	MB 414	5.9	6.3	5.5
32	A5C	5.9	5.8	5.9
33	Seville II	5.8	5.9	5.6
34	Brightstar II	5.8	6.0	5.5
35	Citation Fore	5.7	6.0	5.5

Table 6 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2000-2001 Avg.	2000 Avg.	2001 Avg.
36	ABT-99-4.721	5.7	6.0	5.5
37	EPD	5.7	5.9	5.4
38	Stellar	5.6	5.7	5.6
39	Exacta	5.6	5.8	5.4
40	MDP	5.6	5.6	5.5
41	Barlennium	5.6	5.7	5.4
42	Churchill	5.5	5.8	5.2
43	Jet	5.5	5.7	5.4
44	Majesty	5.5	5.5	5.5
45	Pick PR 1-94	5.5	5.4	5.5
46	ABT-99-4.709	5.5	5.6	5.3
47	MP107	5.4	5.5	5.4
48	PST-2SBE	5.4	5.8	5.0
49	Paragon	5.4	5.5	5.3
50	ABT-99-4.464	5.4	5.4	5.4
51	Promise	5.4	5.4	5.4
52	MP88	5.4	5.6	5.1
53	Pacesetter	5.4	5.5	5.2
54	ABT-99-4.115	5.3	5.4	5.2
55	ABT-99-4.965	5.3	5.6	5.1
56	Premier II	5.3	5.6	5.0
57	SR 4500	5.3	5.1	5.6
58	PST-2LA	5.3	5.7	5.0
59	Elfkin	5.3	5.0	5.5
60	LTP-ME	5.3	5.5	5.1
61	Pennant II	5.3	5.6	4.9
62	Pleasure XL	5.3	5.4	5.1
63	Catalina SLT	5.3	5.5	5.0
64	ABT-99-4.724	5.2	5.5	5.0
65	Fiesta 3	5.2	5.2	5.2
66	MEPY	5.2	5.4	5.0
67	Ascend	5.2	5.3	5.0
68	ABT-99-4.560	5.2	5.6	4.7
69	Brightstar SLT	5.2	5.6	4.7
70	Pick PR B-97	5.1	5.1	5.2

Table 6 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2000-2001 Avg.	2000 Avg.	2001 Avg.
71	CAS-LP84	5.1	5.1	5.1
72	Monterey II	5.1	5.3	4.9
73	Affirmed	5.1	5.2	4.9
74	PST-2M4	5.0	5.2	4.9
75	Skyhawk	5.0	5.3	4.7
76	ABT-99-4.625	5.0	5.0	5.0
77	APR 1237	5.0	5.2	4.9
78	Paradigm	5.0	5.0	5.0
79	Pick RC2	5.0	5.0	4.9
80	Courage	5.0	5.0	4.9
81	Superstar	4.9	5.1	4.8
82	Divine	4.9	5.1	4.7
83	PST-2CRR	4.9	5.0	4.8
84	EP53	4.9	4.7	5.0
85	PST-2JH	4.9	4.6	5.1
86	MP103	4.8	4.9	4.7
87	Admire	4.8	4.9	4.7
88	Extreme	4.8	4.7	4.8
89	Phantom	4.8	4.5	5.0
90	ABT-99-4.339	4.7	4.7	4.8
91	Catalina	4.7	4.8	4.6
92	Pick PRNGS	4.7	4.7	4.7
93	LPR 98-144	4.7	4.7	4.7
94	ABT-99-4.815	4.7	4.6	4.7
95	Line Drive	4.7	4.6	4.7
96	Cathedral II	4.6	4.5	4.8
97	Prosport	4.6	4.6	4.7
98	APR 1231	4.6	4.7	4.4
99	Palmer III	4.6	4.4	4.7
100	Allsport	4.5	4.4	4.5
101	PST-2RT	4.5	4.2	4.7
102	Manhattan 3	4.4	4.4	4.4
103	Panther	4.4	4.2	4.6
104	Racer	4.4	4.3	4.5
105	Galaxy	4.4	4.4	4.3

Table 6 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----		
		2000-2001 Avg.	2000 Avg.	2001 Avg.
106	APR 776	4.4	4.4	4.3
107	ABT-99-4.600	4.3	4.0	4.7
108	Headstart	4.3	4.3	4.3
109	LPR 98-143	4.3	4.7	3.9
110	Passport	4.3	4.2	4.3
111	APR 1232	4.3	4.3	4.3
112	APR 1233	4.3	4.5	4.0
113	Secretariat	4.3	4.3	4.2
114	Calypso II	4.3	4.1	4.4
115	Charger II	4.2	4.0	4.3
116	APR 1235	4.2	4.2	4.1
117	Prowler	4.1	3.9	4.2
118	Pick EX2	4.0	3.6	4.3
119	SRX 4120	3.9	3.7	4.0
120	Koos R-71	3.9	3.9	3.8
121	WVPB-R-84	3.8	3.8	3.9
122	Affinity	3.7	3.5	3.8
123	DP LP-1	3.6	3.8	3.3
124	WVPB-R-82	3.6	3.7	3.5
125	Premier	3.5	3.5	3.4
126	APR 1234	3.4	3.5	3.3
127	BY-100	3.4	3.2	3.5
128	DP 17-9069	3.2	3.2	3.2
129	Edge	3.2	3.2	3.1
130	DP 17-9391	3.2	3.0	3.3
131	Buccaneer	2.9	2.8	3.0
132	Yatsugreen	2.8	2.8	2.9
133	Manhattan	2.3	2.1	2.5
134	DP 17-9496	1.6	1.5	1.7
135	Linn	1.2	1.3	1.0
	LSD at 5% =	0.5	0.7	0.7

¹9 = best turf quality

Table 7. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2000 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹		Establishment ²			-----Gray Leaf Spot ³ -----		Crown Rust ³
	2001 Avg.	Sept. 2000	Sept. 28 2000	Oct. 16 2000	2000 Avg.	Sept. 2001		
1 RNS comp	6.3	7.0	6.7	7.0	6.8	7.7		
2 PR-154	6.3	7.0	6.7	6.7	6.7	7.0		
3 SRX 4820	5.9	8.0	5.3	5.3	5.3	6.7		
4 SRX 4510	5.8	6.7	4.3	5.3	4.8	6.0		
5 Roberts-627	5.8	7.0	5.3	5.7	5.5	9.0		
6 DCM comp	5.7	6.7	4.7	5.0	4.8	7.3		
7 EMR comp	5.7	7.3	5.0	5.3	5.2	6.3		
8 DMS comp	5.6	7.0	5.3	5.7	5.5	7.7		
9 Jet	5.3	6.0	4.7	5.3	5.0	5.0		
10 Lp P-93	5.1	7.0	5.7	5.3	5.5	7.3		
11 PR-122	5.1	6.0	3.3	4.3	3.8	3.7		
12 OO-C Lp	5.1	7.0	4.3	4.3	4.3	5.3		
13 SRX 4801	5.1	7.0	5.0	4.3	4.7	7.0		
14 Ecologic	5.0	7.3	5.3	5.0	5.2	6.3		
15 High Life LF	4.7	7.0	4.7	4.3	4.5	5.7		
16 PR-125	4.6	7.3	4.7	5.0	4.8	3.3		
17 SRX 4500	4.6	7.3	4.0	3.7	3.8	5.0		
18 Barefoot	4.6	7.7	5.0	4.3	4.7	4.3		
19 Fiesta 3	4.5	7.0	3.7	3.7	3.7	5.0		
20 Lowgrow II	4.4	7.3	3.7	4.3	4.0	4.3		
21 OO-A Lp	4.3	6.3	4.3	4.7	4.5	6.7		
22 Calypso II	4.3	5.7	3.3	4.0	3.7	4.3		
23 SRX 4CCG	4.3	6.3	5.3	5.0	5.2	5.3		
24 PR-121	4.3	6.3	3.7	3.7	3.7	4.3		
25 SRX 4SPBPEW	4.3	6.3	4.7	4.0	4.3	6.3		
26 SRX 4AT PREW	4.2	7.0	4.3	4.0	4.2	5.0		
27 Dancer	4.1	6.0	3.7	4.0	3.8	5.3		
28 Covet	4.1	6.0	2.7	3.3	3.0	4.3		
29 SRX 4330	4.0	6.3	3.7	4.0	3.8	4.3		
30 BPF1 Bulk-00	4.0	6.0	3.3	4.7	4.0	4.3		
31 SRX 4010	3.9	5.7	4.0	4.0	4.0	5.0		
32 SRX 4DMSO	3.9	6.3	4.0	4.0	4.0	5.0		
33 PRC-97	3.9	6.7	3.7	4.0	3.8	5.0		
34 PR-84	3.9	6.7	2.0	2.3	2.2	6.7		
35 SR 4400	3.9	6.7	4.3	4.7	4.5	5.0		

Table 7 (continued).

Cultivar or Selection	Turf Quality ¹	Establishment ²	-----Gray Leaf Spot ³ -----			Crown Rust ³	
	2001 Avg.	Sept. 2000	Sept. 28 2000	Oct. 16 2000	2000 Avg.	Sept. 2001	
36	Greenland	3.9	6.7	3.3	3.7	3.5	3.3
37	Affirmed	3.8	6.3	3.3	3.3	3.3	3.3
38	Racer	3.8	6.7	3.7	3.7	3.7	3.0
39	Vibrant	3.8	6.3	4.3	4.0	4.2	4.7
40	Bayou	3.8	6.0	3.7	4.0	3.8	3.0
41	SRX 4MO971	3.8	5.7	3.7	3.7	3.7	6.0
42	SR 4100	3.7	6.0	4.0	3.3	3.7	4.0
43	SRX 4DFDWEW	3.7	6.0	3.7	3.3	3.5	5.7
44	SRX 4120	3.7	6.0	4.0	3.3	3.7	4.0
45	PRJ-97-00	3.6	7.3	3.0	2.3	2.7	5.0
46	Pick PR 1-94	3.6	5.7	2.0	2.0	2.0	3.0
47	Churchill	3.6	5.7	2.0	2.0	2.0	4.3
48	Exacta	3.5	5.7	2.0	2.0	2.0	4.0
49	Platinum	3.5	5.7	2.0	2.0	2.0	4.0
50	Headstart	3.5	6.0	2.7	2.7	2.7	4.7
51	Jiffie	3.5	6.0	3.0	3.0	3.0	4.3
52	SRX 4BPEW	3.5	6.7	3.0	2.7	2.8	4.7
53	Easy Livin	3.5	6.3	2.7	3.0	2.8	5.3
54	Edge	3.5	6.0	2.7	3.0	2.8	3.3
55	Fiesta II	3.5	6.0	3.3	3.7	3.5	4.3
56	SRX 4RHT	3.4	6.3	2.3	2.0	2.2	5.3
57	SRX 4MO972	3.4	6.0	2.0	2.3	2.2	5.7
58	SR 4200	3.4	5.3	2.0	2.3	2.2	4.7
59	Omni	3.1	7.0	2.0	2.0	2.0	3.3
60	P-2	3.0	6.0	2.7	2.7	2.7	3.7
61	Penguin	2.9	6.3	2.3	1.3	1.8	2.7
62	SRX CALM	2.9	6.0	1.3	1.3	1.3	4.3
63	PR1 99 C2-00	2.8	5.3	1.3	1.3	1.3	4.7
64	SRX 4DGBPEW	2.7	4.7	1.3	1.3	1.3	4.7
65	Nui	1.3	4.3	6.0	5.0	5.5	8.0
LSD at 5% =	0.5	1.0	1.4	1.1	1.0	1.7	

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

Table 8. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2000 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹		Establishment ²			-----Gray Leaf Spot ³ -----		Crown Rust ³
	2001 Avg.	2000 Avg.	Sept. 23 2000	Sept. 28 2000	Oct. 5 2000	2000 Avg.	Sept. 22 2001	
1 Citation Fore	5.6	7.5	6.5	6.5	6.5	6.5	5.5	
2 Syn 2INO	5.4	6.0	5.3	6.0	5.7	5.7	7.7	
3 Brightstar II	4.9	6.7	5.0	5.0	5.0	5.0	5.3	
4 2TRS	4.9	7.7	5.0	5.7	5.3	5.3	6.0	
5 2L96	4.9	7.0	4.3	5.0	4.7	4.7	4.3	
6 Syn 2VLO	4.8	5.0	6.3	6.7	6.5	6.5	7.0	
7 2VX bulk	4.7	7.0	4.7	4.7	4.7	4.7	7.0	
8 Syn 2COR	4.7	6.7	4.0	5.3	4.7	4.7	7.7	
9 2UF	4.7	7.0	5.7	6.0	5.8	5.8	7.3	
10 Syn 2RH	4.6	6.0	4.5	4.5	4.5	4.5	4.0	
11 2CTL bulk	4.5	7.0	5.5	6.0	5.8	5.8	6.5	
12 2FO bulk	4.4	6.7	4.0	5.0	4.5	4.5	5.7	
13 Manhattan 4	4.4	6.5	4.0	4.5	4.3	4.3	6.5	
14 2CO bulk	4.3	7.0	4.0	5.0	4.5	4.5	7.0	
15 2GO	4.3	6.7	4.7	4.7	4.7	4.7	6.0	
16 2CNR	4.2	6.3	3.3	4.3	3.8	3.8	6.3	
17 Brightstar SLT	4.2	7.0	3.5	4.0	3.8	3.8	4.5	
18 Charger II	4.0	7.0	4.0	4.5	4.3	4.3	4.5	
19 Catalina	3.9	7.0	4.0	4.0	4.0	4.0	5.0	
20 2VL-00	3.9	5.0	5.0	6.5	5.8	5.8	7.0	
21 22N bulk	3.8	6.3	5.0	4.3	4.7	4.7	4.7	
22 2M4	3.8	6.3	4.0	3.0	3.5	3.5	5.3	
23 Syn 2NCO	3.7	7.3	4.3	3.3	3.8	3.8	6.3	
24 Syn 2GL	3.6	6.0	3.5	4.0	3.8	3.8	5.5	
25 2WO bulk	3.6	5.5	4.5	4.0	4.3	4.3	4.5	
26 Manahattan 3	3.4	6.0	3.3	3.3	3.3	3.3	4.3	
27 Citation III	3.2	7.0	3.0	3.0	3.0	3.0	3.5	
LSD at 5% =	0.5	1.1	2.0	0.7	1.1	1.1		

¹9 = best turf quality

²9 = best seedling establishment

³9 = least disease

Table 9. Performance of perennial ryegrass cultivars and selections in a turf trial established in August 2001 at Adelphia, NJ.

	Cultivar or Selection	-----Gray Leaf Spot ¹ -----			Establishment ²	Turf Quality ³
		2001 Avg.	Sept. 27 2001	Sept. 29 2001	Sept. 2001	2001 Avg.
1	1G2 comp	7.5	7.3	7.7	7.7	7.4
2	1GH comp	7.2	7.3	7.0	7.7	7.5
3	1G3 comp	7.2	7.0	7.3	7.7	7.5
4	APR 1425	7.0	7.3	6.7	6.3	6.4
5	PR-154	6.7	6.7	6.7	6.3	7.0
6	O1-2	6.0	6.0	6.0	5.3	6.0
7	Integra	6.0	6.7	5.3	7.7	6.1
8	PR-186	5.8	6.0	5.7	5.3	5.8
9	O1-9PR	5.7	6.0	5.3	5.7	5.1
10	PR-187	5.7	6.0	5.3	6.7	6.3
11	O1-11	5.5	6.0	5.0	6.0	4.6
12	O1.O615	5.5	5.3	5.7	6.0	5.1
13	PR-155	5.3	5.3	5.3	5.3	5.3
14	O1-3	5.0	5.3	4.7	5.3	4.7
15	PRC-97	5.0	5.3	4.7	6.0	3.9
16	00-A Lp	5.0	4.7	5.3	5.3	4.1
17	APR 1461	5.0	5.0	5.0	7.3	5.3
18	APR 1421	5.0	5.7	4.3	7.0	4.7
19	Pinnacle II	5.0	5.3	4.7	7.0	5.1
20	O1-1	4.8	5.3	4.3	6.3	4.7
21	Pick PR B-97	4.8	4.7	5.0	5.7	4.2
22	Sonata	4.8	5.0	4.7	6.3	4.0
23	Allstar2	4.8	5.3	4.3	7.7	5.5
24	8451 comp	4.7	4.7	4.7	7.7	4.7
25	O1-7	4.5	4.7	4.3	5.3	4.2
26	Racer	4.5	4.7	4.3	6.7	3.7
27	APR 1472	4.5	4.7	4.3	7.3	3.9
28	PR-156	4.3	4.3	4.3	6.7	4.7
29	Pace	4.3	4.3	4.3	7.0	4.5
30	Brightstar II	4.3	4.3	4.3	6.3	4.0
31	PR A-97	4.2	4.3	4.0	6.0	3.5
32	Cutter	4.2	4.7	3.7	6.7	3.4
33	Applaud	4.2	4.0	4.3	7.3	4.7
34	Pleasure XL	4.2	4.3	4.0	6.7	3.6
35	Amazing	4.2	4.0	4.3	7.7	4.8

Table 9 (continued).

	Cultivar or Selection	-----Gray Leaf Spot ¹ -----			Establishment ²	Turf Quality ³
		2001 Avg.	Sept. 27 2001	Sept. 29 2001	Sept. 2001	2001 Avg.
36	APR 1424	4.2	4.7	3.7	7.0	3.6
37	Lowgrow II	4.0	4.0	4.0	6.7	4.4
38	Blazer IV	3.8	3.7	4.0	6.0	4.3
39	O1-8	3.8	3.3	4.3	5.3	3.8
40	APR 1426	3.8	3.7	4.0	6.7	3.4
41	Gator 3	3.8	3.7	4.0	7.3	5.0
42	Extreme	3.8	4.0	3.7	7.3	4.0
43	Calypso II	3.7	3.7	3.7	7.3	3.3
44	Barlennium	3.7	3.7	3.7	7.7	3.9
45	Manhattan	3.7	4.3	3.0	6.3	2.5
46	Edge	3.5	4.0	3.0	7.3	3.0
47	Pizzazz	3.5	3.7	3.3	7.3	4.2
48	Sunshine	3.3	3.7	3.0	6.7	3.2
49	Fiesta 3	3.3	3.3	3.3	7.0	3.4
50	Shining Star	3.3	3.3	3.3	6.7	2.9
51	A00	3.2	3.3	3.0	6.7	3.6
52	APR 1423	3.2	3.7	2.7	7.3	3.2
53	GGH	3.2	3.0	3.3	7.7	4.4
54	Caddieshack	3.2	3.3	3.0	7.3	3.4
55	Palmer III	3.2	3.0	3.3	7.0	3.6
56	Promise	3.2	3.0	3.3	7.0	3.3
57	APM	3.0	3.7	2.3	7.3	3.5
58	Accent	3.0	3.3	2.7	7.7	2.9
59	Churchill	3.0	3.3	2.7	7.0	3.1
60	Headstart	2.8	3.0	2.7	6.7	2.9
61	Morning Star	2.8	3.3	2.3	6.7	2.6
62	Advert	2.8	3.3	2.3	7.3	3.2
63	Goal Keeper	2.8	3.0	2.7	7.7	2.8
64	ASAP	2.8	2.7	3.0	7.0	3.2
65	Top Gun	2.7	3.3	2.0	7.7	2.9
66	Paragon	2.7	3.0	2.3	7.3	3.3
67	Windstar	2.5	2.7	2.3	6.7	2.5
68	APR 1420	2.5	3.0	2.0	7.0	2.8
69	Premier II	2.5	2.7	2.3	7.3	3.0
70	Pirouette	2.5	2.7	2.3	7.3	3.3

Table 9 (continued).

Cultivar or Selection	-----Gray Leaf Spot ¹ -----			Establishment ²	Turf Quality ³
	2001 Avg.	Sept. 27 2001	Sept. 29 2001	Sept. 2001	2001 Avg.
71 Galaxy	2.3	2.7	2.0	7.0	3.4
72 Monterey II	2.2	2.3	2.0	7.0	3.2
73 Monterey	1.8	2.0	1.7	7.3	2.7
74 Admire	1.5	1.3	1.7	7.7	2.5
LSD at 5% =	1.4	1.5	1.4	1.1	1.0

¹9 = least amount of disease

²9 = best seedling establishment

³9 = best turf quality

Table 10. Yearly nitrogen (N) applied and mowing height (Ht) on perennial ryegrass tests established at Adelphia and North Brunswick, NJ.

	1999		2000		2001	
	N ¹	Ht ²	N	Ht	N	Ht
Table 1 (1998 Adelphia)	2.8	1.5	2.4	1.5	1.9	1.5
Table 2 (1998 North Brunswick)	2.4	1.5	2.4	1.5	2.0	1.5
Table 3 (1999 Adelphia)			2.9	1.5	4.1	1.5
Table 4 (1999 Adelphia)			2.6	2.5	3.3	1.5
Table 5 (1999 North Brunswick)			4.5	1.5	3.3	1.5
Table 6 (1999 North Brunswick)			3.4	1.5	3.0	2.0
Tables 7 and 8 (2000 Adelphia)			1.5	1.5	4.4	1.5
Table 9 (2001 Adelphia)					1.5	1.5

¹Annual N applied (lb/1000 ft²)

²Mowing height in inches