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

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The fine fescues include several species that can persist under limited soil water availability and low nitrogen fertility. Fine fescues can form a dense, attractive turf cover; blue, hard and strong creeping red fescues, however, do not tolerate a low height of cut. The species used as turf include both bunch types [Chewings fescue (*Festuca rubra* L. subsp. *falax*), hard fescue (*F. brevipila*, formerly *F. longifolia*), sheeps fescue (*F. ovina*), *F. pseudovina*, and blue fescue (*F. glauca*] and rhizomatous types [slender creeping red fescue (*F. rubra* L. subsp. *littoralis*, formerly *F. rubra* L. subsp. *trichophylla*) and strong creeping red fescue (*F. rubra* L. subsp. *rubra*)].

The fine fescues are characterized by fine, wiry leaves that have a tube-like appearance, especially when leaves roll during dry weather. Chewings fescues form a dense turf, whereas strong creeping and slender creeping red fescues produce a more open turf due to their rhizomatous growth habit. The strong creeping red fescues are more strongly rhizomatous and have a more open growth habit than the slender creeping red fescues. Newer hard fescue cultivars have improved turf-type characteristics and are similar in density and texture to the Chewings fescues. Hard fescues also have lower nutrient requirements, better disease resistance under low maintenance, and a slower growth rate. Sheeps fescues and blue fescues have stiff, bluish-green leaves and require little maintenance.

Strong creeping red fescues are often used as a companion grass in mixtures with Kentucky bluegrass because they have similar color, growth habit, and density. Compared to Kentucky bluegrass, the strong creeping red fescues have better establishment and seedling vigor and, after establishment, dominate in heavily shaded areas. Hard fescues are used for soil erosion control in low maintenance areas, and sheeps fescues are used to stabilize sandy soil and banks along irrigation canals. The sheeps and blue fescues are used in wildflower mixes for soil stabilization and for their attractive bluish foliage.

Fine fescues can be maintained best under reduced nitrogen (N) fertilization. Ideally, fine fescue should be fertilized with no more than 1 to 2 lb N/ 1000 ft^2 per year; sheeps, blue, and hard fescues require less N nutrition than the other species. Most fine fescues can tolerate mowing heights of 1.5 to 2.0 inches but perform best above 2.5 inches.

Fine fescues that contain the *Neotyphodium* endophyte can exhibit enhanced tolerance to insects, diseases, and environmental stress. This endophyte is a fungus that grows in the crown and leaf sheath tissues of the turfgrass plant. The effects of this endophyte on plant growth are generally not apparent during periods of low environmental stress; however, under stressful conditions, the endophyte-plant relationship produces compounds that improve resistance to some biotic and abiotic stresses.

Breeding efforts continue to enhance turf characteristics of the fine fescues and improve resistance to diseases, insects, and environmental stresses. Incorporation of endophytes into improved plant material provides an efficient way to increase stress tolerance. The Rutgers breeding program, in cooperation with the National Turfgrass Evaluation Program (NTEP), is involved in an extensive program where the performance of many cultivars and experimental selections is evaluated.

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PROCEDURES

Fine fescue trials were conducted at the Rutgers Plant Biology and Pathology Research and Extension Farm at Adelphia, NJ (Tables 1, 2, and 5 to 7), Horticultural Research Farm II at North Brunswick, NJ (Table 3), and the Rutgers Snyder Research and Extension Farm at Pittstown, NJ (Table 4). Tests at Adelphia and Pittstown were established in open areas with good air circulation. The trial at North Brunswick was in an area with reduced air circulation. All entries were seeded in 3 X 5 ft plots at a rate of 3.7 lb/1000 ft^2. Plots were replicated three times in a randomized complete block design.

Tests were fertilized at different nitrogen rates, mowed at different heights, and subjected to varying levels of drought stress depending on the objective of the test during the evaluation period (Table 8). After establishment, tests were infrequently irrigated to avoid severe drought stress and dormancy. Plots were mowed at a frequency to avoid excessive accumulation of clippings.

Broadleaf weeds were controlled at Adelphia with spring or fall applications of 2,4-D + Dicamba, and Bensulide was used as a preemergent control of annual grassy weeds. At North Brunswick, Confront was applied to control the broadleaf weeds (primarily white clover), Dimension was applied as a preemergent herbicide to control annual grassy weeds, and Merit was applied in July for grub control. The test at Pittstown received a spring application of Trimec Classic.

The seven tests were evaluated throughout the year by visually rating for turf quality. Turf quality is a subjective rating that is based on density, texture, uniformity, color, growth habit, and freedom from disease or insect damage. Other ratings included: seedling establishment, vigor, spring green-up, green cover, color, and resistance to red thread (*Laetisaria fuciformis*), dollar spot (*Sclerotinia homoeocarpa*), and leaf spot (*Bipolaris sorokiniana*). All ratings were taken using a 1 to 9 scale with 9 representing the best turf quality, best establishment, or least disease.

RESULTS AND DISCUSSION

Data presented in Tables 1 through 5 are grouped by species and ranked by their multiple year quality average. This was done to facilitate comparison of cultivars and selections within a species. In Table 6, cultivars of all species are ranked together by the quality average. Table 7 is grouped by species and ranked by turf quality in 2001.

In general, the Chewings and hard fescues performed better than the other species with many selections forming a dense, attractive turf (Tables 1 to 7). Several of the new selections within the strong creeping red fescues performed well at all locations. Although improvement in turf quality of sheeps and slender creeping red fescues continues, these species still rank lower than the others in turf quality (Tables 1 to 7).

Establishment in the fine fescues varied among the cultivars within any given species (Table 7). Two selections of strong creeping red fescues established very well (Jasper II and Common creeper). The Chewings fescues and strong creeping red fescues exhibited early spring green-up, and both rated higher than the other species in the 1998 Adelphia and North Brunswick tests (Tables 2 and 3). They also had better green cover in the 1998 North Brunswick test (Table 3).

In the test seeded September 1999 at Adelphia (Table 5), hard fescues had very good resistance to dollar spot. ABT HF I '99 and Oxford had no disease, and all other cultivars rated 6.7 or higher. Strong creeping red fescues were generally more susceptible to this disease, although Pathfinder, FLE comp, and Fenway exhibited better resistance. Much of this resistance was due to a high percentage of viable endophyte in the seed lots used to establish these tests. In the test seeded September 2000 at Adelphia (Table 7), hard fescues showed good resistance to leaf spot disease while the other species were more susceptible. Generally, hard fescues had the best resistance to red thread (Tables 1 to 4).

Breeding efforts continue to improve turf-type characteristics in the fine fescues. The area of insect and disease resistance is also an important focus of the Rutgers program. We continue to look at the use of endophytes to supplement breeding efforts to improve the natural ability of a cultivar to persist under stress. The success of the efforts of the Rutgers breeding program is well documented in the superior quality exhibited by many of the newer experimental selections. Further improvements, however, are still needed.

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Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1997 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality[1] 1998-2001 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	2001 Avg.	Red Thread[2] June 2001
	CHEWINGS FESCUE						
1	Shadow II	5.6	6.0	5.8	5.5	5.3	6.3
2	CIS FRC 2	5.6	6.4	5.3	5.4	5.4	5.7
3	Treazure E+	5.6	6.0	5.6	5.3	5.4	7.7
4	PCH comp	5.6	6.2	5.6	5.5	5.1	6.3
5	Ambassador	5.5	6.1	4.9	5.6	5.3	6.3
6	R94-299	5.2	6.0	4.8	4.9	5.2	7.7
7	FRC A-93-97	5.2	5.6	4.6	5.2	5.2	6.0
8	SRX 5N5942-2	5.0	5.4	4.7	5.1	4.7	9.0
9	Victory II	4.9	5.5	4.7	4.8	4.7	6.7
10	SRX 5022	4.9	5.0	4.3	5.3	5.1	6.7
11	SR 5100	4.9	5.3	4.6	4.6	5.1	7.0
12	SRX 5941-2	4.8	5.5	4.5	4.4	4.5	6.3
13	FRC 4-92-97	4.7	5.4	4.3	4.9	4.2	4.7
14	FRC B-93-97	4.6	5.2	4.1	4.4	4.8	6.7
15	TMI-3CE	4.6	4.8	4.6	4.7	4.4	6.0
16	Sandpiper	4.5	4.3	4.3	4.7	4.5	4.3
17	Tiffany	4.2	4.9	4.2	4.3	3.6	4.0
18	FC 50	4.2	4.5	4.0	4.0	4.6	5.3
19	Syn 4BCT	4.1	4.5	4.1	4.1	3.7	4.0
20	Jamestown II	4.1	4.0	3.9	4.0	4.2	3.3
21	FC 51	3.9	4.6	3.7	3.8	3.6	4.3
22	Dover	3.9	3.7	3.5	4.2	4.1	6.0
23	Victory	3.8	4.2	3.9	3.7	3.6	4.3
24	Shadow E+	3.5	2.8	3.5	4.2	3.5	4.7
25	SR 5000	2.1	1.2	1.4	2.9	2.9	4.3
	HARD FESCUE						
1	Hard 97 E-	6.0	5.9	6.0	5.9	6.3	7.3
2	Oxford	5.9	5.8	5.7	5.8	6.4	8.0
3	Hard 97 E+	5.8	5.9	5.6	5.7	5.8	7.3
4	CIS FL12	5.4	5.3	5.7	5.3	5.2	7.3
5	SRX 3113	5.4	5.2	5.3	5.4	5.5	7.0

Table 1 (continued).

	Cultivar or Selection	Turf Quality[1] 1998-2001 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	2001 Avg.	Red Thread[2] June 2001
	HARD FESCUE (cont.)						
6	SRX 3022-3	5.4	5.4	4.9	5.5	5.7	7.7
7	SRX 3324 E-2	5.3	5.0	5.3	5.4	5.4	7.7
8	Nordic E+	5.3	5.0	5.1	5.4	5.5	6.7
9	R-94	5.2	5.0	5.2	5.5	5.1	7.7
10	LL-22	5.1	5.0	4.8	5.3	5.3	7.0
11	CIS FL11	5.1	4.9	4.9	5.2	5.3	7.3
12	SRX 3MO941-2	5.0	4.9	4.8	4.8	5.5	8.0
13	CIS FL10	4.9	4.6	5.0	5.0	5.1	7.3
14	FF B-97	4.9	5.3	4.9	4.7	4.8	6.3
15	SR 3100	4.9	4.9	5.0	5.0	4.8	7.0
16	Discovery	4.9	4.1	4.9	5.2	5.3	5.7
17	Osprey	4.9	4.9	4.9	4.9	4.8	7.3
18	FF A-97	4.9	4.8	4.8	5.1	4.8	7.0
19	Heron	4.9	5.2	4.5	4.7	5.0	7.0
20	CIS FL8	4.9	4.7	4.6	5.2	5.0	7.0
21	FF-2-94 1-7	4.9	4.2	4.9	5.3	5.1	6.0
22	FF-2-94-97	4.9	4.4	4.8	5.1	5.1	6.7
23	GBM comp	4.9	5.3	4.8	4.7	4.5	5.3
24	CIS FL9	4.8	4.3	4.8	4.8	5.1	7.7
25	SR 3000	4.7	4.8	4.7	4.9	4.5	6.7
26	47TH	4.7	4.8	4.6	4.6	4.8	6.7
27	Ecostar	4.7	5.0	4.5	4.5	4.7	7.0
28	Syn 46U	4.6	4.1	4.3	4.8	5.2	7.3
29	GGE comp	4.6	5.0	4.8	4.6	4.1	5.0
30	Attila	4.5	4.8	4.6	4.6	4.2	8.7
31	Serra	4.5	4.6	4.5	4.3	4.7	6.7
32	FF-5-94-97	4.5	4.6	4.5	4.6	4.4	5.3
33	Syn 4R6	4.4	4.5	4.5	4.3	4.2	6.7
34	Syn 4CU	4.3	4.4	4.3	4.2	4.3	6.3
35	Aurora E+	4.2	3.8	4.4	4.4	4.3	6.0
36	FFD-97	4.2	4.5	4.6	4.2	3.5	5.7
37	Spartan	4.1	4.0	4.4	4.4	3.7	5.7
38	FF-6-94-97	3.8	4.4	4.1	3.8	3.1	5.0
39	4GH	3.6	4.0	3.7	3.8	3.0	5.7
40	FF-7-94-97	3.6	4.3	3.7	3.7	2.7	6.7

Table 1 (continued).

	Cultivar or Selection	Turf Quality[1] 1998-2001 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	2001 Avg.	Red Thread[2] June 2001
		HARD FESCUE (cont.)					
41	Syn 4HI-97	3.3	3.7	3.6	3.3	2.7	6.7
42	18089	2.4	2.4	1.9	2.7	2.5	4.3
		SLENDER CREEPING RED FESCUE					
1	ASRO 10	5.1	5.7	5.1	4.6	4.7	6.0
2	ASRO 25	4.7	5.0	5.7	4.5	3.7	6.0
3	ASRO 14	4.6	4.5	5.0	4.6	4.2	6.3
4	ASRO 36	4.5	4.6	4.9	4.5	3.9	6.3
5	ASRO 11	4.2	4.4	4.5	4.2	3.5	5.7
6	Seabreeze	4.7	5.2	4.7	4.6	4.5	5.7
7	SRX 5SL952-2	4.4	4.5	4.7	4.5	4.1	4.7
8	SRX 5SL953-2	4.2	4.2	4.5	4.2	4.0	5.0
9	4S3	4.1	3.9	4.3	4.3	4.0	5.7
10	Syn 4S3 E	4.1	3.8	4.2	4.4	4.0	5.0
11	Syn 4SD	3.9	3.7	4.1	4.5	3.5	4.3
12	Syn 4SDY	3.6	3.3	3.8	3.7	3.6	4.3
		STRONG CREEPING RED FESCUE					
1	FLM E+ comp	5.7	5.7	5.5	5.8	5.6	6.3
2	FLT comp	5.4	5.9	4.4	5.3	5.8	7.0
3	CIS H FRR E+	5.4	5.1	5.3	5.6	5.5	6.7
4	FLM E- comp	5.2	5.4	5.1	5.2	5.1	6.0
5	Navigator	5.2	5.2	5.0	5.4	5.2	7.0
6	CIS FRR 6	5.1	5.1	4.9	5.5	4.8	7.7
7	Pathfinder	5.1	5.1	5.0	5.3	5.0	6.3
8	SRX 52MO962-1	5.0	4.8	4.5	5.2	5.3	5.3
9	Syn 4TDD	4.9	5.0	4.7	5.2	4.6	6.3
10	4FR	4.9	5.3	4.7	4.5	5.0	6.3
11	Syn 4 FRR	4.8	5.1	4.5	4.7	4.9	6.7
12	4TD	4.8	4.9	4.5	4.9	4.8	6.7
13	SRX 52NJ943-2	4.8	4.6	4.3	5.6	4.5	5.0
14	SRX 52NJ961-1	4.7	5.2	4.5	5.0	4.3	6.3
15	Syn 4PH	4.7	5.0	4.1	4.7	4.9	7.0

Table 1 (continued).

	Cultivar or Selection	Turf Quality[1] 1998-2001 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	2001 Avg.	Red Thread[2] June 2001
	STRONG CREEPING RED FESCUE (cont.)						
16	Syn 4TB	4.7	4.8	4.5	4.9	4.6	7.0
17	SRX 52NJ94-1-2	4.7	4.4	4.1	5.2	5.0	5.0
18	Fenway E+	4.7	4.6	4.6	4.9	4.6	4.7
19	Fenway E-	4.7	4.3	4.5	5.3	4.5	5.7
20	Syn 4CRE-97	4.7	5.0	4.4	4.7	4.5	5.0
21	Shademaster II	4.6	5.1	4.7	4.3	4.3	5.7
22	Syn 46T-97	4.6	5.1	4.7	4.7	3.8	5.7
23	SRX 52NJ942-2	4.6	4.0	4.3	5.2	4.8	5.3
24	CIS HRR E+/E-	4.5	4.9	4.3	4.4	4.4	5.3
25	SRX 52NJ941-3	4.4	4.2	4.2	5.0	4.4	5.7
26	47TCL	4.4	5.1	4.8	4.3	3.4	5.7
27	DGSC 94	4.4	4.7	4.2	4.4	4.4	4.0
28	Syn 4RTM	4.3	4.2	4.2	4.9	4.0	4.7
29	SRX 5SL951-2	4.3	4.5	4.4	4.3	4.0	5.0
30	Trapeze	4.3	4.5	4.3	4.0	4.5	6.7
31	Syn 4BBL	4.2	4.7	4.3	4.1	3.8	5.7
32	Syn 4V3	4.2	4.7	4.5	4.1	3.7	5.7
33	Flyer II	4.1	4.2	4.2	4.1	3.7	6.0
34	Florentine	4.0	4.8	4.1	3.9	3.0	5.3
35	Aruba	4.0	4.5	3.7	4.1	3.8	5.0
36	Vista	4.0	4.0	4.0	3.9	4.0	6.0
37	4CRE	3.9	4.2	3.7	3.9	3.7	4.3
38	SR 5200 E	3.9	3.5	4.1	4.0	3.9	5.3
39	FR 46	3.9	3.8	4.1	3.9	3.6	5.7
40	FR 47	3.6	3.6	3.4	3.9	3.6	6.0
41	Victor	3.4	3.0	3.8	3.9	3.1	4.3
42	Common Creeper	3.2	3.0	3.3	3.6	2.8	6.0
	BLUE FESCUE						
1	Syn 4MB	4.2	4.8	4.4	4.0	3.6	5.0
2	4UB	3.9	4.2	4.1	4.0	3.3	5.0
3	4HZ	3.6	4.3	3.5	3.6	3.0	7.7
4	Bighorn	3.5	4.1	3.8	3.5	2.7	5.7
5	FO D-93-97	3.1	3.4	3.5	3.2	2.3	4.0

Table 1 (continued).

	Cultivar or Selection	Turf Quality[1] 1998-2001 Avg.	1998 Avg.	1999 Avg.	2000 Avg.	2001 Avg.	Red Thread[2] June 2001
	BLUE FESCUE (cont.)						
6	FO G-93-97	2.9	3.6	3.2	2.9	1.9	4.7
7	FO I-92-97	2.9	3.5	3.3	2.8	2.0	4.0
	LSD at 5% =	0.5	0.7	0.7	0.6	0.8	2.0

[1]9 = best turf quality
[2]9 = least disease

Table 2. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1998 at Adelphia, NJ. (Includes all entries in the 1998 National Fine-Leafed Fescue Trial - NTEP.)

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001
	CHEWINGS FESCUE						
1	Longfellow II	5.6	6.1	5.5	5.2	5.7	7.0
2	ABT CHW-2	5.6	6.1	5.3	5.3	7.0	7.0
3	Ambassador	5.5	5.9	5.5	5.1	5.7	6.0
4	SRO FF 7	5.5	6.0	5.3	5.1	5.7	5.0
5	Intrigue	5.5	5.6	5.5	5.3	5.7	6.7
6	BAR CHF 8 FUS2	5.1	5.6	5.2	4.6	6.3	4.3
7	FC 28	5.1	5.3	5.1	5.0	7.3	6.3
8	Treazure	5.1	5.7	4.9	4.7	6.3	7.0
9	SRO FF 6	5.1	5.3	5.1	5.0	7.7	7.0
10	ABT-CHW-3	5.1	5.6	4.7	4.9	6.5	6.0
11	FC 11	5.0	5.3	5.0	4.7	6.7	5.3
12	FC 39	5.0	5.2	5.1	4.8	7.0	6.3
13	ABT CHW-1	5.0	5.5	4.8	4.7	5.3	8.0
14	Wrigley	5.0	5.2	5.0	4.7	7.7	7.0
15	Pick FRC A-934.9	5.0	5.0	4.7	5.3	6.3	
16	SR 5100	4.9	5.3	4.5	4.8	7.0	6.3
17	Shadow II	4.8	5.7	4.6	4.2	7.0	6.3
18	Culombra	4.8	5.3	4.9	4.3	6.7	5.0
19	Hood	4.8	5.3	4.4	4.8	7.0	5.3
20	Brittany	4.8	5.0	4.6	4.6	6.0	5.0
21	Magic	4.8	5.1	4.6	4.6	6.0	5.3
22	Silhouette	4.7	5.1	4.5	4.4	6.0	4.3
23	FC 49	4.7	4.7	4.6	4.7	5.7	5.3
24	MB-63	4.6	5.2	4.6	4.0	7.0	4.7
25	Sandpiper	4.6	4.8	4.6	4.3	6.7	6.3
26	Bridgeport	4.5	4.7	4.4	4.4	7.0	4.7
27	Banner III	4.5	4.9	4.2	4.3	5.7	4.0
28	LRF-98-490	4.4	4.8	4.0	4.3	7.3	5.3
29	Jamestown II	4.3	4.4	4.0	4.5	6.7	5.0
30	FC 51	4.3	4.3	4.2	4.4	5.3	4.3
31	FC 50	4.3	4.3	4.4	4.2	4.3	5.3
32	Tiffany	4.2	4.9	4.1	3.6	6.7	5.0
33	ACF 083	3.8	5.0	3.7	2.7	7.3	6.3
34	FLED	3.4	3.3	3.5	3.6	7.0	7.3

Table 2 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001
	HARD FESCUE						
1	ABT-HF1	5.8	6.1	5.6	5.7	6.0	6.7
2	SRX 3961	5.5	6.4	5.2	4.9	5.0	8.3
3	Berkshire	5.4	5.9	5.3	5.1	5.0	7.7
4	Oxford	5.3	5.6	5.6	4.8	4.7	7.7
5	SRO FF 2	5.3	5.8	5.1	5.0	5.7	7.7
6	SRO FF 4	5.2	5.4	5.1	5.2	4.7	8.3
7	Discovery	5.1	5.5	5.1	4.7	3.7	7.0
8	Eureka II	5.1	5.3	4.9	5.2	3.7	8.0
9	ABT-HF-4	5.0	5.5	5.1	4.6	4.7	7.0
10	Stonehenge	5.0	5.1	5.0	4.9	5.3	7.3
11	PST-4HM	5.0	5.2	4.9	4.8	4.7	8.0
12	FL 54	4.9	5.5	4.7	4.6	5.0	7.0
13	ABT-HF-3	4.9	5.1	5.1	4.5	3.3	6.7
14	Osprey	4.9	5.4	4.8	4.4	4.3	8.3
15	LL 22	4.9	5.0	4.9	4.8	4.3	7.3
16	ABT-HF-2	4.9	5.5	4.9	4.2	4.7	8.7
17	Heron	4.8	4.6	4.9	4.9	4.0	7.7
18	Minotaur	4.8	4.9	5.0	4.4	4.3	6.0
19	Reliant II	4.8	5.4	4.7	4.3	4.3	8.0
20	Chariot	4.7	5.1	4.5	4.6	5.0	7.0
21	EL 20	4.7	4.9	4.6	4.7	3.7	7.7
22	SRO FF 3	4.7	5.0	4.7	4.3	5.7	7.0
23	Pick FF A-97	4.6	4.5	4.5	4.9	5.0	6.7
24	Nordic	4.6	5.4	4.4	4.1	4.7	8.3
25	SRO FF 1	4.6	5.1	4.8	3.9	4.0	7.0
26	EL 41	4.6	5.1	4.7	3.8	5.0	8.0
27	Rescue 911	4.5	4.4	4.7	4.5	3.3	6.7
28	Attila	4.5	4.6	4.5	4.2	4.7	8.0
29	Ecostar	4.4	5.1	4.6	3.7	5.0	7.3
30	MB-82	4.4	4.8	4.1	4.3	5.3	7.7
31	PST-4MB	4.4	4.6	4.4	4.0	2.3	7.3
32	Scaldis II	4.3	4.5	4.4	4.1	4.7	7.7
33	Scaldis	4.3	4.4	4.4	4.0	3.3	7.7
34	Hardtop	4.2	5.1	4.2	3.4	4.3	7.7
35	LRF-98-488	4.2	4.2	4.3	4.1	4.0	7.0

Table 2 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001
	HARD FESCUE (cont.)						
36	Defiant	4.2	4.8	4.2	3.5	4.7	6.0
37	LRF-98-489	3.9	4.0	3.9	3.7	3.3	8.3
38	LRF-98-487	3.8	4.2	3.6	3.5	3.3	7.0
39	LRF-98-491	3.2	3.7	3.0	2.8	3.3	7.3
	SLENDER CREEPING RED FESCUE						
1	BAR SCF 8 FUS 3	4.7	5.3	4.2	4.5	6.0	6.7
2	ASR 049	4.4	5.5	3.1	4.5	6.3	7.0
3	SRO FF 8	4.4	4.7	4.3	4.3	6.3	5.7
4	Seabreeze	4.4	5.1	4.2	3.9	7.3	5.7
5	Dawson E+	4.4	4.6	4.3	4.1	5.3	4.0
6	SRO FF 9	4.3	4.8	3.9	4.0	5.7	5.0
7	SRO FF 10	3.4	4.4	2.8	2.8	6.0	7.3
	STRONG CREEPING RED FESCUE						
1	Cindy Lou	5.8	5.6	6.1	5.6	7.3	6.7
2	SRX 52961	5.7	5.7	6.0	5.4	6.0	5.3
3	Jasper II	5.6	5.8	5.9	5.2	4.7	4.7
4	PK Comp	5.5	5.7	5.6	5.3	5.0	5.7
5	PST-EFL	5.4	5.2	5.7	5.2	6.3	4.7
6	ABT-CR-3	5.3	5.4	5.5	5.0	5.3	4.7
7	Navigator	5.2	4.8	5.6	5.3	6.3	6.7
8	ABT CR-2	5.2	5.5	5.1	5.0	5.7	5.0
9	FLE Comp	5.1	5.2	5.2	5.0	6.3	5.0
10	Florentine	4.7	5.3	4.3	4.4	6.7	5.0
11	PathFinder	4.6	5.1	4.1	4.5	6.7	4.7
12	DGSC 94	4.5	4.8	4.2	4.5	6.7	4.0
13	ASC 082	4.5	4.3	4.3	4.8	5.3	4.7
14	ShadeMaster	4.5	4.7	3.9	4.8	7.3	5.3
15	PST-47 TCR	4.4	4.9	4.3	4.0	5.7	3.7
16	SR 5210	4.4	4.1	4.7	4.4	5.7	3.7
17	SRO FF 12	4.3	4.4	4.1	4.5	6.3	3.3
18	BAR CF 8 FUS 1	4.3	4.8	3.8	4.2	7.0	3.3
19	Shademark	4.3	4.7	4.1	4.0	7.3	3.0
20	PST-4FR	4.2	4.8	3.3	4.5	7.0	4.0

Table 2 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001
	STRONG CREEPING RED FESCUE (cont.)						
21	Rose	4.0	4.5	3.7	3.7	7.3	2.7
22	FR-47	4.0	4.2	3.8	3.9	6.0	4.3
23	SRO FF 11	3.9	3.8	4.1	3.9	6.3	3.7
24	FR-27	3.9	4.2	3.7	3.9	6.3	4.7
25	FR-46	3.9	4.0	3.8	4.0	5.0	4.7
26	Trapeze	3.9	4.2	3.4	4.0	7.0	5.3
27	FR-01-4-25	3.8	3.7	3.8	4.0	6.3	5.3
28	Salsa	3.8	4.4	3.2	3.6	7.3	4.0
29	ASC 172	3.7	3.4	3.6	4.0	3.3	5.0
30	Common Creeper	3.3	3.0	3.0	3.7	5.7	4.3
31	Boreal	3.2	3.2	3.2	3.2	5.7	3.7
32	Claudia	2.1	1.2	1.9	1.9	5.0	6.3
	SHEEPS FESCUE						
1	Quatro	4.6	4.7	4.6	4.4	6.3	7.3
	BLUE FESCUE						
2	Bighorn	4.3	4.6	4.2	4.0	2.3	7.3
3	SR 3200	4.0	4.0	4.0	3.9	2.7	6.7
	DESCHAMPSIA						
1	SR 6000	3.8	4.5	3.4	2.8	4.0	6.5
2	Nortran	2.3	3.1	1.4	1.7	3.5	6.3
3	SR DESO	2.0	2.1	1.8	1.6	3.7	5.7
4	Norcoast	1.5	1.1	.	1.9	3.3	5.7
	LSD at 5% =	0.5	0.6	0.8	0.7	1.7	1.8

[1]9 = best turf quality
[2]9 = earliest spring green-up
[3]9 = least red thread

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1998 at North Brunswick, NJ. (Includes all entries of the 1998 National Fine-Leafed Fescue Trial - NTEP.)

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001	Green Cover[4] Sept. 2001	Color[5] Sept. 2001
	CHEWINGS FESCUE								
1	ABT-CHW-2	6.2	6.4	6.3	6.0	7.3	6.7	5.0	6.3
2	Longfellow II	6.2	6.6	6.2	5.8	7.3	8.0	4.7	7.3
3	Intrigue	6.0	6.1	5.9	6.0	7.0	8.3	5.7	7.3
4	Ambassador	5.9	5.9	5.7	6.2	6.3	7.0	6.0	7.7
5	SRO FF7	5.9	6.3	6.0	5.5	7.3	6.3	2.3	6.3
6	ABT-CHW-3	5.8	5.8	5.9	5.8	6.0	6.7	5.0	7.0
7	Treazure	5.7	5.9	5.6	5.5	7.7	7.0	5.0	4.0
8	Pick FRC A-93	5.4	5.2	5.8	5.2	6.3	6.3	4.0	7.0
9	SR 5100	5.4	5.0	5.7	5.5	7.3	6.7	7.0	6.3
10	Shadow II	5.2	5.6	5.2	4.7	6.7	5.7	3.7	4.7
11	Magic	5.0	4.9	5.3	5.0	7.0	5.7	3.7	5.7
12	Bridgeport	4.8	4.9	4.9	4.8	8.0	4.3	3.3	5.7
13	MB-63	4.8	4.6	4.9	4.8	8.0	4.7	4.7	6.0
14	Brittany	4.7	4.5	5.2	4.6	6.3	3.7	4.0	5.7
15	SRO FF6	4.7	5.1	4.9	4.2	8.0	6.3	4.3	4.3
16	Tiffany	4.7	4.9	4.9	4.3	8.0	4.7	3.3	4.7
17	Silhouette	4.6	4.9	4.8	4.1	6.7	4.7	2.7	5.3
18	Culombra	4.5	4.6	4.8	4.2	7.3	6.0	4.0	6.0
19	Sandpiper	4.1	4.2	4.5	3.6	6.7	4.7	2.7	4.3
20	Banner III	4.1	4.4	4.4	3.4	5.7	5.0	2.0	4.3
21	ABT-CHW-1	4.0	4.3	4.4	3.3	5.3	5.3	3.3	4.7
22	ACF 083	3.9	4.6	3.9	3.2	8.0	5.7	1.7	5.5
23	Wrigley	3.9	4.6	4.0	3.1	7.7	7.0	1.3	4.7
24	BAR CHF 8 FUF2	3.7	3.9	4.0	3.3	6.3	4.7	2.0	4.7
25	Jamestown II	3.5	3.6	3.7	3.2	6.7	5.3	2.0	4.0
	HARD FESCUE								
1	ABT-HF1	5.5	6.2	5.5	4.6	5.0	8.7	3.3	5.3
2	Berkshire	5.4	6.5	5.6	4.2	6.0	8.0	1.3	5.0
3	PST-4MB	5.1	5.7	5.0	4.5	3.7	7.7	4.7	5.0
4	Minotaur	5.0	5.9	5.0	4.2	4.0	8.0	4.0	4.3
5	SRX 3961	5.0	6.2	5.0	3.8	4.3	8.3	2.3	4.0

Table 3 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001	Green Cover[4] Sept. 2001	Color[5] Sept. 2001
	HARD FESCUE (cont.)								
6	ABT-HF-2	4.9	6.0	5.1	3.7	5.7	8.3	2.3	4.5
7	ABT-HF-3	4.9	5.8	4.8	4.2	5.0	7.0	3.0	4.7
8	Stonehenge	4.6	4.7	5.0	4.2	5.7	6.3	3.0	5.7
9	Chariot	4.6	5.0	4.9	4.0	4.0	8.3	2.7	5.0
10	Oxford	4.6	5.7	4.9	3.3	6.0	7.3	1.3	4.0
11	ABT-HF-4	4.5	5.7	4.4	3.5	4.7	8.0	2.0	4.7
12	Rescue 911	4.5	5.3	4.7	3.6	3.3	7.7	1.7	3.7
13	SRO FF3	4.5	5.2	4.1	4.1	7.0	8.0	2.7	4.7
14	Pick FF A-97	4.4	5.1	4.5	3.7	4.0	6.7	2.0	4.3
15	SRO FF1	4.4	5.9	4.0	3.2	5.7	7.0	1.7	4.0
16	Hardtop	4.4	5.4	4.6	3.2	6.0	7.3	1.0	3.5
17	Reliant II	4.3	5.6	4.2	3.1	4.7	8.0	1.3	4.3
18	SRO FF2	4.3	5.7	3.9	3.4	4.7	8.0	3.7	4.0
19	Eureka II	4.3	5.2	4.2	3.4	3.7	8.0	1.7	4.0
20	Nordic	4.3	5.3	4.4	3.1	3.3	7.3	1.3	4.3
21	Discovery	4.3	5.0	4.3	3.5	4.3	7.7	3.0	5.0
22	SRO FF4	4.2	5.2	3.9	3.4	4.3	8.3	2.7	4.3
23	Heron	4.1	4.6	4.2	3.5	3.3	6.7	2.0	4.3
24	PST-4HM	4.0	4.9	4.3	2.7	4.0	8.3	1.0	4.3
25	Defiant	3.9	4.8	3.9	3.0	5.3	6.7	1.3	4.0
26	Osprey	3.8	4.7	3.8	3.0	4.0	8.0	1.7	4.7
27	Attila E	3.7	4.9	3.5	2.6	4.0	8.0	2.0	4.0
28	Scaldis	3.4	4.4	3.3	2.6	3.7	6.0	1.7	4.0
29	MB-82	3.2	4.0	3.0	2.5	5.0	5.0	1.7	3.0
30	Scaldis II	3.2	3.8	3.1	2.6	4.0	5.0	1.3	4.7
	SLENDER CREEPING RED FESCUE								
1	BAR SCF 8 FUS 3	4.3	5.1	4.4	3.5	6.0	4.7	2.3	4.7
2	SRO FF8	3.5	3.8	3.6	3.0	6.3	3.3	2.0	3.3
3	Seabreeze	3.4	3.8	3.6	3.0	5.3	4.0	2.3	3.7
4	ASR 049	3.4	4.4	3.5	2.5	5.3	4.3	1.0	4.5
5	SRO FF9	3.1	3.9	2.7	2.8	5.7	5.7	2.0	3.7
6	Dawson E+	2.6	3.5	2.2	2.2	5.0	5.5	1.3	3.0
7	SRO FF10	2.6	3.8	1.8	2.2	4.0	4.0	1.7	4.3

Table 3 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001	Green Cover[4] Sept. 2001	Color[5] Sept. 2001
	STRONG CREEPING RED FESCUE								
1	Jasper II	6.4	6.5	6.4	6.4	7.3	6.0	6.7	7.0
2	Cindy Lou	6.2	6.0	6.4	6.3	7.3	8.7	7.0	6.3
3	PK comp	6.2	6.3	5.9	6.3	7.7	7.3	5.3	6.7
4	SRX 52961	6.1	6.1	6.2	6.2	7.3	6.0	7.0	6.3
5	Navigator	6.1	6.0	5.7	6.5	7.7	8.3	7.3	6.3
6	ABT-CR-3	6.0	6.5	5.8	5.9	6.7	5.7	6.0	6.3
7	PST-EFL	5.8	5.9	5.8	5.6	7.3	5.0	5.7	5.0
8	FLE comp	5.7	5.5	5.7	6.0	8.0	6.3	6.3	7.7
9	ABT-CR-2	5.2	6.6	4.8	4.2	6.0	4.3	3.3	6.0
10	Pathfinder	5.0	5.9	4.5	4.6	7.3	3.7	2.3	5.3
11	ASC 082	5.0	5.3	4.8	4.8	6.7	5.3	5.3	7.0
12	Florentine	4.9	5.6	5.0	4.1	6.3	4.0	3.3	5.0
13	SR 5210	4.7	4.6	4.7	4.9	6.0	6.0	5.3	5.7
14	DGSC 94	4.7	4.9	4.7	4.4	7.0	4.0	3.3	5.0
15	Shademaster II	4.7	5.3	5.1	3.6	7.7	3.7	2.0	4.3
16	Gen 92	4.6	5.2	4.6	4.1	7.3	4.3	3.7	6.0
17	SRO FF12	4.6	4.8	4.4	4.5	6.7	5.0	4.3	6.0
18	BAR CF 8 FUS1	4.6	5.2	4.9	3.7	6.7	2.7	3.3	4.3
19	SPT-47TCR	4.5	5.6	4.8	3.1	6.0	2.7	2.0	4.3
20	PST-4FR	4.4	5.6	4.5	3.0	6.7	2.3	1.3	4.7
21	ASC 172	4.2	4.9	4.1	3.7	4.3	3.3	3.0	5.0
22	Rose	4.2	4.4	4.4	3.9	7.3	3.0	3.3	5.0
23	Shademark	4.0	4.4	3.8	3.8	8.0	3.0	2.0	3.7
24	Salsa	3.6	4.7	3.1	3.1	8.3	5.7	1.7	2.7
25	SRO FF11	3.1	3.4	3.1	2.9	6.7	4.7	2.0	3.3
26	Common Creeper	3.1	3.3	3.2	2.8	6.3	4.3	2.0	3.3
27	Boreal	2.4	2.7	2.3	2.2	6.3	4.0	1.3	1.7
28	Claudia	2.3	1.8	2.3	2.7	4.3	4.7	2.7	4.3
	SHEEPS FESCUE								
1	Quatro	3.8	4.2	3.8	3.4	6.0	6.7	3.0	4.7
	BLUE FESCUE								
2	Bighorn	3.5	4.6	3.5	2.4	3.0	5.0	2.3	4.3
3	SR 3200	3.2	4.0	3.2	2.3	4.0	6.0	2.0	3.3

Table 3 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Spring Green-up[2] April 2001	Red Thread[3] May 2001	Green Cover[4] Sept. 2001	Color[5] Sept. 2001
	DESCHAMPSIA								
1	SR 6000	2.8	4.4	2.3	1.8	5.0	9.0	1.0	3.5
2	Norcoast	2.4	1.5	2.4	3.2	5.0	5.0	3.7	4.7
3	SR Deso	2.3	2.2	1.9	2.6	4.7	.	3.5	5.3
4	Nortran	2.0	2.9	1.2	2.0	4.7	.	2.0	4.0
	TEXAS BLUEGRASS HYBRID								
1	Reveille	3.1	4.6	2.2	2.7	2.0	5.5	3.7	3.7
	LSD at 5% =	0.7	0.8	0.8	1.0	1.5	2.3	1.9	1.6

[1]9 = best turf quality
[2]9 = earliest spring green-up
[3]9 = least red thread
[4]9 = most green cover
[5]9 = darkest green color

Table 4. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1998 at Pittstown, NJ.

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Red Thread[2] June 2001
	CHEWINGS FESCUE					
1	Longfellow II	5.3	5.1	5.1	5.6	7.3
2	Pick FRC B-93	5.0	5.5	4.7	4.8	7.0
3	Shadow II	4.9	5.4	4.8	4.6	6.0
4	ABT-CHW-2	4.9	5.2	4.7	4.9	6.7
5	ABT-CHW-3	4.9	5.3	4.6	4.8	8.0
6	BAR CHF 8 FUS 2	4.9	5.1	4.7	4.8	5.7
7	Wrigley	4.8	5.4	4.4	4.7	6.7
8	Pick FRC A-93	4.8	5.3	4.4	4.7	8.0
9	Ambassador	4.8	5.1	4.4	4.8	7.7
10	Hood	4.8	5.0	4.5	4.8	6.7
11	FC 49	4.7	5.2	4.2	4.8	7.0
12	FC 39	4.7	5.2	4.3	4.6	6.0
13	Intrigue	4.7	5.2	4.2	4.6	7.7
14	Banner III	4.6	5.3	4.3	4.2	6.7
15	FC 51	4.6	5.1	4.1	4.6	6.3
16	Treazure	4.6	4.6	4.3	4.8	6.7
17	FC11	4.6	5.1	4.2	4.4	6.0
18	Victory RS	4.5	4.9	4.1	4.6	6.3
19	Culombra	4.5	5.0	4.1	4.5	5.0
20	Silhouette	4.5	5.3	3.9	4.4	7.0
21	MB-63	4.5	5.1	4.1	4.2	5.7
22	Pick FRC A-93	4.5	5.0	3.9	4.5	7.0
23	FC 50	4.5	5.0	4.1	4.3	5.7
24	ACF 083	4.4	4.9	4.2	4.2	4.7
25	ABT-CHW-1	4.4	5.1	3.8	4.5	7.7
26	Tiffany	4.4	4.8	4.0	4.3	5.3
27	Pick FRC 2-96	4.4	4.9	3.9	4.3	7.0
28	Brittany	4.3	4.8	3.9	4.3	5.3
29	Victory II	4.3	4.7	4.0	4.3	5.3
30	Victory	4.3	4.7	3.9	4.3	5.3

Table 4 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Red Thread[2] June 2001
	CHEWINGS FESCUE (cont.)					
31	FC 28	4.3	5.0	3.8	4.1	5.0
32	Bridgeport	4.2	4.8	3.6	4.3	4.7
33	Sandpiper	4.2	4.7	3.7	4.2	4.3
34	Magic	4.1	4.6	4.0	3.8	7.7
35	SR 5100	4.0	4.4	3.5	4.2	7.0
36	Pick FRC A-97	3.8	4.7	3.3	3.4	4.0
37	Jamestown II	3.6	4.1	3.4	3.3	4.3
38	FLED	3.5	4.0	2.9	3.5	5.0
	HARD FESCUE					
1	SRX 3961	6.2	5.6	6.6	6.5	8.3
2	ABT-HF-1	6.2	5.7	6.3	6.6	7.7
3	ABT-HF-2	6.0	5.8	6.0	6.3	8.0
4	Oxford	6.0	5.6	6.0	6.4	8.0
5	Heron	5.9	5.9	6.0	6.0	6.3
6	Berkshire	5.9	5.9	5.9	5.9	7.3
7	ABT-HF-3	5.7	5.4	5.8	5.8	7.7
8	Pick GBM	5.7	5.4	6.0	5.6	6.3
9	EL 20	5.6	5.4	5.5	6.0	7.0
10	FL 54	5.6	5.4	5.7	5.8	7.0
11	Stonehenge	5.6	5.3	5.5	6.0	7.7
12	Pick FF A-97	5.6	5.4	5.3	6.1	7.7
13	Eureka II	5.5	5.1	5.5	6.0	8.3
14	Scaldis II	5.5	5.3	5.5	5.8	7.3
15	Osprey	5.5	5.3	5.3	5.8	7.0
16	Hardtop	5.5	5.3	5.3	5.7	7.0
17	Attila E	5.4	5.2	5.3	5.8	7.7
18	ABT-HF-4	5.4	5.2	5.4	5.7	7.3
19	Reliant II	5.4	5.3	5.3	5.7	7.0
20	Nordic	5.4	5.0	5.2	6.0	7.7
21	EL 41	5.4	5.3	5.6	5.3	6.3
22	LL 22	5.4	5.1	5.7	5.4	6.3
23	Chariot	5.4	5.1	5.3	5.7	7.3
24	Pick FF A-97	5.3	5.3	5.1	5.5	7.0
25	Syn 4U6	5.2	5.3	5.2	5.3	4.7

Table 4 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Red Thread[2] June 2001
	HARD FESCUE (cont.)					
26	PST-4HM	5.2	5.2	5.1	5.4	7.3
27	Minotaur	5.2	5.0	5.0	5.5	6.3
28	Rescue 911	5.1	5.1	4.9	5.3	7.3
29	Discovery	5.1	4.9	4.8	5.6	7.3
30	MB-82	5.1	4.9	5.2	5.2	5.7
31	Spartan	5.1	5.0	4.9	5.4	6.3
32	Scaldis	5.0	5.3	4.9	5.0	7.0
33	Defiant	5.0	4.9	4.9	5.1	4.7
34	Pick FF 6-94	4.9	4.7	4.8	5.2	6.3
35	PST-4MB	4.9	4.9	4.8	5.0	7.0
36	Pick FOD-93	4.5	4.7	4.2	4.4	6.0
37	Warwick	4.0	3.2	4.2	4.7	7.0
38	Pick FOG-93	3.9	4.3	3.7	3.8	5.3
39	18909	3.1	3.5	2.8	3.1	5.7
	SLENDER CREEPING RED FESCUE					
1	BAR SCF 8 FUS3	5.3	5.8	5.5	4.6	4.0
2	ASR 049	4.8	5.5	4.8	4.2	5.3
3	Seabreeze	4.4	4.6	4.6	4.1	4.7
4	Dawson E+	4.3	4.7	4.2	4.1	6.0
	STRONG CREEPING RED FESCUE					
1	PST EFL	5.2	5.4	5.1	5.1	5.3
2	Pick FDM	5.1	5.2	5.0	5.1	6.3
3	Cindy Lou	4.9	4.8	4.9	5.2	7.3
4	Jasper II	4.9	5.1	4.7	5.0	5.7
5	ABT-CR-2	4.9	5.0	4.9	4.8	4.3
6	ABT-CR-3	4.9	5.1	4.9	4.7	6.7
7	Florentine	4.9	5.4	4.8	4.5	3.0
8	PST-4FR	4.6	5.1	4.4	4.4	3.3
9	Navigator	4.6	4.6	4.6	4.7	7.0
10	Pathfinder	4.6	4.7	4.6	4.6	3.3

Table 4 (continued).

	Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Red Thread[2] June 2001
	STRONG CREEPING RED FESCUE (cont.)					
11	SRX 52961	4.6	4.5	4.6	4.6	6.3
12	Jasper E-	4.6	4.8	4.3	4.6	3.0
13	PST-47TCR	4.5	4.8	4.6	4.3	3.0
14	FR 46	4.5	4.9	4.8	3.9	4.0
15	BAR CF 8 FUS1	4.5	4.9	4.2	4.4	2.7
16	ASC 082	4.5	4.9	4.3	4.3	3.7
17	Jasper	4.5	4.7	4.1	4.7	5.0
18	Rose	4.4	4.8	4.3	4.1	3.7
19	DGSC 94	4.4	4.7	4.1	4.3	3.0
20	FR27	4.2	4.7	3.9	4.1	3.7
21	Trapeze	4.2	4.6	4.2	3.9	3.0
22	FR-01-4-25	4.2	4.7	3.8	4.1	3.3
23	SR 5210	4.2	4.0	4.0	4.5	4.3
24	Shademaster II	4.2	4.3	4.1	4.0	3.3
25	ASC 172	4.1	4.7	3.5	4.0	3.3
26	Syn 42 RR	4.1	4.1	4.1	4.1	3.0
27	Salsa	4.0	4.2	4.1	3.8	2.7
28	Vista	4.0	4.6	3.8	3.6	4.0
29	Common Creeper	3.9	4.0	4.0	3.9	3.3
30	FR 47	3.9	4.2	3.5	4.1	4.3
31	Boreal	3.8	4.2	3.7	3.6	3.3
32	Shademark	3.6	4.0	3.3	3.4	2.3
33	Claudia	3.4	3.3	3.4	3.6	5.3
	SHEEPS FESCUE					
1	Quatro	5.2	5.1	4.8	5.6	8.0
	BLUE FESCUE					
2	Azay	4.6	4.4	4.5	4.8	5.7
3	SR 3200	4.4	4.7	4.2	4.4	6.7
4	Bighorn	4.4	4.6	4.2	4.5	7.0
5	FO 53	4.3	4.7	4.2	3.9	5.7
6	FO 52	4.0	4.6	3.8	3.8	5.0
7	Teal	4.0	4.6	3.6	3.6	5.7

Table 4 (continued).

Cultivar or Selection	Turf Quality[1] 1999-2001 Avg.	Turf Quality[1] 1999 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Red Thread[2] June 2001
LSD at 5% =	0.5	0.5	0.7	0.7	1.5

[1]9 = best turf quality
[2]9 = least red thread

Table 5. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1999 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality[1] 2000-2001 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Dollar Spot[2] Aug. 2001
		CHEWINGS FESCUE			
1	DLC	5.7	5.1	6.2	8.0
2	SRX 5HH9	5.5	5.7	5.3	7.0
3	4601 comp	5.4	5.1	5.6	7.7
4	FRC B-93	5.4	5.8	4.9	6.7
5	Intrigue	5.4	5.1	5.6	7.7
6	SR 5020	5.2	5.2	5.2	6.3
7	FRC A-93	5.1	5.2	5.0	6.3
8	SRX 5II9	5.1	5.0	5.2	5.7
9	Victory II	5.1	5.5	4.6	6.0
10	SRX 5FF9	5.0	4.7	5.4	7.0
11	Ambassador	5.0	5.0	5.0	6.7
12	Shadow II	5.0	4.8	5.2	8.0
13	SRX 5GG9	5.0	5.0	4.9	6.7
14	FRC 2-96	4.9	4.9	4.9	6.0
15	Sandpiper	4.9	5.4	4.4	6.3
16	SR 5100	4.9	5.3	4.5	6.0
17	4EC-99	4.9	5.4	4.3	6.7
18	Bridgeport	4.8	5.4	4.3	6.3
19	Silhouette	4.8	4.7	4.9	6.0
20	Bargreen	4.7	5.0	4.3	8.0
21	New Chewing	4.5	4.1	4.9	7.0
22	FC 51	4.4	4.9	3.9	5.7
23	Barnica	4.3	5.2	3.3	6.0
24	Tiffany	4.1	4.3	4.0	6.0
25	Victory	4.1	4.0	4.1	6.7
26	FRC A-97	4.0	4.6	3.5	5.3
27	FC 50	3.6	3.2	4.0	6.7
		HARD FESCUE			
1	E2H	5.8	5.5	6.1	8.3
2	ABT HF I '99	5.8	5.5	6.0	9.0
3	ABT HF I '98	5.7	5.5	5.9	8.7
4	L2H	5.5	4.9	6.1	8.3
5	Oxford	5.4	4.9	5.9	9.0

Table 5 (continued).

	Cultivar or Selection	Turf Quality[1] 2000-2001 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Dollar Spot[2] Aug. 2001
		HARD FESCUE (cont.)			
6	4AU-99	5.4	5.3	5.5	7.3
7	LL 22	5.4	4.9	5.8	8.7
8	Rescue 911	5.1	5.4	4.9	8.0
9	4HM-99 BS	5.1	4.6	5.6	8.7
10	Stonehenge	5.1	5.1	5.1	8.7
11	FL 54	5.1	4.6	5.6	8.0
12	Heron	5.1	4.6	5.5	8.7
13	New Hard	5.0	4.7	5.3	8.0
14	Bardur	4.9	4.7	5.0	7.3
15	SR 3100	4.8	4.4	5.3	8.3
16	Syn 49th	4.8	4.4	5.1	8.0
17	4MB-99	4.7	5.0	4.4	7.0
18	Discovery	4.6	4.3	4.8	8.3
19	Syn 4CU-99	4.5	4.4	4.6	6.7
20	4UB	4.2	3.9	4.6	7.3
21	Aurora Gold	4.0	3.7	4.4	7.3
		SLENDER CREEPING RED FESCUE			
1	New Slender	4.9	4.8	5.0	3.7
2	Barcrown	4.5	4.7	4.3	3.3
3	Syn 4IT	4.4	4.8	3.9	4.7
4	Syn 453E	4.2	4.3	4.0	4.3
		STRONG CREEPING RED FESCUE			
1	Pathfinder	5.3	5.0	5.6	8.3
2	4BBL	5.3	5.9	4.6	6.3
3	PK	5.2	5.3	5.1	6.7
4	Syn 4CRU	5.2	5.0	5.4	5.0
5	4676 comp	5.0	4.7	5.3	6.0
6	DW 1	5.0	4.6	5.3	3.7
7	FLE comp	5.0	4.7	5.2	8.0
8	EFL	5.0	4.6	5.3	7.0
9	Florentine	4.9	5.3	4.6	2.7
10	Fenway	4.9	4.9	4.9	8.3

Table 5 (continued).

	Cultivar or Selection	Turf Quality[1] 2000-2001 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.	Dollar Spot[2] Aug. 2001
	STRONG CREEPING RED FESCUE (cont.)				
11	PSC comp	4.6	4.5	4.7	3.3
12	TLS comp	4.6	4.4	4.7	3.7
13	4FR-99	4.4	4.8	4.0	2.3
14	New Strong	4.4	4.4	4.3	4.0
15	4FRR-99	4.4	4.8	4.0	3.0
16	Syn 42RR	4.4	4.7	4.0	5.3
17	47 TCL	4.3	4.2	4.4	5.7
18	Syn 4VB3	4.1	4.1	4.1	4.7
19	Common Creeper	4.0	4.7	3.3	5.0
	BLUE FESCUE				
1	4-Blue-99	4.3	4.4	4.2	6.7
	LSD at 5% =	1.1	1.3	0.7	1.4

[1]9 = best turf quality
[2]9 = least dollar spot

Table 6. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1999 at Adelphia, NJ. (Low-maintenance.)

	Cultivar or Selection	Species	Turf Quality[1] 2000-2001 Avg.	Turf Quality[1] 2000 Avg.	Turf Quality[1] 2001 Avg.
1	New Hard	Hard	6.3	7.0	5.6
2	Heron	Hard	6.1	6.5	5.7
3	FL 54	Hard	6.1	6.1	6.0
4	LL 22	Hard	6.0	6.6	5.5
5	New Slender	Slender creeping	5.6	6.4	4.8
6	Bridgeport	Chewings	5.4	6.1	4.6
7	FC 51	Chewings	5.3	6.2	4.4
8	New Chewings	Chewings	5.2	6.3	4.2
9	Barcrown	Slender creeping	4.9	5.5	4.2
10	New Strong	Slender creeping	4.8	5.8	3.8
11	Bargreen	Chewings	4.8	5.2	4.3
12	Barnica	Chewings	4.8	5.4	4.1
13	MX-86A	Sheeps	4.6	4.9	4.2
14	Bardur	Hard	4.4	3.7	5.2
15	Des-TE	Deschampsia	3.3	4.1	2.4
16	Des-VL	Deschampsia	3.0	3.8	2.2
17	DC-710	Deschampsia	2.6	3.2	2.0
18	Deschampsia	Deschampsia	1.4	1.2	1.7
19	SPR-237	Deschampsia	1.3	1.4	1.1
	LSD at 5% =		0.4	0.6	0.4

[1]9 = best turf quality

Table 7. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2000 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality[1] 2001 Avg.	Establishment[2] Sept. 2000	Leaf Spot[3] July 2001
		CHEWINGS FESCUE		
1	COM Comp	6.3	6.7	4.0
2	COE Comp	6.1	6.3	5.7
3	C-73	5.8	6.0	4.7
4	SRX 5020	5.7	7.7	4.0
5	4601	5.7	6.0	5.0
6	SRX 51FF	5.5	6.7	4.0
7	SRX 5NJD	5.5	6.3	4.3
8	Shadow II	5.4	5.3	4.7
9	SYN 4CHU	5.4	5.7	6.7
10	SRX 5111	5.2	7.3	4.7
11	SRX 51GG	5.2	6.0	4.7
12	SUP Comp	5.2	7.7	5.0
13	00-DFRC	5.1	7.0	3.3
14	SRX 51HH	5.1	6.3	3.0
15	95M	5.0	4.7	4.0
16	Tiffany	5.0	7.3	5.0
17	Silhouette	5.0	6.0	3.3
18	FRCA 93	4.9	6.3	3.7
19	Victory 2	4.7	4.7	3.3
20	SR 5100	4.7	7.0	4.7
21	FRC-B-93	4.6	5.0	4.0
22	Sandpiper	3.9	3.0	3.3
		HARD FESCUE		
1	SRX 3961	5.6	5.7	7.7
2	HOM Comp	5.4	5.0	7.3
3	E2H	5.2	4.7	7.7
4	HOE Comp	5.1	5.3	7.0
5	SRX 3324	5.0	5.0	8.3
6	SR 3100	4.8	5.3	7.7
7	SPX 35TDNE	4.7	5.0	6.3
8	Discovery	4.7	4.7	7.7
9	Osprey	4.6	6.0	8.0
10	SRX 3MOL	4.5	5.0	7.0

Table 7 (continued).

	Cultivar or Selection	Turf Quality[1] 2001 Avg.	Establishment[2] Sept. 2000	Leaf Spot[3] July 2001
		HARD FESCUE (cont.)		
11	EL 20	4.5	5.3	7.3
12	SRX 3STDE	4.4	5.7	6.3
13	LL 22	4.4	4.3	8.0
14	FL55	4.3	4.3	5.3
15	Aurora Gold	4.3	5.3	5.3
16	Heron	4.2	4.7	7.0
17	FL54	4.0	4.0	7.7
18	Spartan	4.0	4.7	6.0
		SLENDER CREEPING RED FESCUE		
1	Seabreeze	4.5	7.0	4.3
2	SRX 55SLCE	4.1	6.7	4.3
3	SRX 55SLG	4.1	5.7	3.3
4	Count	3.1	5.0	4.3
5	Dawson E	1.2	1.0	7.3
		STRONG CREEPING RED FESCUE		
1	TL3 Comp	5.9	6.0	5.3
2	Jasper II	5.5	8.0	4.7
3	DW2	5.4	5.0	5.3
4	TL4 Comp	5.3	5.7	4.7
5	SMX Comp	5.3	6.3	4.3
6	TL1 Comp	5.2	6.3	4.0
7	TL2 Comp	5.1	7.0	4.0
8	SRX 52961	4.8	7.0	4.0
9	SYN 4FINO	4.7	5.0	4.0
10	Jasper	4.2	5.3	4.7
11	SYN 4CRO	4.1	5.0	3.3
12	SRX 52LAV	4.0	7.0	3.3
13	SR 5200E	3.0	6.7	2.3
14	Common Creeper	2.5	8.0	1.7
		BLUE FESCUE		
1	Bighorn	3.5	2.0	7.7

Table 7 (continued).

Cultivar or Selection	Turf Quality[1] 2001 Avg.	Establishment[2] Sept. 2000	Leaf Spot[3] July 2001
LSD at 5% =	0.7	1.3	1.6

[1]9 = best turf quality
[2]9 = best establishment
[3]9 = least leaf spot

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

	1997		1998		1999		2000		2001	
	N[1]	Ht[2]	N	Ht	N	Ht	N	Ht	N	Ht
Table 1 (1997 Adelphia)	1.4	1.5	2.6	1.5	1.9	1.5	1.5	1.5	1.5	1.5
Table 2 (1998 Adelphia)			1.5	1.5	2.0	1.5	1.7	1.5	2.7	1.5
Table 3 (1998 North Brunswick)			1.5	1.5	1.0	1.5	1.9	1.5	2.0	1.5
Table 4 (1998 Pittstown)			1.5	3.0	1.9	3.0	1.0	2.5	1.2	2.5
Table 5 (1999 Adelphia)							1.7	1.5	2.1	1.5
Table 6 (1999 Adelphia; low-maintenance test)							0	2.5	0	2.5
Table 7 (2000 Adelphia)									2.5	1.5

[1]Annual N applied (lb/1000 ft^2)
[2]Mowing height in inches