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This publication includes lecture notes of papers presented at the 2000 New Jersey Turfgrass Expo. Publication of these lectures pro-

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

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

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PERFORMANCE OF TALL FESCUE CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS

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Tall fescue (*Festuca arundinacea* Schreb.) is a cool-season grass that is widely used as both a forage and turfgrass in many areas of the United States. Tall fescue is becoming increasingly popular as a turfgrass species because of its ability to withstand high temperatures and drought conditions, and the improvements that have been made in its turf quality and disease resistance. This ability to withstand high temperatures and drought conditions is in contrast to the other primary cool-season turfgrass species, which do not perform as well under these conditions. The ability to perform well under conditions of low soil moisture has made tall fescue an attractive option for turf managers in many situations. It should be noted, however, that for tall fescue to survive drought, adequate soil moisture must exist prior to the stress. This permits the plant to produce a deep and extensive root system that can extract water from the deeper portions of the soil profile.

Tall fescue was first introduced into the United States in the nineteenth century as a forage grass. The first tall fescue cultivars to be used as turfgrass (Kentucky-31 and Alta) were introduced in the early 1940s. Although these cultivars have very low turfgrass quality and light-green color, they, and the forage cultivar Fawn, were the only cultivars available. In addition, these early cultivars have a coarse leaf texture, grow vertically at a rapid rate, and exhibit low shoot density. Kentucky-31 is still sold in large

quantities, despite the great improvements that have been made in the most recently developed tall fescue cultivars. Plant breeders have focused their efforts on producing tall fescue cultivars that exhibit darker green color, lower growth habit, higher shoot density, finer leaf texture, and increased resistance to disease. The result of these efforts has been that many of the improved tall fescue cultivars exhibit turf quality that is comparable to many of the other cool-season turfgrass species at cutting heights of 1.5 inches and above. Tall fescue can now be used effectively for a number of medium-high maintenance situations including athletic fields, parks, and home lawns. In addition, tall fescue is quite effective in low maintenance situations such as roadsides and industrial sites.

Currently, a great deal of research is being conducted on the beneficial role of endophytes in tall fescue. Endophytic fungi can live in tall fescue plants and have been shown to enhance drought tolerance and insect resistance. The development of cultivars that contain beneficial endophytes may enhance the utility of tall fescue as a turfgrass. Plant collection trips are coordinated throughout the world to obtain new sources of endophytes and turfgrass germplasm. By diversifying the pool of available endophytes, plant breeders may be able to find endophytes that will enhance resistance to insects and diseases.

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PROCEDURES

Six tall fescue tests were established in New Jersey between 1996 and 1999. Two tests, established in 1996 at the Rutgers Turfgrass Research Facility in North Brunswick, NJ (Table 1) and the Rutgers Plant Science Research Center at Adelphia, NJ (Table 2) included all of the entries from the 1996 National Tall Fescue Test sponsored by the National Turfgrass Evaluation Program (NTEP). A single test was established each year at Adelphia (Tables 2, 4, 5, and 6). A test was also established in 1997 at the Rutgers Snyder Research and Extension Farm in Pittstown, NJ (Table 3). All tests at Adelphia and North Brunswick were established in August or September by hand sowing 0.88 oz of seed per 3 X 5 ft plot. The Pittstown test consisted of 4 X 10 ft plots seeded with 2.86 oz of seed. A 6-inch border was left unseeded around each plot to reduce contamination between the plots. Each entry was replicated three times in a randomized complete block design. The Pittstown test also includes some entries that are mixtures of tall fescue and Kentucky bluegrass.

The tests were managed under different nitrogen and mowing regimes (Table 7). The Pittstown test was mowed with a rotary mower. Mowing at the other sites was usually done with reel mowers. The mowing of the plots was frequent enough to prevent excessive accumulation of clippings, thus all of the clippings were returned throughout the year at all three sites. Soil pH was kept between 6.0 and 6.5 with agricultural limestone. At Adelphia, broadleaf weeds were controlled with spring or fall applications of 2,4-D + dicamba, and Bensulide was used as a preemergent control of annual grassy weeds. The 1996 test at North Brunswick received a spring treatment of Dimension + 2,4-D + dicamba. This test also received a July application of Merit to control grubs. The test at Pittstown was treated with Trimec Classic in the spring.

The tests were maintained at medium-high fertility levels and at a 1.5 inch mowing height with the exception of the Pittstown test (medium fertility and a 3.0 inch cutting height). Tests were often managed more intensely to encourage disease (i.e. leaf spot and brown patch) and insect problems. This allowed the plots to be evaluated for disease and insect resistance.

All tests were evaluated for turf quality throughout the growing season. Turf quality ratings took into consideration turf color, density, leaf texture, growth habit, uniformity, and freedom from disease or insect damage. When possible, the plots were also rated for individual characteristics such as resistance to diseases, establishment, seedling emergence, drought stress, and spring green-up (rating was done visually using a 1 to 9 scale, with 9 representing the most desirable turf quality or turf characteristic).

The 1999 test at Adelphia (Table 6) was inoculated with *Rhizoctonia solani* (the fungus that causes brown patch) in July. The purpose of this inoculation was to create intense, uniform disease pressure throughout the test.

RESULTS AND DISCUSSION

Results of the tall fescue tests can be found in Tables 1 through 6. All tests, with the exception of the 1999 test at Adelphia (Table 6), are ranked by the overall (multiple-year) turf quality averages. The 1999 test at Adelphia is ranked by the 2000 turf quality average. It is important to note that rankings based strictly on turf quality do not necessarily reflect the performance of cultivars for individual characteristics such as color, disease resistance, spring green-up, etc. A cultivar may have excellent color and good density making it quite attractive in the spring and early summer; however, this same cultivar may be quite unattractive in the late summer due to brown patch damage. Turf managers must

pay close attention to all available data and should not rely strictly on the overall turf quality average when judging cultivars.

Turf Quality

Since the first turf-type tall fescues were developed, great advances have been made in overall turf quality. The early forage cultivars, such as Kentucky-31, consistently rank near the bottom of the tests in regard to turf quality. Tall fescue breeding is currently improving turf quality at a brisk pace. Cultivars that perform well in previous tests may rank significantly lower in another test seeded the following year; thus, turf managers must be aware of recent data in order to take advantage of the best tall fescue cultivars on the market.

Disease Resistance

The major disease of tall fescue is brown patch. As can be seen in Tables 4, 5, and 6, resistance to brown patch in commercially available cultivars is inadequate. A severe outbreak of this disease occurred in the 1997 test at Adelphia (Table 4). Every entry in the 1997 test was susceptible, with a majority of entries receiving an unacceptable brown patch rating (below 6.0). The inoculation of the 1999 test was quite successful (Table 6). Significant differences existed between cultivars, with every plot in the test showing some disease. The intense disease pressure that occurred on the 1999 test can improve the selection of resistant germplasm and may aid in the development of tall fescue cultivars with exceptional brown patch resistance.

Dense turf produces a microenvironment more favorable to brown patch, thus breeding brown patch resistance into available germplasm has been quite difficult. At Rutgers, the focus of tall fescue breeding has shifted from strictly selecting extremely dense types to selecting germplasm that exhibits a slightly more open canopy. Although these open-type selections may not have the optimum density for some turf

functions, the anticipated reduction in brown patch severity may greatly enhance summer turf quality and reduce any fungicide inputs.

Depending on the climatic region, brown patch may not be a major concern for the turfgrass manager. Brown patch is usually only a problem for a few weeks in late summer in New Jersey, and as soon as optimal weather conditions for the disease subside, turfgrass recovery is typically quite rapid.

Color

The most noticeable aesthetic quality of turfgrass is color. Breeding efforts over the past few decades have focused on the development of tall fescue cultivars that exhibit a darker green color. Darker green color of newer cultivars is reflected in the overall quality ratings in each of the tables. Much of the recent improvement that has been made in newer cultivars such as Picasso, Millennium, and Masterpiece can be attributed to a change in color from medium green (i.e., Rebel Jr. and Jaguar 3) to dark green. In some situations, the ability of a tall fescue cultivar to retain a vibrant, green color late into the fall can also be important.

SUMMARY

As plant breeders continue to develop high quality cultivars, tall fescue is certain to be used on a much broader basis. Improvements in color, density, and leaf texture have already made tall fescue a viable option for many turfgrass managers. Tall fescue performs better than many other cool-season turfgrasses under high temperature and drought conditions. Endophyte-infected tall fescue cultivars have proven to be useful in certain stress situations, and will continue to be studied. Many tall fescue cultivars have been shown to be susceptible to net blotch during establishment, especially under traffic. Fortunately, plant breeders are making progress on improving this trait as can be seen in the most recently developed cultivars. The major weakness of tall fescue is susceptibility to brown

patch. This deficiency, above all others, must be overcome if tall fescue is to be more widely accepted as a primary use, cool-season turfgrass.

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Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 1996 at North Brunswick, NJ. (Includes entries from the National Turfgrass Evaluation Program - NTEP.)

	Cultivar or Selection	-----Turf Quality ¹ -----					Density ² Nov. 2000	Color ³ Nov. 2000
		1997- 2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.		
1	Millennium	6.4	6.4	5.9	6.8	6.3	7.0	5.7
2	Picasso	6.2	6.0	6.0	6.2	6.6	6.3	7.3
3	Plantation	6.0	5.7	6.0	6.0	6.3	7.0	6.7
4	Rembrandt	5.9	5.0	6.1	6.2	6.1	7.0	7.3
5	Masterpiece	5.9	5.0	5.7	6.3	6.5	6.7	6.3
6	Coronado	5.8	5.8	5.9	5.6	5.8	6.3	6.0
7	Scorpion	5.8	5.0	5.6	6.0	6.4	6.7	6.3
8	Crossfire II	5.8	5.1	5.8	6.1	6.1	6.3	6.0
9	Gazelle	5.6	5.6	5.2	5.7	6.1	6.0	5.3
10	Coyote	5.6	5.3	5.3	5.8	5.9	6.0	5.3
11	Arid 3	5.5	5.9	5.3	5.6	5.2	4.7	6.7
12	Pick RT-95	5.5	4.8	5.7	5.9	5.5	6.0	6.7
13	MB 213	5.4	5.9	5.3	5.3	5.2	5.0	6.7
14	BAR Fa6D USA	5.4	5.7	5.3	5.7	5.0	5.3	6.3
15	Shenandoah II	5.4	4.7	5.7	5.5	5.8	6.3	5.7
16	Brandy	5.4	5.5	5.2	5.7	5.1	4.0	6.7
17	Sunpro	5.4	5.4	5.5	5.3	5.3	4.0	6.3
18	Tarheel	5.4	5.2	5.3	5.5	5.5	6.0	5.7
19	Watchdog	5.3	5.1	5.4	5.4	5.5	5.7	5.7
20	MB 26	5.3	5.9	4.8	5.1	5.2	5.3	6.3
21	MB 212	5.3	5.0	5.0	5.5	5.6	6.3	7.3
22	Pick FA XK-95	5.3	5.8	5.0	5.0	5.3	5.3	6.7
23	Pick FA N-93	5.3	5.1	5.2	5.4	5.3	4.7	6.7
24	Bonsai 2000	5.2	5.1	5.1	5.7	5.1	5.7	5.7
25	Pick FA 15-92	5.2	5.2	5.3	5.2	5.1	4.7	7.0
26	BAR Fa6 US2U	5.2	5.9	4.4	5.6	5.0	5.3	7.0
27	Arcade	5.2	5.0	4.4	5.5	5.8	5.3	5.0
28	Anthem II	5.2	5.5	5.0	5.4	4.8	6.0	7.3
29	Jaguar 3	5.2	4.6	5.2	5.2	5.7	5.7	6.3
30	BAR FA 6LV	5.2	5.2	4.5	5.4	5.6	5.7	6.7

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Density ² Nov. 2000	Color ³ Nov. 2000
		1997- 2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.		
31	BAR Fa6 US1	5.2	5.3	5.0	5.6	4.6	4.0	7.3
32	Rebel Sentry	5.1	5.2	4.6	5.4	5.3	5.0	6.0
33	BAR FA 6D	5.1	5.4	4.8	5.5	4.7	4.7	7.0
34	MB 28	5.1	5.7	4.4	5.4	4.8	4.7	7.0
35	5LZ	5.1	5.5	5.2	4.9	4.5	4.3	6.3
36	CU 950 2T	5.1	5.1	4.5	5.4	5.2	6.7	6.7
37	Arid II	5.1	5.7	4.9	5.1	4.4	4.7	7.0
38	OFI-96-31	5.0	5.5	4.8	5.0	4.9	5.0	5.7
39	MB 29	5.0	5.3	4.7	5.0	5.1	4.7	7.0
40	PST-5TO	5.0	4.8	5.3	4.7	5.3	6.0	6.3
41	Olympic Gold	5.0	5.0	4.9	4.8	5.4	5.3	6.3
42	CU 950 1T	5.0	5.2	4.4	5.0	5.5	6.7	6.3
43	Aztec II	5.0	5.3	5.0	5.1	4.6	6.7	7.3
44	Coronado Gold	5.0	4.6	5.6	4.8	5.0	6.0	6.7
45	Arabia	5.0	5.5	4.7	5.1	4.6	5.0	7.3
46	Twilight II	5.0	5.3	5.3	5.1	4.2	5.0	7.7
47	OnCue	5.0	5.2	4.8	4.7	5.2	6.0	5.7
48	Pick FA 20-92	5.0	5.5	4.6	4.3	5.4	4.0	7.0
49	Bravo	4.9	4.8	4.5	5.0	5.4	5.0	6.3
50	Bulldawg	4.9	5.1	5.3	4.4	4.9	4.7	5.3
51	Wolfpack	4.9	4.4	5.0	4.6	5.7	7.3	5.0
52	Shortstop II	4.9	5.4	5.1	4.6	4.4	4.0	6.0
53	Durana	4.9	5.0	4.7	4.7	5.3	5.3	6.3
54	Alamo E+	4.9	4.6	4.7	5.0	5.2	4.7	7.0
55	Empress	4.9	4.8	4.8	4.9	4.9	5.7	5.7
56	MB 215	4.9	5.3	4.6	4.7	4.9	4.0	6.7
57	Chapel Hill	4.9	5.3	4.5	4.5	5.1	5.3	5.7
58	Wyatt	4.8	4.6	4.4	5.2	5.2	5.3	4.7
59	BAR Fa6 US3	4.8	5.4	4.5	5.2	4.3	4.0	6.0
60	SR 8210	4.8	5.1	4.6	4.9	4.7	5.0	5.3

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Density ² Nov. 2000	Color ³ Nov. 2000
		1997- 2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.		
61	OFI-951	4.8	4.9	4.4	4.8	5.2	4.7	6.3
62	MB 214	4.8	5.2	4.6	4.6	4.8	4.3	7.0
63	MB 216	4.8	5.3	4.7	4.8	4.3	3.3	7.3
64	WX3-275	4.8	4.6	4.9	5.3	4.2	3.3	5.7
65	EA 41	4.8	4.9	4.6	4.8	4.7	5.7	7.3
66	Genesis	4.8	5.0	4.8	5.1	4.1	4.3	7.0
67	Apache II	4.8	5.0	4.5	4.8	4.7	4.7	5.3
68	Rebel 2000	4.7	5.2	4.6	4.6	4.5	5.0	6.7
69	OFI-931	4.7	5.2	4.4	4.6	4.7	4.3	6.7
70	Airlie	4.7	5.0	4.1	4.5	5.2	5.0	6.0
71	CIS TF-10	4.7	5.3	4.4	4.9	4.1	4.3	6.7
72	Dominion	4.7	4.6	4.6	4.6	5.0	5.0	5.3
73	SRX 8500	4.7	5.1	4.2	4.6	4.7	4.7	6.0
74	Southern Choice	4.7	4.8	4.3	4.8	4.7	4.0	6.0
75	CIS TF-9	4.7	5.1	4.6	4.5	4.4	5.3	5.7
76	Finelawn Petite	4.6	4.7	4.2	4.6	5.0	5.3	6.0
77	Tomahawk E+	4.6	4.7	4.3	4.6	4.8	4.3	6.3
78	OFI-FWY	4.6	4.5	4.3	5.0	4.7	4.3	5.7
79	ATF-253	4.6	4.4	4.6	4.8	4.7	5.7	5.0
80	Regiment	4.6	4.9	4.1	4.7	4.8	5.3	5.0
81	Good-EN	4.6	5.0	4.3	4.5	4.7	5.0	6.0
82	R5AU	4.6	4.9	3.9	4.4	5.1	5.0	5.0
83	Reserve	4.5	4.5	4.1	4.4	5.0	6.3	4.7
84	Mustang II	4.5	4.3	4.3	4.5	4.9	5.3	6.0
85	Redcoat	4.5	5.0	3.2	4.5	5.2	5.7	5.7
86	CIS TF-11	4.4	4.6	4.4	4.3	4.4	4.7	5.0
87	Rebel 3D	4.4	5.0	4.3	4.4	4.0	3.0	6.0
88	Tulsa	4.4	4.7	3.7	4.2	5.0	6.0	5.3
89	Arizona	4.4	5.8	4.3	4.0	3.6	3.7	7.0
90	Pick FA UT-93	4.4	4.5	4.6	4.0	4.5	4.3	6.0

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Density ² Nov. 2000	Color ³ Nov. 2000
		1997- 2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.		
91	BAR FA6 US6F	4.4	5.1	4.2	4.5	3.9	4.7	6.3
92	Lion	4.4	4.4	4.5	4.5	4.3	4.0	5.7
93	Duster	4.4	4.6	4.2	4.2	4.4	4.0	6.0
94	Bandana	4.3	4.0	4.1	4.4	4.9	5.0	6.0
95	Cochise II	4.3	4.5	3.9	4.4	4.4	4.0	5.3
96	WVBP-1B	4.3	4.7	4.2	4.1	4.2	4.3	6.7
97	Falcon II	4.3	4.5	4.0	4.3	4.3	4.3	6.0
98	ATF-257	4.2	3.6	4.0	4.1	5.2	6.0	4.0
99	Helix	4.2	4.9	3.7	4.0	4.2	4.7	5.3
100	Shenandoah	4.2	4.2	4.2	4.1	4.3	5.0	4.3
101	Comstock	4.2	4.3	4.0	4.3	4.1	4.0	5.0
102	ATF-020	4.1	4.5	3.6	3.9	4.6	4.3	5.3
103	PSII-TF-10	4.1	4.4	4.0	4.2	3.9	3.3	6.3
104	Marksman	4.1	4.4	3.7	4.1	4.2	4.7	5.3
105	Renegade	4.1	4.9	3.6	3.9	4.0	4.3	4.0
106	OFI-96-32	4.1	4.6	3.8	3.9	4.0	3.7	6.3
107	Glen Eagle	4.1	4.5	3.9	3.9	4.1	3.0	5.0
108	Leprechaun	4.1	4.5	3.8	3.9	4.0	3.7	6.0
109	Equinox	4.1	4.1	4.1	4.0	4.0	3.7	5.7
110	H7 Space GR 95	4.0	3.4	4.0	3.9	4.8	6.3	4.3
111	Pixie E+	4.0	4.2	3.9	4.2	3.7	4.0	6.0
112	Cortez	4.0	4.5	3.5	3.9	4.0	3.7	4.7
113	Pedestal	4.0	4.1	3.8	3.9	4.1	3.7	4.3
114	PSII-TF-9	4.0	4.4	3.7	3.7	4.1	3.7	5.0
115	Safari	4.0	3.9	4.1	3.9	3.9	4.3	4.0
116	PRO 8430	3.9	3.4	3.8	4.0	4.4	5.7	4.7
117	Velocity	3.9	4.3	3.7	3.8	3.7	3.3	6.3
118	Barkoel (<i>Koeleria</i> sp.)	3.9	5.4	4.0	3.5	2.6	2.0	4.3
119	Kitty Hawk S.S.T.	3.9	4.1	3.7	3.8	3.8	4.3	5.0
120	Titan 2	3.9	4.1	3.9	3.5	4.0	4.0	2.7

Table 1 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Density ² Nov. 2000	Color ³ Nov. 2000
		1997- 2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.		
121	WPEZE	3.8	4.8	3.3	3.4	3.9	4.3	5.3
122	SRX 8084	3.8	4.1	3.7	3.6	3.8	4.0	4.0
123	Axiom	3.8	4.0	3.4	3.4	4.2	5.3	5.0
124	JSC-1	3.7	4.1	3.3	3.6	3.9	4.0	5.3
125	Rebel Jr.	3.7	3.9	3.9	3.5	3.3	3.7	4.3
126	DP 50-9011	3.6	4.2	3.6	3.8	2.8	2.0	6.0
127	Bonsai	3.6	3.9	3.7	3.4	3.4	4.0	4.3
128	JTTFC-96	3.4	3.6	3.3	3.0	3.5	4.3	3.0
129	JTTFA-96	3.2	3.1	2.9	3.2	3.8	5.3	3.7
130	Rebel II	2.9	3.0	2.8	2.5	3.2	5.0	2.7
131	DLF-1	2.9	3.2	2.8	2.7	2.7	2.0	5.3
132	Arid	2.8	3.3	2.8	2.5	2.7	4.0	2.7
133	DP 7952	2.5	2.6	2.5	2.1	2.7	4.0	3.0
134	AV-1	2.3	2.7	2.2	2.2	2.1	1.7	5.0
135	Kentucky-31 E+	1.5	2.0	1.7	1.2	1.2	1.0	2.7
	LSD at 5% =	0.7	0.8	1.0	1.0	1.1	2.0	1.4

¹9 = best turf quality

²9 = highest density

³9 = darkest green color

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 1996 at Adelphia, NJ. (Includes entries from the National Turfgrass Evaluation Program - NTEP.)

	Cultivar or Selection	-----Turf Quality ¹ -----					Spring Green-up ² April 2000
		1997-2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	
1	Rembrandt	6.0	5.7	6.2	5.8	6.2	7.3
2	Millennium	5.9	6.1	6.0	5.3	6.1	5.7
3	Plantation	5.9	5.8	5.8	5.9	5.9	4.7
4	Pick RT-95	5.8	5.4	6.1	5.3	6.2	6.7
5	Gazelle	5.7	6.3	5.9	5.0	5.6	4.7
6	Picasso	5.7	6.2	6.0	5.4	5.2	4.3
7	Scorpion	5.5	5.5	5.6	5.2	5.9	5.3
8	Coyote	5.5	6.0	5.4	5.2	5.5	5.0
9	Watchdog	5.5	5.6	5.7	5.1	5.5	5.3
10	WRS2-1A	5.4	5.6	5.3	5.4	5.3	5.3
11	Rebel Sentry	5.4	5.9	5.0	5.1	5.4	5.3
12	Masterpiece	5.3	5.2	5.5	5.3	5.3	4.7
13	Pick FA 20-92	5.3	5.4	5.4	5.3	5.0	5.0
14	Shenandoah II	5.3	5.4	5.5	5.2	5.1	5.3
15	Pick FA XK-96	5.2	5.4	5.3	5.0	5.2	4.0
16	Crossfire II	5.2	4.7	5.5	5.5	5.0	5.0
17	Arcade	5.2	5.0	5.6	4.8	5.3	5.0
18	WRS2-1B	5.1	5.2	4.9	5.3	5.1	5.0
19	Olympic Gold	5.1	5.3	4.7	5.1	5.3	6.0
20	MB-26	5.1	5.7	5.1	4.9	4.7	4.0
21	Bonsai 2000	5.1	5.2	5.5	4.9	4.8	4.3
22	OFI-96-31	5.1	5.4	5.2	4.8	5.0	5.0
23	96 WROTF	5.1	5.0	5.2	5.0	5.1	4.3
24	Tarheel	5.1	5.2	5.3	4.9	4.8	5.0
25	CU 950 1T	5.1	5.3	4.8	5.1	5.0	5.0
26	OnCue	5.1	5.0	5.1	5.2	5.0	4.3
27	Wolfpack	5.0	4.8	5.6	5.1	4.7	5.0
28	Apache II	5.0	5.5	5.3	4.6	4.7	5.0
29	CIS TF-12	5.0	4.9	5.2	5.1	4.9	5.0
30	BAR FA 6 US3	5.0	6.0	5.2	4.6	4.3	4.0

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Spring Green-up ² April 2000
		1997-2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	
31	Coronado	5.0	5.4	5.1	4.7	4.9	5.3
32	Tulsa	5.0	5.1	4.9	5.0	5.0	5.7
33	Arid 3	5.0	5.5	4.8	4.8	4.8	4.0
34	Dominion	5.0	5.1	4.6	5.0	5.3	5.7
35	MB-29	5.0	5.7	4.7	4.8	4.8	4.0
36	Southern Choice	5.0	5.0	4.8	5.1	5.0	5.3
37	Pick FA N-93	5.0	4.8	5.4	4.8	4.9	3.3
38	SRX 8500	5.0	5.4	5.0	4.7	4.8	4.7
39	Jaguar 3	5.0	4.3	5.3	5.3	5.1	5.3
40	Bravo	5.0	5.0	5.0	5.0	4.9	5.3
41	Alamo E+	4.9	4.9	5.2	4.7	4.9	4.7
42	OFI-931	4.9	5.0	5.1	4.9	4.7	5.7
43	PST-5TO	4.9	4.7	5.2	5.1	4.6	5.3
44	MB-212	4.9	5.2	4.9	5.2	4.3	4.7
45	Aztec II	4.9	5.3	5.3	4.5	4.5	4.7
46	Empress	4.9	5.1	5.2	5.0	4.4	4.7
47	ATF-188	4.9	4.4	5.1	4.9	5.0	5.0
48	5LZ	4.9	5.4	4.4	5.3	4.4	4.3
49	Bulldawg	4.9	4.8	4.9	4.8	4.9	5.0
50	SR 8210	4.9	5.0	5.1	4.8	4.6	4.0
51	Coronado Gold	4.9	4.6	5.1	4.7	5.0	4.3
52	OFI-951	4.8	5.5	5.0	4.6	4.3	4.3
53	ATF-257	4.8	4.0	5.1	5.0	5.1	5.3
54	Anthem II	4.8	4.7	4.8	4.9	4.6	5.0
55	BAR FA 6 US1	4.8	5.6	4.5	4.4	4.5	4.7
56	Chapel Hill	4.8	6.0	4.3	4.4	4.3	5.7
57	MB-28	4.8	5.2	4.4	5.0	4.4	5.3
58	Sunpro	4.8	4.8	4.8	4.7	4.7	4.3
59	R5AU	4.7	4.6	4.8	4.6	4.9	4.3
60	Twilight II	4.7	5.3	4.5	4.5	4.6	4.3

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Spring Green-up ² April 2000
		1997-2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	
61	Durana	4.7	5.2	4.6	4.5	4.5	3.7
62	Arid II	4.7	5.0	4.6	4.6	4.6	5.3
63	Brandy	4.7	5.5	4.7	4.1	4.5	4.7
64	BAR FA6 US6F	4.7	5.0	4.6	4.8	4.4	5.3
65	MB-213	4.7	5.7	4.5	4.6	4.0	5.0
66	Mustang II	4.7	4.3	5.0	4.8	4.7	4.7
67	ATF-253	4.7	4.5	4.7	4.9	4.6	5.0
68	Arabia	4.7	5.2	4.2	4.4	4.9	4.7
69	BAR FA 6D	4.7	5.2	4.9	4.3	4.3	3.7
70	BAR FA 6D USA	4.7	5.5	4.6	4.3	4.3	3.7
71	Reserve	4.7	4.5	4.9	4.7	4.5	5.0
72	BAR FA 6 US2U	4.7	5.0	4.7	4.4	4.4	4.0
73	CIS TF-11	4.6	4.4	5.0	4.6	4.6	4.3
74	Good-EN	4.6	5.0	4.3	4.7	4.6	5.0
75	BAR FA 6LV	4.6	5.5	4.6	4.1	4.3	4.7
76	Redcoat	4.6	4.6	4.2	4.9	4.8	4.7
77	Regiment	4.6	4.5	4.4	4.8	4.7	5.3
78	Shortstop II	4.6	4.9	4.5	4.5	4.5	4.7
79	Airlie	4.6	5.1	4.3	4.6	4.5	4.7
80	CU 950 2T	4.6	4.5	4.6	4.6	4.5	5.0
81	Bandana	4.5	4.1	4.5	4.5	5.0	5.0
82	OFU-FWY	4.5	5.1	4.5	4.2	4.2	4.0
83	ATF-020	4.5	4.5	4.4	4.3	4.8	5.3
84	WPEZE	4.5	5.0	4.3	4.3	4.4	5.0
85	Duster	4.5	4.7	4.7	4.6	4.0	5.0
86	Pixie E+	4.5	4.8	4.5	4.4	4.2	4.7
87	Lion	4.5	4.4	4.4	4.5	4.6	4.7
88	Renegade	4.5	4.9	4.1	4.3	4.5	4.7
89	CIS TF-13	4.5	4.2	4.9	4.4	4.4	4.3
90	CIS TF-9	4.5	4.4	4.7	4.2	4.5	5.0

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Spring Green-up ² April 2000
		1997-2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	
91	Arizona	4.4	5.1	4.3	4.3	3.9	4.3
92	Helix	4.4	4.3	4.2	4.6	4.6	5.0
93	MB-216	4.4	5.4	4.1	4.3	3.8	4.0
94	Pick FA 15-92	4.4	4.3	4.4	4.6	4.3	5.3
95	OFI-96-32	4.4	4.8	4.2	4.5	4.1	5.3
96	Rebel 2000	4.4	5.4	4.1	4.0	4.1	3.7
97	Cochise II	4.4	4.3	4.8	4.3	4.0	5.7
98	CIS TF-10	4.4	5.1	4.1	4.1	4.2	4.3
99	PS11 TF-9	4.4	4.6	4.4	4.5	3.9	5.3
100	Cortez	4.4	4.3	4.6	4.3	4.3	5.0
101	Glen Eagle	4.4	4.6	3.9	4.5	4.4	4.7
102	Kitty Hawk S.S.T.	4.4	4.3	4.6	4.1	4.4	5.3
103	EA 41	4.3	4.1	4.9	4.8	3.5	4.0
104	Pick FA UT-93	4.3	4.8	4.5	4.2	3.9	4.0
105	PRO 8430	4.3	4.1	4.7	4.0	4.5	5.3
106	MB-214	4.3	5.5	4.1	4.1	3.5	4.7
107	Safari	4.3	4.4	4.4	3.8	4.5	5.3
108	Rebel 3D	4.3	5.1	3.7	4.3	4.0	4.0
109	CIS TF-14	4.3	4.4	4.4	4.4	3.9	4.0
110	WVPB-1B	4.3	4.9	4.0	4.3	3.9	5.0
111	Shenandoah	4.3	4.2	4.4	4.2	4.2	5.3
112	Equinox	4.3	4.2	4.5	4.2	4.1	4.3
113	Velocity	4.2	4.6	4.0	4.0	4.4	4.7
114	Marksman	4.2	4.4	4.5	4.5	3.6	4.3
115	Finelawn Petite	4.2	4.7	4.1	4.2	3.9	4.7
116	Axiom	4.2	4.1	4.3	4.2	4.4	4.7
117	PS11 TF-10	4.2	4.5	3.9	4.1	4.3	4.3
118	MB-215	4.2	5.4	4.0	3.8	3.7	3.7
119	Pedestal	4.2	4.7	4.5	4.0	3.7	4.7
120	Falcon II	4.2	4.3	4.1	4.4	4.0	5.3

Table 2 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----					Spring Green-up ² April 2000
		1997-2000 Avg.	1997 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	
121	SRX 8084	4.2	4.3	4.5	3.9	4.0	4.3
122	Debutante	4.2	4.4	4.2	4.0	4.1	4.3
123	WX3-275	4.1	4.2	4.4	4.2	3.7	3.3
124	Leprechaun	4.1	4.4	3.7	4.2	4.2	4.3
125	Genesis	4.1	4.8	4.2	3.8	3.6	4.3
126	Shenandoah	4.1	3.8	4.3	4.1	4.2	5.0
127	Comstock	4.1	4.2	4.0	4.2	3.9	5.0
128	Bonsai	4.1	3.9	4.3	3.8	4.3	4.3
129	Rebel Jr.	4.0	4.3	4.2	4.1	3.6	4.3
130	JTTFA-96	4.0	3.7	4.4	4.0	3.8	5.3
131	Tomahawk E+	3.9	4.0	4.1	3.7	3.8	4.0
132	Titan 2	3.8	3.7	4.7	3.6	3.3	4.7
133	Veranda	3.8	3.7	4.2	3.9	3.3	4.7
134	JTTFC-96	3.8	3.6	4.0	3.9	3.5	4.3
135	DP 50-9011	3.7	3.5	3.7	3.9	3.9	4.7
136	JSC-1	3.7	4.0	3.5	3.9	3.4	4.7
137	DLF-1	3.1	3.3	3.2	3.1	2.9	5.3
138	Rebel II	3.0	3.2	3.1	3.0	2.9	4.3
139	DP 7952	2.9	2.9	3.2	3.1	2.6	5.0
140	AV-1	2.8	3.1	3.0	3.0	2.2	4.0
141	Arid	2.5	2.7	2.8	2.4	2.2	5.0
142	Kentucky-31 E+	1.1	1.4	1.1	1.0	1.0	3.7
	LSD at 5% =	0.5	0.6	0.7	0.7	0.9	1.5

¹9 = best turf quality²9 = earliest spring green-up

Table 3. Performance of tall fescue cultivars and selections in a turf trial seeded in September 1997 at Pittstown, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----			
		1998-2000 Avg.	1998 Avg.	1999 Avg.	2000 Avg.
1	Rebel 2000	6.3	5.7	5.6	7.5
2	Bingo	6.1	6.1	4.9	7.3
3	Millennium	5.9	5.3	5.5	7.0
4	983	5.9	5.8	4.9	6.9
5	WX6-2000	5.8	5.4	5.1	7.0
6	Plantation	5.8	5.4	5.2	6.9
7	WR S2	5.8	5.4	5.3	6.5
8	MA 74	5.8	4.8	5.5	7.0
9	Masterpiece	5.7	5.5	4.9	6.8
10	A-91	5.6	5.4	4.9	6.5
11	Hounddog 5	5.6	5.0	5.2	6.4
12	Genesis II	5.5	5.0	4.6	7.0
13	Matador	5.4	4.6	4.9	6.8
14	Onyx	5.4	4.5	4.8	6.8
15	Twilight II	5.3	4.6	5.0	6.4
16	Lion	5.3	4.5	5.1	6.3
17	Rebel 3D	5.3	5.0	4.8	6.0
18	Tarheel	5.2	4.9	4.4	6.2
19	Hounddog 5 + Kenblue (K. bluegrass)	5.2	5.3	4.7	5.4
20	Coronado Gold	5.1	4.8	4.5	6.0
21	Coronado	5.1	4.7	4.7	6.0
22	SRX 8BPTF	5.1	4.6	4.4	6.3
23	Hounddog 5 + SR 2000 (K. bluegrass)	5.1	5.2	4.9	5.2
24	Affirmed (Per. Ryegrass)	5.1	4.6	5.0	5.6
25	SR 8210	4.9	4.6	4.6	5.5
26	Bonsai 2000	4.9	4.6	4.5	5.6
27	SRX 8MO941-2	4.9	4.3	4.7	5.7
28	Wolfpack	4.9	4.7	4.5	5.4
29	Jaguar 3	4.7	4.7	4.5	5.0
30	WX3-275	4.7	4.8	3.8	5.5

Table 3 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			
		1998-2000 Avg.	1998 Avg.	1999 Avg.	2000 Avg.
31	SRX 8084	4.7	4.2	4.4	5.4
32	Pride	4.7	4.7	4.1	5.2
33	SR 2000 (K. bluegrass)	4.6	4.6	3.7	5.4
34	SR 8430	4.6	4.8	3.8	5.0
35	Equinox	4.5	4.0	4.7	4.9
36	Bonsai	4.5	4.0	4.6	5.0
37	Debutante	4.5	4.4	4.1	4.9
38	Anthem II	4.4	3.6	4.5	5.1
39	Tomahawk	4.4	4.4	3.9	4.9
40	Crewcut	4.3	4.5	3.9	4.7
41	Rebel Jr.	4.3	4.2	4.0	4.8
42	Shenandoah	4.3	4.1	3.9	4.9
43	SR 8200	4.1	3.8	3.9	4.4
44	Grande	4.0	3.5	3.9	4.4
45	Titan 2	3.9	4.0	3.4	4.3
46	Advanti	3.8	3.3	3.7	4.4
47	SR 8300	3.8	3.4	3.7	4.3
48	Kenblue (K. bluegrass)	2.9	3.9	2.3	2.5
49	Kentucky-31	2.2	2.5	2.0	2.1
	LSD at 5% =	0.5	0.7	0.7	0.7

¹9 = best turf quality

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 1997 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				-----Brown Patch ² -----		
	1998-2000 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	Aug. 2000	Sept. 2000	2000 Avg.
1 Mustang 3	6.8	6.8	6.7	6.9	7.7	6.3	7.0
2 DLSD comp	6.5	6.3	7.1	6.1	6.0	4.0	5.0
3 Genesis II	6.3	6.5	6.3	6.1	6.7	5.7	6.2
4 SR 8250	5.9	6.3	5.9	5.6	7.3	6.0	6.7
5 Bingo	5.9	5.9	5.9	5.8	5.7	6.0	5.8
6 Finesse	5.7	5.8	5.9	5.6	6.0	4.3	5.2
7 Coyote	5.6	5.8	5.2	5.8	7.0	6.3	6.7
8 DDL	5.6	6.1	5.3	5.4	4.7	3.3	4.0
9 WX6-2000	5.5	5.2	5.6	5.7	5.7	5.3	5.5
10 Syn 5PH	5.5	5.3	5.2	5.9	5.7	6.0	5.8
11 Syn 5DH	5.3	5.2	5.4	5.4	5.7	4.7	5.2
12 Twilight II	5.3	5.7	5.0	5.3	6.7	4.0	5.3
13 Syn 57E	5.2	5.0	5.0	5.6	7.3	5.3	6.3
14 5LZ	5.2	5.8	4.6	5.1	6.7	4.3	5.5
15 Picasso	5.2	5.4	4.9	5.3	6.7	5.0	5.8
16 Plantation	5.1	5.3	4.9	5.2	6.3	6.0	6.2
17 Shenandoah II	5.1	4.9	5.3	5.2	7.0	5.7	6.3
18 Syn 5NRR	5.1	5.0	4.9	5.3	6.0	4.0	5.0
19 Millennium	5.1	5.2	4.8	5.2	5.7	5.3	5.5
20 Syn R5EH-97	5.0	4.9	5.0	5.2	7.0	6.0	6.5
21 Brandy	5.0	5.4	4.7	4.9	5.0	4.7	4.8
22 Matador	5.0	5.9	4.1	4.9	6.0	3.3	4.7
23 5DU	5.0	5.3	4.4	5.1	6.0	5.0	5.5
24 LA 38	5.0	4.8	4.8	5.3	5.0	4.0	4.5
25 EA 40	4.9	5.1	4.7	5.0	4.3	2.7	3.5
26 Jaguar 3	4.8	4.5	5.2	4.9	7.3	5.7	6.5
27 LA 46	4.8	4.7	4.5	5.3	5.3	3.7	4.5
28 Laramie	4.8	5.1	4.2	5.2	8.0	5.3	6.7
29 Alamo	4.8	4.7	4.6	5.2	6.0	3.3	4.7
30 Bonsai 2000	4.8	4.9	4.8	4.8	6.7	4.3	5.5

Table 4 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----				-----Brown Patch ² -----		
		1998-2000 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	Aug. 2000	Sept. 2000	2000 Avg.
31	Sunpro	4.8	5.3	4.5	4.7	6.0	5.0	5.5
32	Masterpiece	4.8	4.5	5.2	4.8	7.3	4.7	6.0
33	MA 71	4.8	5.0	4.7	4.7	4.3	3.3	3.8
34	CIS TF-303	4.8	5.4	4.5	4.4	6.3	3.3	4.8
35	5HU	4.8	4.8	4.5	5.0	6.7	5.0	5.8
36	WX5-365-19	4.8	4.6	4.6	5.1	6.0	6.3	6.2
37	Endeavor	4.7	4.3	5.0	4.9	7.3	6.0	6.7
38	Syn 5RMY	4.7	4.3	4.8	5.1	7.7	6.0	6.8
39	Apache II	4.7	4.9	4.4	4.8	5.0	6.0	5.5
40	523-97	4.7	4.5	4.5	5.1	5.0	5.3	5.2
41	Syn 5FH	4.7	4.3	4.6	5.2	7.3	4.7	6.0
42	Pixie E+	4.7	4.8	4.6	4.5	7.0	5.7	6.3
43	R5AE	4.7	4.5	4.4	5.1	6.7	6.3	6.5
44	Equinox	4.7	4.3	4.7	5.0	7.0	5.3	6.2
45	Rembrandt	4.7	4.2	5.0	4.8	7.0	4.0	5.5
46	Arid II	4.6	4.8	4.4	4.7	5.7	4.3	5.0
47	MA 74	4.6	4.2	4.6	5.0	7.0	4.7	5.8
48	523M	4.6	4.2	4.5	5.1	7.3	5.3	6.3
49	Exp-LWE	4.6	4.3	4.9	4.6	5.3	3.3	4.3
50	Wolfpack	4.6	4.1	5.0	4.7	6.3	4.3	5.3
51	Arabia	4.6	4.9	4.3	4.6	5.3	5.3	5.3
52	Syn R534-97	4.6	4.4	4.7	4.6	6.3	4.0	5.2
53	Lion	4.6	4.0	4.5	5.2	7.0	4.3	5.7
54	Coronado Gold	4.6	4.6	4.3	4.8	6.7	5.0	5.8
55	5M5	4.5	4.4	4.5	4.6	6.3	3.7	5.0
56	5LMD	4.5	5.0	4.1	4.4	5.3	4.0	4.7
57	Syn R5GR-97	4.5	4.5	4.6	4.4	7.3	3.7	5.5
58	Tar Heel	4.5	4.0	4.7	4.9	6.0	5.3	5.7
59	Bandana	4.5	4.2	4.1	5.2	8.3	5.7	7.0
60	Syn 5TOR	4.5	4.0	4.7	4.8	7.0	5.7	6.3

Table 4 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				-----Brown Patch ² -----			
	1998- 2000 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	Aug. 2000	Sept. 2000	2000 Avg.	
61	5 E5	4.5	4.4	4.3	4.7	7.3	4.7	6.0
62	CIS TF-301	4.4	4.7	4.1	4.5	4.7	3.0	3.8
63	Hounddog 5	4.4	4.3	4.3	4.7	7.0	4.3	5.7
64	Tomahawk E+	4.4	4.1	4.5	4.6	7.3	4.3	5.8
65	CIS TF-302	4.4	4.5	4.3	4.4	6.7	2.3	4.5
66	Bravo	4.4	4.1	4.6	4.5	6.7	5.7	6.2
67	Anthem II	4.4	4.4	4.3	4.4	5.3	3.7	4.5
68	Syn R5MM-97	4.4	4.1	4.3	4.7	7.7	4.7	6.2
69	Onyx	4.4	4.7	3.9	4.5	6.0	5.0	5.5
70	Gazelle	4.3	4.6	3.9	4.5	5.3	4.3	4.8
71	Syn 5DU	4.3	4.4	3.9	4.7	4.3	3.0	3.7
72	5HOE-97	4.3	4.0	4.2	4.7	6.0	4.0	5.0
73	R5AU	4.2	3.9	4.0	4.9	6.7	4.7	5.7
74	Lancer	4.2	4.2	4.3	4.1	6.3	4.3	5.3
75	Syn R5EL-97	4.2	4.1	4.3	4.2	7.0	5.7	6.3
76	Duster	4.2	4.5	4.1	3.9	5.3	4.7	5.0
77	Syn 5R94Y	4.1	3.7	4.6	4.1	6.3	4.7	5.5
78	Syn R5GEN-97	4.0	3.5	4.3	4.3	7.3	4.3	5.8
79	Stetson	4.0	3.5	4.1	4.3	6.3	5.7	6.0
80	EA 67	3.9	3.6	4.0	4.0	6.0	4.7	5.3
81	Mini-Mustang	3.9	3.6	3.9	4.1	6.3	4.7	5.5
82	Safari	3.8	3.1	4.0	4.3	6.7	6.0	6.3
83	Tomahawk	3.8	3.5	3.6	4.2	6.0	5.0	5.5
84	Bonsai	3.7	3.4	3.7	4.0	6.0	4.7	5.3
85	Debutante	3.6	3.4	3.3	4.2	6.0	4.7	5.3
86	WX3 275	3.5	3.1	3.6	3.9	5.0	5.3	5.2
87	Crewcut	3.5	3.3	3.6	3.5	7.0	4.3	5.7
88	Coronado E+	3.4	2.8	3.5	4.0	6.0	3.3	4.7
89	Crossfire II	3.4	3.2	3.6	3.5	6.3	5.0	5.7
90	Silverado	3.4	2.9	3.4	3.9	6.7	5.3	6.0

Table 4 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				-----Brown Patch ² -----		
	1998-2000 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	Aug. 2000	Sept. 2000	2000 Avg.
91 Avanti	3.4	3.1	3.3	3.7	7.0	5.7	6.3
92 Grande	3.3	2.8	3.6	3.5	6.0	6.0	6.0
93 Crossfire	3.2	2.8	3.2	3.7	7.0	6.3	6.7
94 Shenandoah	3.1	2.9	3.2	3.3	6.3	5.3	5.8
95 Amigo	2.9	2.3	3.4	2.9	4.3	4.3	4.3
96 Monarch	2.7	1.5	3.0	3.7	7.0	5.0	6.0
97 Eldorado	2.7	2.0	2.7	3.3	6.0	4.0	5.0
98 Olympic II	2.6	1.9	2.5	3.3	7.3	4.3	5.8
99 Kentucky-31	1.3	1.4	1.4	1.0	4.7	5.0	4.8
LSD at 5% =	0.6	0.7	0.8	0.9	2.2	1.9	1.5

¹9 = best turf quality

²9 = least brown patch

Table 5. Performance of tall fescue cultivars and selections in a turf trial seeded in September 1998 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality ¹ -----			Drought Stress ² July 2000	Brown Patch ³ Aug. 2000
		1999-2000 Avg.	1999 Avg.	2000 Avg.		
1	MS6 comp	6.2	5.9	6.5	5.0	7.7
2	MC1 comp	6.1	5.6	6.6	4.3	6.3
3	8001	6.0	5.8	6.3	5.0	7.0
4	MI3 comp	6.0	5.8	6.2	4.7	6.0
5	DLSD	5.9	5.6	6.1	6.0	5.7
6	Bingo	5.7	5.5	5.8	6.0	5.7
7	Focus	5.6	5.5	5.7	5.3	6.3
8	601 comp	5.6	5.7	5.4	3.0	5.7
9	LRF-98-440	5.4	5.4	5.3	4.0	3.0
10	Rembrandt	5.3	5.3	5.3	3.3	5.3
11	SR 8250	5.3	5.1	5.5	4.3	6.7
12	Finesse	5.3	5.2	5.3	4.7	6.3
13	Pride	5.2	5.1	5.4	5.0	6.0
14	Masterpiece	5.2	5.3	5.2	5.0	5.7
15	LRF-98-442	5.2	5.2	5.2	5.3	3.7
16	Rebel Sentry	5.2	5.5	4.8	4.3	4.3
17	Plantation	5.1	5.1	5.1	5.0	6.7
18	MS4 comp	5.1	5.3	4.9	2.7	5.0
19	MS5 comp	5.1	5.4	4.8	3.3	4.3
20	Picasso	5.1	5.2	5.0	3.7	6.7
21	LRF-98-436	5.0	5.0	5.0	5.7	3.7
22	LRF-98-251	4.9	5.0	4.9	5.0	6.3
23	98GA12	4.9	5.1	4.6	4.7	6.7
24	R5GR-98	4.8	5.1	4.5	5.7	6.3
25	R5MM-98	4.8	4.8	4.8	5.7	6.7
26	LRF-98-441	4.8	4.6	5.0	5.0	5.7
27	98GA11	4.8	4.7	4.9	5.3	4.7
28	MA 87	4.6	4.8	4.4	5.0	5.5
29	Millennium	4.6	4.8	4.5	4.0	3.7
30	98GA7	4.6	4.6	4.5	5.3	5.7

Table 5 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Drought Stress ² July 2000	Brown Patch ³ Aug. 2000
		1999-2000 Avg.	1999 Avg.	2000 Avg.		
31	Brandy	4.6	5.0	4.1	4.0	4.0
32	EA 40	4.5	4.3	4.7	4.0	3.0
33	Rebel 3D	4.5	4.8	4.3	5.0	4.7
34	R5EH-98	4.5	4.8	4.3	4.3	7.0
35	MA 138	4.5	4.6	4.4	3.7	4.0
36	Laramie	4.5	5.0	4.0	3.7	3.5
37	Tarheel	4.5	4.4	4.5	4.3	5.0
38	98GA3	4.5	4.6	4.3	4.7	5.3
39	Wolfpack	4.4	4.5	4.4	5.7	7.0
40	EA 96	4.4	4.3	4.5	4.3	3.7
41	MA 95	4.3	4.4	4.2	4.7	5.0
42	R5PCP-98	4.3	4.2	4.4	3.7	4.7
43	Cochise	4.3	4.4	4.3	5.0	5.0
44	MA 71	4.3	4.4	4.2	5.0	3.0
45	Coronado Gold	4.3	4.2	4.4	5.3	4.3
46	Cochise II	4.3	4.7	3.8	4.3	4.7
47	AG-T981	4.2	4.4	4.0	4.3	3.7
48	Pixie	4.2	4.6	3.8	4.7	4.7
49	MA 104	4.1	3.8	4.5	3.0	4.0
50	Rebel 2000	4.1	4.5	3.8	3.7	4.7
51	98GA10	4.1	4.5	3.8	3.3	3.0
52	MA 74	4.1	3.8	4.4	4.3	5.7
53	Rebel Jr.	4.1	4.3	3.9	6.0	5.7
54	Ninja	4.1	4.2	4.0	4.7	4.0
55	MA 90	4.1	4.2	4.0	4.0	2.3
56	MA 91	4.1	3.9	4.2	4.7	2.7
57	LA 45	4.0	3.8	4.2	3.7	2.3
58	LA 46	4.0	3.7	4.3	5.0	4.0
59	MA 98	4.0	4.1	3.9	4.3	3.0
60	LA 107	4.0	3.8	4.1	4.7	2.3

Table 5 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Drought Stress ² July 2000	Brown Patch ³ Aug. 2000
		1999-2000 Avg.	1999 Avg.	2000 Avg.		
61	AG-T982	4.0	4.2	3.7	4.3	4.0
62	MA 108	3.9	4.0	3.8	4.7	3.3
63	LA 113	3.8	3.9	3.7	3.3	2.3
64	Cortez	3.6	3.9	3.2	5.7	5.7
65	Arid	2.8	3.2	2.3	6.3	5.0
66	98GA2	2.7	2.8	2.5	6.3	6.3
67	98GA4	2.4	2.4	2.3	6.3	5.7
68	98GA8	2.3	2.4	2.2	7.0	6.0
69	98GA1	1.7	1.8	1.5	6.3	6.0
70	98GA6	1.5	1.5	1.5	7.0	7.0
71	Kentucky-31	1.5	1.8	1.2	6.0	5.5
72	98GA9	1.4	1.4	1.3	6.3	4.5
	LSD at 5% =	0.5	0.5	0.8	2.0	1.4

¹9 = best turf quality

²9 = least drought stress

³9 = least disease

Table 6. Performance of tall fescue cultivars and selections in a turf trial seeded in August 1999 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality ¹ 2000 Avg.	Establishment ² Sept. 1999	Brown Patch ³ Aug. 2000
1	ATF 702	6.3	3.7	3.7
2	ATF 594	6.1	5.3	5.3
3	EPB comp	5.9	4.7	5.7
4	BE 3 comp	5.9	3.3	5.3
5	BE 4 comp	5.9	4.3	4.7
6	Bingo	5.9	4.3	3.3
7	ATF 629	5.7	4.7	5.0
8	BE 1 comp	5.7	3.7	6.0
9	BE 2 comp	5.7	4.0	3.3
10	ATF 708	5.7	4.0	4.3
11	Rebel Exeda	5.7	4.7	6.3
12	TF 41	5.7	6.0	4.7
13	8001 comp	5.6	4.0	4.7
14	WAF	5.6	3.7	7.0
15	E67 comp	5.5	4.0	5.3
16	DWP	5.5	5.3	4.0
17	Pick TF 5-99	5.5	4.7	5.3
18	Focus	5.5	5.3	5.3
19	Genesis II	5.5	6.0	3.7
20	Pick RT-95	5.4	5.5	4.0
21	Arabia	5.4	5.0	3.7
22	ATF 593	5.4	5.0	2.7
23	P58 comp	5.4	3.3	4.0
24	Arid 3	5.3	3.7	3.7
25	Barerra	5.3	5.3	6.0
26	Pick FAXF-95	5.3	5.3	5.0
27	94 RUT TF-2	5.3	3.0	5.0
28	Picasso	5.3	5.7	3.3
29	Barlexas	5.2	4.0	4.0
30	Barrington	5.2	3.7	3.0

Table 6 (continued).

	Cultivar or Selection	Turf Quality ¹ 2000 Avg.	Establishment ² Sept. 1999	Brown Patch ³ Aug. 2000
31	ATF 703	5.1	4.3	4.7
32	Arizona	5.1	6.3	2.7
33	MC 1 CX	5.0	4.3	5.0
34	Laramie	5.0	3.7	3.0
35	Plantation	5.0	5.3	3.7
36	Masterpiece	5.0	5.0	4.7
37	Tracer	5.0	4.7	3.3
38	DDL	5.0	5.0	3.7
39	Sunpro	4.9	6.0	4.7
40	Pick H-97	4.9	5.0	3.7
41	GS Bulk M-99	4.9	4.3	4.3
42	RTP	4.9	4.3	3.0
43	ATF 704	4.8	3.7	5.7
44	ATF 705 E+	4.8	4.0	3.7
45	Bravo	4.8	5.3	4.7
46	TF 40	4.8	3.7	4.0
47	OPP2	4.8	5.7	4.3
48	TF 5-97	4.8	6.0	3.7
49	MA 138	4.7	5.0	4.7
50	Coronado	4.7	5.0	1.7
51	Rembrandt	4.7	3.7	5.0
52	MI3	4.7	5.7	4.3
53	Brandy	4.7	5.0	3.7
54	6LV	4.7	5.3	3.0
55	Pixie	4.7	4.7	4.7
56	MA 125	4.7	4.7	4.0
57	Lancer	4.7	3.7	3.3
58	LWE	4.7	4.0	3.0
59	ATF 706	4.6	4.0	4.0
60	SYN R5LT-99	4.6	5.0	4.0
61	TF6	4.6	4.7	3.3
62	SMS	4.6	5.0	2.3
63	T991	4.6	4.7	3.0
64	Pick TF 4-99	4.6	5.7	2.7
65	94 RUT TF-1	4.6	4.0	2.7

Table 6 (continued).

	Cultivar or Selection	Turf Quality ¹ 2000 Avg.	Establishment ² Sept. 1999	Brown Patch ³ Aug. 2000
66	ATF 707	4.5	4.3	2.3
67	SYN R5EH-99	4.5	3.7	4.7
68	Prospect	4.5	4.3	3.3
69	LA 107R	4.5	4.3	4.3
70	6D	4.5	3.7	3.0
71	FA 24-91-99	4.5	4.7	3.0
72	Hounddog 5	4.5	3.7	3.7
73	FA 487	4.4	5.3	3.3
74	MA 127	4.4	6.0	2.3
75	LA 128	4.3	6.0	4.3
76	Stetson	4.3	4.0	3.7
77	Arid II	4.3	5.3	3.3
78	MA 123	4.3	5.3	3.7
79	Lion	4.3	5.3	2.7
80	Millennium	4.3	3.3	4.3
81	TF E-97	4.3	5.7	3.0
82	WATF	4.2	3.3	3.7
83	Crossfire II	4.2	5.3	3.3
84	MA 131	4.2	3.0	2.3
85	MA 98	4.2	6.3	3.0
86	Watchdog	4.2	4.3	3.7
87	Onyx	4.1	5.3	3.7
88	GS Bulk E-99	4.0	4.3	5.0
89	MA 108	4.0	3.7	2.0
90	MA 135	4.0	5.0	2.0
91	Shortstop II	3.9	5.7	2.3
92	Wolfpack	3.9	3.3	4.7
93	MA 132	3.8	5.0	2.3
94	Vegas	3.8	5.0	3.3
95	Frontera	3.7	5.0	2.0

Table 6 (continued).

Cultivar or Selection		Turf Quality ¹ 2000 Avg.	Establishment ² Sept. 1999	Brown Patch ³ Aug. 2000
96	LA 126	3.6	4.7	3.0
97	Phoenix	2.6	4.3	3.7
98	Talisman	2.1	5.0	2.5
99	Austin	1.5	5.0	3.0
100	Kentucky-31	1.2	6.3	4.0
LSD at 5% =		0.9	2.3	2.0

¹9 = best turf quality

²9 = quickest establishment

³9 = least disease

Table 7. Yearly Nitrogen (N) applied and mowing height (Ht) on tall fescue tests established at Adelphia, North Brunswick, and Pittstown, NJ.

	1997		1998		1999		2000	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht
Table 1 (1996 North Brunswick)	4.4	1.5	3.6	1.5	4.1	1.5	2.3	1.5
Table 2 (1996 Adelphia)	4.5	1.5	3.8	1.5	2.8	1.5	1.4	1.5
Table 3 (1997 Pittstown)			2.6	3.5	2.7	3.0	1.4	3.0
Table 4 (1997 Adelphia)			2.8	1.5	2.1	1.5	1.4	1.5
Table 5 (1998 Adelphia)					2.8	1.5	2.8	1.5
Table 6 (1999 Adelphia)							2.6	1.5

¹Annual N applied (lb/1000 ft²)

²Mowing height in inches