

# 2000 RUTGERS Turfgrass Proceedings



THE NEW JERSEY TURFGRASS ASSOCIATION

In Cooperation With

RUTGERS COOPERATIVE EXTENSION  
NEW JERSEY AGRICULTURAL EXPERIMENT STATION  
RUTGERS, THE STATE UNIVERSITY OF NEW JERSEY  
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# 2000 RUTGERS TURFGRASS PROCEEDINGS

of the

**New Jersey Turfgrass Expo  
December 12-14, 2000  
Trump Taj Mahal  
Atlantic City, New Jersey**

**Volume 32  
Published July, 2001**

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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 University 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 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.

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

Dr. Ann B. 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 are comprised of several species that can persist under limited soil moisture and low nitrogen fertility. Fine fescues can form a dense, attractive turf cover. However, the blue, hard, and strong creeping red fescues currently available are not very tolerant of a low height of cut. There are several bunch-type species used for turf [Chewings fescue (*Festuca rubra* L. subsp. *falax* Thuill.), hard fescue (*F. brevipila* (Hack.) Krajina), sheeps fescue (*F. ovina* L.), *F. pseudovina*, and blue fescue (*F. glauca* Lam)] and two rhizomatous types [slender creeping red fescue (*F. rubra* L. subsp. *littoralis* Gaud.) and strong creeping red fescue (*F. rubra* L. subsp. *rubra* Gaud.)].

The fine fescues are characterized by fine, wiry leaves. During dry weather, leaf rolling gives the leaves a tube-like appearance. Chewings fescues form a dense turf for home lawns. The strong creeping and slender creeping red fescues produce a more open turf than the Chewings fescues due to their rhizomatous growth habit; strong creeping red fescues are more strongly rhizomatous 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, but with lower nutrient requirements, better disease resistance, and a slower growth rate. Sheeps fescues and blue fescues possess stiff, bluish-green leaves and require little maintenance.

The strong creeping red fescues make excellent companion grasses in mixtures with Ken-

tucky bluegrass because they have similar color, rhizomes, and density. The fescues have better establishment and seedling vigor than Kentucky bluegrasses and once established predominate in heavily shaded areas, whereas the Kentucky bluegrasses comprise the bulk of the stand in open areas. Other uses for which the fine fescues are well adapted include the use of hard fescues for soil erosion control in low maintenance areas and the use of sheeps fescues for stabilization of sandy soils and slopes. The sheeps and blue fescues are also commonly included in wildflower mixes to increase soil stabilization, as well as for aesthetic purposes since they produce attractive bluish foliage.

High nitrogen (N) fertilization can reduce the occurrence of fine fescues in a turf of mixed species by increasing susceptibility to biotic and abiotic stresses. Ideally, fine fescues should be fertilized with no more than 1 to 2 lb N/1000 ft<sup>2</sup> per year on average to good soils. 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 the 2.5-inch height of cut.

Fine fescues containing the *Neotyphodium* endophyte can exhibit enhanced resistance to insects, diseases, and environmental stresses. This endophyte is a fungus that grows within the crown and leaf sheath tissues of the turfgrass plant. The endophyte does not affect the natural growth of a plant during periods of low environmental stress; however, under increasing stress, the endophyte-plant relationship pro-

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duces compounds that improve resistance to some biotic and abiotic stresses.

Breeding efforts continue to enhance turf-type qualities of the fine fescues and improve resistance to diseases, insects, and environmental stresses. Endophytes can be incorporated into improved plant material to increase the stress resistance. The Rutgers breeding program, in cooperation with the National Turfgrass Evaluation Program (NTEP), is involved in an extensive program evaluating many cultivars and experimental selections for their turf qualities and performance.

## PROCEDURES

Fine fescue trials were conducted at the Rutgers Plant Science Research and Extension Farm at Adelphia, NJ (Tables 1, 2, 3, 6, and 7), Horticultural Research Farm II at North Brunswick, NJ (Table 4), and the Snyder Research Farm in Pittstown, NJ (Table 5). The 1998 trials at all three locations included the 1998 entries of the National Turfgrass Evaluation Program. Tests at the three locations were set up in open areas with good air circulation except for the 1998 trial at North Brunswick, which was south of dense woods. All entries were seeded in 3 X 5 ft plots at a rate of 3.7 lb/1000 ft<sup>2</sup>. Plots were replicated at least three times in a randomized complete block design.

Tests were fertilized at different N rates, mowed at different heights, and subjected to varying levels of drought stress depending on the objectives of the particular test during the evaluation period. Fertilization rate and height of cut are listed in Table 8. After establishment, tests were irrigated to avoid severe drought stress and dormancy. Plots were mowed at a frequency to avoid excessive clipping accumulation. Weed control consisted of a yearly application of a preemergence herbicide for crabgrass and other annual grasses, and a broadleaf weed control herbicide applied either in spring or fall. The test at the Snyder Farm received a spring application of Trimec classic. Insecticides and fungicides were not routinely applied to any tests.

The five 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. The tests seeded in 1999 (Tables 6 and 7) were additionally evaluated for seedling establishment. With the exception of percent green turf cover (Table 4), all other ratings were based on a 1 to 9 scale, where 9 represented the best quality turf, best establishment, or least disease.

## RESULTS AND DISCUSSION

Data presented in Tables 1 to 6 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. The Chewings and hard fescues normally performed better than the other species with many selections producing a dense, attractive turf (Tables 1 to 7). Several of the newer selections within the strong creeping red fescues performed well at all locations (Tables 1 to 7). Improvements in turf quality in the sheeps and slender creeping red fescues continue; however, these species 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. Many of the newer selections rated above average in establishment and were significantly better than many of the older cultivars (Tables 6 and 7). The Chewings fescues (Tiffany = 6.3, ACF 092 = 6.3) had good spring green-up (Tables 3 to 5) and as a group rated higher than the other species. The strong creeping red and Chewings fescues exhibited good vigor in the 1998 North Brunswick test, with the hard fescues and slender creeping red fescues ranking below them (Table 4). The strong creeping red and Chewings fescues also had very good percent green in the same test, with many of the strong creeping red and a few Chewings fescues averaging above 80%.

In the test seeded September 1999 at Adelphia (Table 6), several of the strong creep-

ing red, Chewings, and hard fescues had very good resistance to dollar spot, with Pathfinder scoring an 8.3 and several hard fescues scoring above an 8.0. Much of the high resistance to dollar spot was due to a high percentage of viable endophyte in the lots used to establish these tests. Many cultivars and selections of the other species had poor resistance to leaf spot (Table 3).

Breeding efforts continue to improve turf-type characteristics in the fine fescues. The area of insect and disease resistance is also an important focus for the Rutgers program. We continue to look at the use of endophytes to supplement breeding efforts to improve a cultivar's natural ability to persist under stress. The success of the efforts of the Rutgers breeding program are well documented in the superior quality ex-

hibited by many of the newer experimental selections, compared to existing cultivars. Further work, however, particularly with the sheeps fescues, is still needed.

### **ACKNOWLEDGMENTS**

New Jersey Agricultural Experiment Station Publication No. E-12264-04-01. This work was conducted as part of NJAES Project No. 12264, supported by New Jersey Agricultural Experiment Station, State, and Hatch Act Funds, the Rutgers Center for Turfgrass Science, other grants, and gifts. Additional support was received from the United States Golf Course Superintendents Association, the New Jersey Turfgrass Association, and the National Turfgrass Evaluation Program.

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1996 at Adelphia, NJ.

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |           |           |           |           |
|------------------------|--------------------------------------|-----------|-----------|-----------|-----------|
|                        | 1997-2000 Avg.                       | 1997 Avg. | 1998 Avg. | 1999 Avg. | 2000 Avg. |
| <b>CHEWINGS FESCUE</b> |                                      |           |           |           |           |
| 1 Brittany             | 5.2                                  | 5.3       | 5.1       | 5.4       | 4.7       |
| 2 96-CF94-1            | 5.1                                  | 5.3       | 4.9       | 5.1       | 5.1       |
| 3 NJF-93               | 4.8                                  | 5.0       | 4.7       | 4.7       | 4.8       |
| 4 Shadow II            | 4.8                                  | 4.6       | 5.0       | 4.9       | 4.6       |
| 5 MB 64-93             | 4.7                                  | 4.5       | 4.7       | 4.5       | 5.0       |
| 6 FC 12                | 4.3                                  | 3.6       | 4.4       | 4.3       | 4.8       |
| 7 Southport            | 4.3                                  | 3.4       | 4.4       | 4.8       | 4.3       |
| 8 Victory E+           | 4.3                                  | 4.1       | 4.3       | 4.5       | 4.1       |
| 9 MB-81                | 4.2                                  | 4.8       | 4.8       | 4.1       | 3.2       |
| 10 FC 51               | 4.2                                  | 4.4       | 3.8       | 4.4       | 4.2       |
| 11 Tiffany             | 4.1                                  | 4.5       | 3.9       | 4.3       | 3.8       |
| 12 Banner II           | 4.0                                  | 3.5       | 4.0       | 4.1       | 4.2       |
| 13 SR 5100             | 4.0                                  | 3.5       | 3.6       | 4.5       | 4.2       |
| 14 Jamestown II        | 3.9                                  | 3.7       | 3.8       | 4.3       | 3.9       |
| 15 Shadow              | 3.0                                  | 2.3       | 2.6       | 3.5       | 3.5       |
| <b>HARD FESCUE</b>     |                                      |           |           |           |           |
| 1 96-HF 94-1           | 5.3                                  | 5.9       | 5.9       | 5.0       | 4.5       |
| 2 Discovery            | 5.0                                  | 5.5       | 5.5       | 4.9       | 4.3       |
| 3 SR 3100              | 5.0                                  | 5.2       | 5.7       | 4.9       | 4.2       |
| 4 EL 20                | 4.8                                  | 5.6       | 5.1       | 4.1       | 4.1       |
| 5 Ecostar              | 4.7                                  | 5.7       | 5.1       | 4.3       | 3.6       |
| 6 Heron                | 4.5                                  | 5.0       | 4.7       | 4.3       | 4.0       |
| 7 Nordic               | 4.5                                  | 5.3       | 4.7       | 4.3       | 3.6       |
| 8 Reliant II           | 4.3                                  | 4.3       | 4.8       | 4.4       | 3.8       |
| 9 Aurora E+            | 4.3                                  | 4.8       | 5.0       | 3.9       | 3.6       |
| 10 Spartan             | 4.3                                  | 4.8       | 4.4       | 4.3       | 3.7       |
| 11 Reliant             | 4.3                                  | 4.6       | 4.6       | 4.1       | 3.8       |
| 12 Serra               | 4.1                                  | 4.8       | 4.2       | 4.0       | 3.5       |
| 13 Brigade             | 4.1                                  | 4.8       | 4.4       | 3.8       | 3.3       |
| 14 Warwick             | 3.6                                  | 3.3       | 4.2       | 3.7       | 3.2       |

Table 1 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           |           |           |
|------------------------------------|--------------------------------------|-----------|-----------|-----------|-----------|
|                                    | 1997-2000 Avg.                       | 1997 Avg. | 1998 Avg. | 1999 Avg. | 2000 Avg. |
| <b>SHEEPS FESCUE</b>               |                                      |           |           |           |           |
| 1 Bighorn                          | 4.2                                  | 4.1       | 4.7       | 4.2       | 3.8       |
| 2 MX-86                            | 3.3                                  | 3.8       | 3.6       | 3.1       | 2.8       |
| 3 LO 44                            | 2.7                                  | 2.3       | 2.4       | 2.1       | 2.5       |
| <b>SLENDER CREEPING RED FESCUE</b> |                                      |           |           |           |           |
| 1 Seabreeze                        | 4.3                                  | 4.4       | 4.2       | 4.4       | 4.1       |
| 2 Dawson                           | 3.5                                  | 4.1       | 3.7       | 3.5       | 2.8       |
| <b>STRONG CREEPING RED FESCUE</b>  |                                      |           |           |           |           |
| 1 Pathfinder                       | 5.3                                  | 4.7       | 5.0       | 5.9       | 5.7       |
| 2 OFI-JH                           | 4.8                                  | 5.1       | 4.1       | 5.1       | 4.8       |
| 3 PST 4ST                          | 4.6                                  | 5.2       | 4.8       | 4.4       | 3.8       |
| 4 PST 4VB E+                       | 4.5                                  | 4.8       | 4.4       | 4.7       | 3.9       |
| 5 Flyer II                         | 4.4                                  | 4.9       | 4.2       | 4.5       | 3.9       |
| 6 RSTR-CR                          | 4.4                                  | 4.2       | 4.0       | 4.7       | 4.6       |
| 7 Shademaster II                   | 4.3                                  | 4.4       | 3.8       | 4.7       | 4.1       |
| 8 PST 4DT                          | 4.1                                  | 3.7       | 4.0       | 4.5       | 4.1       |
| 9 WX5 386                          | 3.8                                  | 4.2       | 3.8       | 3.9       | 3.4       |
| 10 Flyer                           | 3.8                                  | 3.9       | 3.7       | 4.1       | 3.4       |
| 11 Shademark                       | 3.6                                  | 4.1       | 3.4       | 3.8       | 3.2       |
| 12 Melody                          | 3.5                                  | 3.9       | 3.3       | 3.8       | 3.2       |
| 13 Common Cr                       | 3.5                                  | 3.8       | 3.3       | 3.6       | 3.3       |
| LSD at 5% =                        | 0.6                                  | 0.9       | 1.0       | 0.7       | 0.9       |

<sup>1</sup>9 = best turf quality

Table 2. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1997 at Adelphia, NJ.

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |           |           |           |
|------------------------|--------------------------------------|-----------|-----------|-----------|
|                        | 1998-2000 Avg.                       | 1998 Avg. | 1999 Avg. | 2000 Avg. |
| <b>BLUE FESCUE</b>     |                                      |           |           |           |
| 1 Syn 4MB              | 4.4                                  | 4.8       | 4.4       | 4.0       |
| 2 4UB                  | 4.1                                  | 4.2       | 4.1       | 4.0       |
| 3 4HZ                  | 3.8                                  | 4.3       | 3.5       | 3.6       |
| 4 Bighorn              | 3.8                                  | 4.1       | 3.8       | 3.5       |
| 5 Teal                 | 2.9                                  | 3.1       | 2.7       | 2.9       |
| 6 FO D-93-97           | 3.4                                  | 3.4       | 3.5       | 3.2       |
| 7 FO I-92-97           | 3.2                                  | 3.5       | 3.3       | 2.8       |
| 8 FO G-93-97           | 3.2                                  | 3.6       | 3.2       | 2.9       |
| <b>CHEWINGS FESCUE</b> |                                      |           |           |           |
| 1 Shadow II            | 5.8                                  | 6.0       | 5.8       | 5.5       |
| 2 PCH comp             | 5.7                                  | 6.2       | 5.6       | 5.5       |
| 3 CIS FRC 2            | 5.7                                  | 6.4       | 5.3       | 5.4       |
| 4 Treasure E+          | 5.6                                  | 6.0       | 5.6       | 5.3       |
| 5 Ambassador           | 5.5                                  | 6.1       | 4.9       | 5.6       |
| 6 R94-299              | 5.2                                  | 6.0       | 4.8       | 4.9       |
| 7 FRC A-93-97          | 5.1                                  | 5.6       | 4.6       | 5.2       |
| 8 SRX 5N5942-2         | 5.0                                  | 5.4       | 4.7       | 5.1       |
| 9 Victory II           | 5.0                                  | 5.5       | 4.7       | 4.8       |
| 10 FRC 4-92-97         | 4.9                                  | 5.4       | 4.3       | 4.9       |
| 11 SRX 5022            | 4.9                                  | 5.0       | 4.3       | 5.3       |
| 12 SR 5100             | 4.8                                  | 5.3       | 4.6       | 4.6       |
| 13 SRX 5941-2          | 4.8                                  | 5.5       | 4.5       | 4.4       |
| 14 TMI-3CE             | 4.7                                  | 4.8       | 4.6       | 4.7       |
| 15 FRC B-93-97         | 4.6                                  | 5.2       | 4.1       | 4.4       |
| 16 Tiffany             | 4.5                                  | 4.9       | 4.2       | 4.3       |
| 17 Sandpiper           | 4.4                                  | 4.3       | 4.3       | 4.7       |
| 18 Syn 4BCT            | 4.3                                  | 4.5       | 4.1       | 4.1       |
| 19 FC 50               | 4.1                                  | 4.5       | 4.0       | 4.0       |
| 20 FC 51               | 4.0                                  | 4.6       | 3.7       | 3.8       |

Table 2 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|------------------------------------|--------------------------------------|-----------|-----------|-----------|-----|
|                                    | 1998-2000 Avg.                       | 1998 Avg. | 1999 Avg. | 2000 Avg. |     |
| <b>CHEWINGS FESCUE (continued)</b> |                                      |           |           |           |     |
| 21                                 | Jamestown II                         | 4.0       | 4.0       | 3.9       | 4.0 |
| 22                                 | Victory                              | 3.9       | 4.2       | 3.9       | 3.7 |
| 23                                 | Dover                                | 3.8       | 3.7       | 3.5       | 4.2 |
| 24                                 | Shadow E+                            | 3.5       | 2.8       | 3.5       | 4.2 |
| <b>HARD FESCUE</b>                 |                                      |           |           |           |     |
| 1                                  | Hard 97 E-                           | 5.9       | 5.9       | 6.0       | 5.9 |
| 2                                  | Oxford                               | 5.7       | 5.8       | 5.7       | 5.8 |
| 3                                  | Hard 97 E+                           | 5.7       | 5.9       | 5.6       | 5.7 |
| 4                                  | CIS FL12                             | 5.4       | 5.3       | 5.7       | 5.3 |
| 5                                  | SRX 3113                             | 5.3       | 5.2       | 5.3       | 5.4 |
| 6                                  | SRX 3324 E-2                         | 5.2       | 5.0       | 5.3       | 5.4 |
| 7                                  | SRX 3022-3                           | 5.2       | 5.4       | 4.9       | 5.5 |
| 8                                  | R-94                                 | 5.2       | 5.0       | 5.2       | 5.5 |
| 9                                  | Nordic E+                            | 5.2       | 5.0       | 5.1       | 5.4 |
| 10                                 | LL-22                                | 5.0       | 5.0       | 4.8       | 5.3 |
| 11                                 | CIS FL11                             | 5.0       | 4.9       | 4.9       | 5.2 |
| 12                                 | FF B-97                              | 5.0       | 5.3       | 4.9       | 4.7 |
| 13                                 | SR 3100                              | 5.0       | 4.9       | 5.0       | 5.0 |
| 14                                 | CIS FL10                             | 4.9       | 4.6       | 5.0       | 5.0 |
| 15                                 | Osprey                               | 4.9       | 4.9       | 4.9       | 4.9 |
| 16                                 | FF A-97                              | 4.9       | 4.8       | 4.8       | 5.1 |
| 17                                 | SRX 3MO941-2                         | 4.9       | 4.9       | 4.8       | 4.8 |
| 18                                 | Heron                                | 4.8       | 5.2       | 4.5       | 4.7 |
| 19                                 | CIS FL8                              | 4.8       | 4.7       | 4.6       | 5.2 |
| 20                                 | SR 3000                              | 4.8       | 4.8       | 4.7       | 4.9 |
| 21                                 | FF-2-94 1-7                          | 4.8       | 4.2       | 4.9       | 5.3 |
| 22                                 | FF-2-94-97                           | 4.8       | 4.4       | 4.8       | 5.1 |
| 23                                 | Discovery                            | 4.8       | 4.1       | 4.9       | 5.2 |
| 24                                 | 47TH                                 | 4.7       | 4.8       | 4.6       | 4.6 |
| 25                                 | Attila                               | 4.7       | 4.8       | 4.6       | 4.6 |

Table 2 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|------------------------------------|--------------------------------------|-----------|-----------|-----------|-----|
|                                    | 1998-2000 Avg.                       | 1998 Avg. | 1999 Avg. | 2000 Avg. |     |
| <b>HARD FESCUE (continued)</b>     |                                      |           |           |           |     |
| 26                                 | Ecostar                              | 4.7       | 5.0       | 4.5       | 4.5 |
| 27                                 | CIS FL9                              | 4.6       | 4.3       | 4.8       | 4.8 |
| 28                                 | FF-5-94-97                           | 4.6       | 4.6       | 4.5       | 4.6 |
| 29                                 | Serra                                | 4.5       | 4.6       | 4.5       | 4.3 |
| 30                                 | FFD-97                               | 4.4       | 4.5       | 4.6       | 4.2 |
| 31                                 | Syn 46U                              | 4.4       | 4.1       | 4.3       | 4.8 |
| 32                                 | Syn 4R6                              | 4.4       | 4.5       | 4.5       | 4.3 |
| 33                                 | Syn 4CU                              | 4.3       | 4.4       | 4.3       | 4.2 |
| 34                                 | Spartan                              | 4.3       | 4.0       | 4.4       | 4.4 |
| 35                                 | Aurora E+                            | 4.2       | 3.8       | 4.4       | 4.4 |
| 36                                 | FF-6-94-97                           | 4.1       | 4.4       | 4.1       | 3.8 |
| 37                                 | FF-7-94-97                           | 3.9       | 4.3       | 3.7       | 3.7 |
| 38                                 | 4GH                                  | 3.8       | 4.0       | 3.7       | 3.8 |
| 39                                 | Syn 4HI-97                           | 3.5       | 3.7       | 3.6       | 3.3 |
| 40                                 | 18089                                | 2.3       | 2.4       | 1.9       | 2.7 |
| 41                                 | GBM comp                             | 5.0       | 5.3       | 4.8       | 4.7 |
| 42                                 | GGE comp                             | 4.8       | 5.0       | 4.8       | 4.6 |
| <b>SLENDER CREEPING RED FESCUE</b> |                                      |           |           |           |     |
| 1                                  | ASRO 10                              | 5.2       | 5.7       | 5.1       | 4.6 |
| 2                                  | ASRO 25                              | 5.0       | 5.0       | 5.7       | 4.5 |
| 3                                  | Seabreeze                            | 4.8       | 5.2       | 4.7       | 4.6 |
| 4                                  | ASRO 14                              | 4.7       | 4.5       | 5.0       | 4.6 |
| 5                                  | ASRO 36                              | 4.7       | 4.6       | 4.9       | 4.5 |
| 6                                  | SRX 5SL952-2                         | 4.6       | 4.5       | 4.7       | 4.5 |
| 7                                  | ASRO 11                              | 4.4       | 4.4       | 4.5       | 4.2 |
| 8                                  | SRX 5SL953-2                         | 4.3       | 4.2       | 4.5       | 4.2 |
| 9                                  | 4S3                                  | 4.2       | 3.9       | 4.3       | 4.3 |
| 10                                 | Syn 4S3 E                            | 4.1       | 3.8       | 4.2       | 4.4 |
| 11                                 | Syn 4SD                              | 4.1       | 3.7       | 4.1       | 4.5 |
| 12                                 | Syn 4SDY                             | 3.6       | 3.3       | 3.8       | 3.7 |

Table 2 (continued).

| Cultivar or Selection             | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|-----------------------------------|--------------------------------------|-----------|-----------|-----------|-----|
|                                   | 1998-2000 Avg.                       | 1998 Avg. | 1999 Avg. | 2000 Avg. |     |
| <b>STRONG CREEPING RED FESCUE</b> |                                      |           |           |           |     |
| 1                                 | FLM E+ comp                          | 5.7       | 5.7       | 5.5       | 5.8 |
| 2                                 | CIS H FRR E+                         | 5.3       | 5.1       | 5.3       | 5.6 |
| 3                                 | CIS FRR 5                            | 5.2       | 5.2       | 5.0       | 5.4 |
| 4                                 | FLM E- comp                          | 5.2       | 5.4       | 5.1       | 5.2 |
| 5                                 | FLT comp                             | 5.2       | 5.9       | 4.4       | 5.3 |
| 6                                 | CIS FRR 6                            | 5.2       | 5.1       | 4.9       | 5.5 |
| 7                                 | Pathfinder                           | 5.1       | 5.1       | 5.0       | 5.3 |
| 8                                 | Syn 4TDD                             | 5.0       | 5.0       | 4.7       | 5.2 |
| 9                                 | SRX 52NJ961-1                        | 4.9       | 5.2       | 4.5       | 5.0 |
| 10                                | SRX 52MO962-1                        | 4.9       | 4.8       | 4.5       | 5.2 |
| 11                                | Syn 46T-97                           | 4.8       | 5.1       | 4.7       | 4.7 |
| 12                                | SRX 52NJ943-2                        | 4.8       | 4.6       | 4.3       | 5.6 |
| 13                                | 4FR                                  | 4.8       | 5.3       | 4.7       | 4.5 |
| 14                                | 4TD                                  | 4.8       | 4.9       | 4.5       | 4.9 |
| 15                                | Syn 4 FRR                            | 4.8       | 5.1       | 4.5       | 4.7 |
| 16                                | Syn 4TB                              | 4.7       | 4.8       | 4.5       | 4.9 |
| 17                                | 47TCL                                | 4.7       | 5.1       | 4.8       | 4.3 |
| 18                                | Fenway E+                            | 4.7       | 4.6       | 4.6       | 4.9 |
| 19                                | Fenway E-                            | 4.7       | 4.3       | 4.5       | 5.3 |
| 20                                | Syn 4CRE-97                          | 4.7       | 5.0       | 4.4       | 4.7 |
| 21                                | Shademaster II                       | 4.7       | 5.1       | 4.7       | 4.3 |
| 22                                | Syn 4PH                              | 4.6       | 5.0       | 4.1       | 4.7 |
| 23                                | SRX 52NJ94-1-2                       | 4.6       | 4.4       | 4.1       | 5.2 |
| 24                                | CIS HRR E+/E-                        | 4.5       | 4.9       | 4.3       | 4.4 |
| 25                                | SRX 52NJ942-2                        | 4.5       | 4.0       | 4.3       | 5.2 |
| 26                                | Syn 4RTM                             | 4.4       | 4.2       | 4.2       | 4.9 |
| 27                                | SRX 52NJ941-3                        | 4.4       | 4.2       | 4.2       | 5.0 |
| 28                                | Syn 4V3                              | 4.4       | 4.7       | 4.5       | 4.1 |
| 29                                | DGSC 94                              | 4.4       | 4.7       | 4.2       | 4.4 |
| 30                                | SRX 5SL951-2                         | 4.4       | 4.5       | 4.4       | 4.3 |

Table 2 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|---|--------------------------------------|-----------|-----------|-----------|-----|
|   | 1998-2000 Avg.                       | 1998 Avg. | 1999 Avg. | 2000 Avg. |     |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |           |           |           |     |
| 31  | Syn 4BBL                             | 4.4       | 4.7       | 4.3       | 4.1 |
| 32  | Florentine                           | 4.3       | 4.8       | 4.1       | 3.9 |
| 33  | Trapeze                              | 4.3       | 4.5       | 4.3       | 4.0 |
| 34  | Flyer II                             | 4.2       | 4.2       | 4.2       | 4.1 |
| 35  | Aruba                                | 4.1       | 4.5       | 3.7       | 4.1 |
| 36  | Vista                                | 4.0       | 4.0       | 4.0       | 3.9 |
| 37  | 4CRE                                 | 3.9       | 4.2       | 3.7       | 3.9 |
| 38  | FR 46                                | 3.9       | 3.8       | 4.1       | 3.9 |
| 39  | SR 5200 E                            | 3.9       | 3.5       | 4.1       | 4.0 |
| 40  | FR 47                                | 3.6       | 3.6       | 3.4       | 3.9 |
| 41  | Victor                               | 3.5       | 3.0       | 3.8       | 3.9 |
| 42  | Common Creeper                       | 3.3       | 3.0       | 3.3       | 3.6 |
| <hr/>   |                                      |           |           |           |     |
|   | LSD at 5% =                          | 0.5       | 0.7       | 0.7       | 0.6 |

<sup>1</sup>9 = best turf quality

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1998 at Adelphia, NJ. (Includes entries in the 1998 National Turfgrass Evaluation Program.)

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup> | Red Thread <sup>3</sup> | Leaf Spot <sup>3</sup> | Dollar Spot <sup>3</sup> |
|------------------------|--------------------------------------|-----------|-----------|------------------------------|-------------------------|------------------------|--------------------------|
|                        | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. | April 2000                   | May 2000                | May 2000               | July 2000                |
| <b>BLUE FESCUE</b>     |                                      |           |           |                              |                         |                        |                          |
| 1 Bighorn              | 4.4                                  | 4.6       | 4.2       | 4.7                          | 9.0                     | 6.0                    | 8.7                      |
| 2 SR 3200              | 4.0                                  | 4.0       | 4.0       | 3.7                          | 9.0                     | 5.0                    | 8.3                      |
| <b>CHEWINGS FESCUE</b> |                                      |           |           |                              |                         |                        |                          |
| 1 Longfellow II        | 5.8                                  | 6.1       | 5.5       | 5.7                          | 8.3                     | 5.3                    | 8.0                      |
| 2 ABT CHW-2            | 5.7                                  | 6.1       | 5.3       | 7.3                          | 9.0                     | 5.7                    | 8.7                      |
| 3 SRO FF 7             | 5.7                                  | 6.0       | 5.3       | 6.0                          | 9.0                     | 3.7                    | 8.0                      |
| 4 Ambassador           | 5.7                                  | 5.9       | 5.5       | 5.3                          | 9.0                     | 5.0                    | 7.3                      |
| 5 Intrigue             | 5.6                                  | 5.6       | 5.5       | 6.3                          | 8.3                     | 6.0                    | 8.0                      |
| 6 BAR CHF 8 FUS2       | 5.4                                  | 5.6       | 5.2       | 7.0                          | 8.0                     | 4.0                    | 7.3                      |
| 7 Treazure             | 5.3                                  | 5.7       | 4.9       | 6.3                          | 9.0                     | 4.7                    | 7.3                      |
| 8 FC 28                | 5.2                                  | 5.3       | 5.1       | 6.3                          | 9.0                     | 4.7                    | 7.3                      |
| 9 SRO FF 6             | 5.2                                  | 5.3       | 5.1       | 7.3                          | 9.0                     | 4.0                    | 8.0                      |
| 10 FC 11               | 5.2                                  | 5.3       | 5.0       | 6.7                          | 8.3                     | 3.3                    | 7.0                      |
| 11 Shadow II           | 5.2                                  | 5.7       | 4.6       | 6.7                          | 8.7                     | 5.3                    | 6.7                      |
| 12 ABT-CHW-3           | 5.2                                  | 5.6       | 4.7       | 5.5                          | 9.0                     | 5.5                    | 7.0                      |
| 13 FC 39               | 5.2                                  | 5.2       | 5.1       | 6.0                          | 8.3                     | 4.7                    | 7.3                      |
| 14 ABT CHW-1           | 5.1                                  | 5.5       | 4.8       | 5.7                          | 9.0                     | 6.0                    | 6.3                      |
| 15 ACF 082             | 5.1                                  | 5.2       | 5.0       | 6.3                          | 9.0                     | 5.3                    | 7.0                      |
| 16 Culombra            | 5.1                                  | 5.3       | 4.9       | 7.0                          | 8.7                     | 3.3                    | 7.7                      |
| 17 PST-4HM             | 5.1                                  | 5.2       | 4.9       | 4.0                          | 9.0                     | 5.7                    | 8.0                      |
| 18 Pick FRC A-93       | 5.0                                  | 5.0       | 5.0       | 4.7                          | 9.0                     | 4.7                    | 8.7                      |
| 19 MB-63               | 4.9                                  | 5.2       | 4.6       | 6.7                          | 8.3                     | 2.7                    | 5.3                      |
| 20 SR 5100             | 4.9                                  | 5.3       | 4.5       | 6.0                          | 9.0                     | 5.3                    | 5.7                      |
| 21 Brittany            | 4.8                                  | 5.0       | 4.6       | 5.7                          | 9.0                     | 4.0                    | 7.0                      |
| 22 Magic               | 4.8                                  | 5.1       | 4.6       | 5.7                          | 8.3                     | 4.3                    | 5.3                      |
| 23 Hood                | 4.8                                  | 5.3       | 4.4       | 5.7                          | 9.0                     | 3.7                    | 5.7                      |
| 24 Silhouette          | 4.8                                  | 5.1       | 4.5       | 5.7                          | 8.3                     | 4.7                    | 6.0                      |
| 25 Sandpiper           | 4.7                                  | 4.8       | 4.6       | 5.7                          | 7.7                     | 4.0                    | 8.0                      |

Table 3 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup> | Red Thread <sup>3</sup> | Leaf Spot <sup>3</sup> | Dollar Spot <sup>3</sup> |     |
|------------------------------------|--------------------------------------|-----------|-----------|------------------------------|-------------------------|------------------------|--------------------------|-----|
|                                    | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. | April 2000                   | May 2000                | May 2000               | July 2000                |     |
| <b>CHEWINGS FESCUE (continued)</b> |                                      |           |           |                              |                         |                        |                          |     |
| 26                                 | FC 49                                | 4.7       | 4.7       | 4.6                          | 4.3                     | 9.0                    | 4.0                      | 6.7 |
| 27                                 | Bridgeport                           | 4.6       | 4.7       | 4.4                          | 6.0                     | 9.0                    | 4.0                      | 6.3 |
| 28                                 | Banner III                           | 4.6       | 4.9       | 4.2                          | 6.0                     | 8.0                    | 3.0                      | 6.0 |
| 29                                 | Tiffany                              | 4.5       | 4.9       | 4.1                          | 5.7                     | 7.0                    | 2.7                      | 6.0 |
| 30                                 | LRF-98-490                           | 4.4       | 4.8       | 4.0                          | 6.0                     | 8.7                    | 3.7                      | 8.0 |
| 31                                 | FC 50                                | 4.4       | 4.3       | 4.4                          | 5.0                     | 9.0                    | 4.7                      | 5.3 |
| 32                                 | ACF 083                              | 4.3       | 5.0       | 3.7                          | 5.7                     | 9.0                    | 3.0                      | 4.3 |
| 33                                 | FC 51                                | 4.3       | 4.3       | 4.2                          | 6.3                     | 9.0                    | 4.0                      | 6.0 |
| 34                                 | Jamestown II                         | 4.2       | 4.4       | 4.0                          | 5.7                     | 8.7                    | 3.7                      | 6.3 |
| 35                                 | FLED                                 | 3.4       | 3.3       | 3.5                          | 4.0                     | 9.0                    | 2.7                      | 3.7 |
| <b>HARD FESCUE</b>                 |                                      |           |           |                              |                         |                        |                          |     |
| 1                                  | EHF E+                               | 6.2       | 6.5       | 5.9                          | 5.3                     | 9.0                    | 5.7                      | 9.0 |
| 2                                  | EHF E-                               | 6.2       | 6.5       | 5.8                          | 5.0                     | 9.0                    | 5.0                      | 8.7 |
| 3                                  | 4001 E-                              | 6.1       | 6.4       | 5.8                          | 5.3                     | 8.7                    | 6.7                      | 8.7 |
| 4                                  | 4001 E+                              | 5.9       | 6.3       | 5.5                          | 5.0                     | 8.7                    | 6.7                      | 9.0 |
| 5                                  | ABT-HF1                              | 5.9       | 6.1       | 5.6                          | 4.0                     | 9.0                    | 5.0                      | 8.7 |
| 6                                  | SRX 3961                             | 5.8       | 6.4       | 5.2                          | 4.3                     | 9.0                    | 6.3                      | 9.0 |
| 7                                  | Oxford                               | 5.6       | 5.6       | 5.6                          | 4.3                     | 9.0                    | 5.0                      | 8.7 |
| 8                                  | 4001                                 | 5.6       | 5.9       | 5.3                          | 5.0                     | 9.0                    | 5.7                      | 8.0 |
| 9                                  | SRO FF 2                             | 5.4       | 5.8       | 5.1                          | 4.3                     | 9.0                    | 5.0                      | 9.0 |
| 10                                 | Discovery                            | 5.3       | 5.5       | 5.1                          | 3.7                     | 9.0                    | 5.3                      | 8.7 |
| 11                                 | ABT-HF-4                             | 5.3       | 5.5       | 5.1                          | 6.3                     | 9.0                    | 6.3                      | 8.3 |
| 12                                 | ABT-HF-2                             | 5.2       | 5.5       | 4.9                          | 4.0                     | 9.0                    | 5.3                      | 8.0 |
| 13                                 | SRO FF 4                             | 5.2       | 5.4       | 5.1                          | 4.0                     | 9.0                    | 5.0                      | 9.0 |
| 14                                 | Osprey                               | 5.1       | 5.4       | 4.8                          | 4.7                     | 7.7                    | 5.3                      | 8.0 |
| 15                                 | ABT-HF-3                             | 5.1       | 5.1       | 5.1                          | 4.7                     | 9.0                    | 7.7                      | 8.7 |
| 16                                 | FL 54                                | 5.1       | 5.5       | 4.7                          | 4.7                     | 9.0                    | 6.0                      | 9.0 |
| 17                                 | CIS FL11                             | 5.1       | 5.3       | 4.9                          | 4.3                     | 9.0                    | 4.7                      | 8.7 |
| 18                                 | Stonehenge                           | 5.0       | 5.1       | 5.0                          | 4.0                     | 9.0                    | 4.3                      | 8.0 |
| 19                                 | Reliant II                           | 5.0       | 5.4       | 4.7                          | 3.7                     | 9.0                    | 4.7                      | 8.0 |
| 20                                 | LL 22                                | 5.0       | 5.0       | 4.9                          | 4.3                     | 9.0                    | 5.0                      | 9.0 |

Table 3 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup> | Red Thread <sup>3</sup> | Leaf Spot <sup>3</sup> | Dollar Spot <sup>3</sup> |     |
|------------------------------------|--------------------------------------|-----------|-----------|------------------------------|-------------------------|------------------------|--------------------------|-----|
|                                    | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. | April 2000                   | May 2000                | May 2000               | July 2000                |     |
| <b>HARD FESCUE (continued)</b>     |                                      |           |           |                              |                         |                        |                          |     |
| 21                                 | Minotaur                             | 4.9       | 4.9       | 5.0                          | 5.3                     | 9.0                    | 6.7                      | 8.3 |
| 22                                 | SRO FF 1                             | 4.9       | 5.1       | 4.8                          | 4.3                     | 9.0                    | 5.0                      | 9.0 |
| 23                                 | EL 41                                | 4.9       | 5.1       | 4.7                          | 4.7                     | 9.0                    | 5.3                      | 9.0 |
| 24                                 | Nordic                               | 4.9       | 5.4       | 4.4                          | 4.0                     | 9.0                    | 5.3                      | 7.3 |
| 25                                 | SRO FF 3                             | 4.9       | 5.0       | 4.7                          | 5.3                     | 9.0                    | 5.0                      | 9.0 |
| 26                                 | Ecostar                              | 4.8       | 5.1       | 4.6                          | 5.3                     | 9.0                    | 5.0                      | 9.0 |
| 27                                 | CIS FL12                             | 4.8       | 5.1       | 4.5                          | 3.7                     | 9.0                    | 4.3                      | 8.0 |
| 28                                 | Heron                                | 4.8       | 4.6       | 4.9                          | 3.7                     | 9.0                    | 5.0                      | 8.0 |
| 29                                 | EL 20                                | 4.7       | 4.9       | 4.6                          | 3.7                     | 9.0                    | 3.7                      | 8.7 |
| 30                                 | BAR HF 8 FUS                         | 4.6       | 5.1       | 4.2                          | 4.7                     | 9.0                    | 5.0                      | 8.0 |
| 31                                 | Attila                               | 4.6       | 4.6       | 4.5                          | 4.3                     | 9.0                    | 3.7                      | 8.3 |
| 32                                 | Rescue 911                           | 4.5       | 4.4       | 4.7                          | 4.0                     | 8.0                    | 6.0                      | 7.7 |
| 33                                 | Defiant                              | 4.5       | 4.8       | 4.2                          | 4.3                     | 9.0                    | 4.3                      | 7.7 |
| 34                                 | Pick FF A-97                         | 4.5       | 4.5       | 4.5                          | 4.3                     | 9.0                    | 4.3                      | 8.3 |
| 35                                 | Scaldis II                           | 4.5       | 4.5       | 4.4                          | 3.7                     | 9.0                    | 5.0                      | 8.0 |
| 36                                 | PST-4MB                              | 4.5       | 4.6       | 4.4                          | 4.7                     | 9.0                    | 6.7                      | 8.0 |
| 37                                 | MB-82                                | 4.4       | 4.8       | 4.1                          | 3.7                     | 9.0                    | 4.0                      | 8.3 |
| 38                                 | Scaldis                              | 4.4       | 4.4       | 4.4                          | 3.7                     | 9.0                    | 5.0                      | 7.7 |
| 39                                 | LRF-98-488                           | 4.3       | 4.2       | 4.3                          | 4.7                     | 9.0                    | 6.0                      | 9.0 |
| 40                                 | LRF-98-489                           | 3.9       | 4.0       | 3.9                          | 3.7                     | 9.0                    | 7.0                      | 9.0 |
| 41                                 | LRF-98-487                           | 3.9       | 4.2       | 3.6                          | 4.0                     | 9.0                    | 6.3                      | 9.0 |
| 42                                 | LRF-98-491                           | 3.4       | 3.7       | 3.0                          | 2.3                     | 9.0                    | 6.7                      | 9.0 |
| <b>SHEEPS FESCUE</b>               |                                      |           |           |                              |                         |                        |                          |     |
| 1                                  | Quatro                               | 4.7       | 4.7       | 4.6                          | 4.7                     | 9.0                    | 7.3                      | 7.0 |
| <b>SLENDER CREEPING RED FESCUE</b> |                                      |           |           |                              |                         |                        |                          |     |
| 1                                  | BAR SCF 8 FUS 3                      | 4.7       | 5.3       | 4.2                          | 5.0                     | 8.3                    | 5.3                      | 5.0 |
| 2                                  | Seabreeze                            | 4.6       | 5.1       | 4.2                          | 6.3                     | 7.0                    | 3.7                      | 4.7 |
| 3                                  | Dawson E+                            | 4.5       | 4.6       | 4.3                          | 5.7                     | 7.7                    | 5.3                      | 7.3 |
| 4                                  | SRO FF 8                             | 4.5       | 4.7       | 4.3                          | 4.3                     | 7.0                    | 4.7                      | 6.3 |
| 5                                  | SRO FF 9                             | 4.4       | 4.8       | 3.9                          | 3.3                     | 6.0                    | 5.0                      | 4.3 |

Table 3 (continued).

| Cultivar or Selection                          | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup> | Red Thread <sup>3</sup> | Leaf Spot <sup>3</sup> | Dollar Spot <sup>3</sup> |     |
|--|--------------------------------------|-----------|-----------|------------------------------|-------------------------|------------------------|--------------------------|-----|
|  | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. | April 2000                   | May 2000                | May 2000               | July 2000                |     |
| <b>SLENDER CREEPING RED FESCUE (continued)</b> |                                      |           |           |                              |                         |                        |                          |     |
| 6  | ASR 049                              | 4.3       | 5.5       | 3.1                          | 4.0                     | 6.3                    | 6.0                      | 2.7 |
| 7  | SRO FF 10                            | 3.7       | 4.4       | 2.8                          | 5.3                     | 8.0                    | 3.0                      | 2.3 |
| <b>STRONG CREEPING RED FESCUE</b>              |                                      |           |           |                              |                         |                        |                          |     |
| 1  | Jasper II                            | 5.9       | 5.8       | 5.9                          | 5.0                     | 7.7                    | 5.7                      | 8.0 |
| 2  | Cindy Lou                            | 5.9       | 5.6       | 6.1                          | 6.7                     | 9.0                    | 5.0                      | 8.7 |
| 3  | SRX 52961                            | 5.8       | 5.7       | 6.0                          | 6.0                     | 7.3                    | 5.3                      | 8.3 |
| 4  | PK Comp                              | 5.7       | 5.7       | 5.6                          | 5.7                     | 8.0                    | 5.0                      | 8.3 |
| 5  | PST-EFL                              | 5.5       | 5.2       | 5.7                          | 5.3                     | 7.3                    | 5.0                      | 7.7 |
| 6  | 4401 E+                              | 5.5       | 5.4       | 5.5                          | 5.3                     | 8.0                    | 5.0                      | 8.0 |
| 7  | ABT-CR-3                             | 5.4       | 5.4       | 5.5                          | 6.3                     | 6.7                    | 4.7                      | 8.0 |
| 8  | ABT CR-2                             | 5.3       | 5.5       | 5.1                          | 7.0                     | 6.7                    | 5.0                      | 3.0 |
| 9  | FLE Comp                             | 5.2       | 5.2       | 5.2                          | 5.0                     | 9.0                    | 4.0                      | 8.0 |
| 10   | CIS FRR 5                            | 5.2       | 4.8       | 5.6                          | 6.0                     | 9.0                    | 4.0                      | 7.0 |
| 11   | 4401 E-                              | 5.0       | 5.7       | 4.3                          | 5.7                     | 6.7                    | 4.7                      | 2.7 |
| 12   | Florentine                           | 4.8       | 5.3       | 4.3                          | 6.0                     | 6.3                    | 4.7                      | 3.0 |
| 13   | Pathfinder                           | 4.6       | 5.1       | 4.1                          | 6.3                     | 5.7                    | 4.3                      | 1.0 |
| 14   | PST-47 TCR                           | 4.6       | 4.9       | 4.3                          | 6.7                     | 7.3                    | 4.3                      | 4.0 |
| 15   | DGSC 94                              | 4.5       | 4.8       | 4.2                          | 6.3                     | 5.0                    | 4.3                      | 3.0 |
| 16   | SRX 52LAV                            | 4.4       | 4.1       | 4.7                          | 6.0                     | 9.0                    | 3.3                      | 7.0 |
| 17   | Shademark                            | 4.4       | 4.7       | 4.1                          | 5.3                     | 6.7                    | 3.7                      | 3.3 |
| 18   | ASC 082                              | 4.3       | 4.3       | 4.3                          | 6.0                     | 8.0                    | 4.3                      | 6.7 |
| 19   | BAR CF 8 FUS 1                       | 4.3       | 4.8       | 3.8                          | 5.3                     | 4.3                    | 2.7                      | 3.0 |
| 20   | ShadeMaster II                       | 4.3       | 4.7       | 3.9                          | 4.0                     | 5.3                    | 3.0                      | 2.7 |
| 21   | SRO FF 12                            | 4.3       | 4.4       | 4.1                          | 5.0                     | 6.3                    | 2.7                      | 5.0 |
| 22   | ASC 087                              | 4.1       | 4.5       | 3.7                          | 6.7                     | 6.7                    | 2.7                      | 3.0 |
| 23   | PST-4FR                              | 4.0       | 4.8       | 3.3                          | 4.0                     | 4.3                    | 4.0                      | 1.0 |
| 24   | FR-47                                | 4.0       | 4.2       | 3.8                          | 3.3                     | 9.0                    | 4.0                      | 5.0 |
| 25   | SRO FF 11                            | 4.0       | 3.8       | 4.1                          | 3.3                     | 7.0                    | 2.0                      | 7.3 |

Table 3 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup> | Red Thread <sup>3</sup> | Leaf Spot <sup>3</sup> | Dollar Spot <sup>3</sup> |     |
|---|--------------------------------------|-----------|-----------|------------------------------|-------------------------|------------------------|--------------------------|-----|
|   | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. | April 2000                   | May 2000                | May 2000               | July 2000                |     |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |           |           |                              |                         |                        |                          |     |
| 26  | FR-27                                | 3.9       | 4.2       | 3.7                          | 4.3                     | 8.7                    | 4.0                      | 4.0 |
| 27  | FR-46                                | 3.9       | 4.0       | 3.8                          | 4.0                     | 6.3                    | 3.0                      | 6.0 |
| 28  | Salsa                                | 3.8       | 4.4       | 3.2                          | 6.7                     | 5.0                    | 3.0                      | 1.7 |
| 29  | Trapeze                              | 3.8       | 4.2       | 3.4                          | 4.0                     | 7.3                    | 4.0                      | 3.3 |
| 30  | FR-01-4-25                           | 3.8       | 3.7       | 3.8                          | 4.7                     | 6.0                    | 2.3                      | 6.7 |
| 31  | ASC 172                              | 3.5       | 3.4       | 3.6                          | 3.7                     | 9.0                    | 3.3                      | 4.3 |
| 32  | Boreal                               | 3.2       | 3.2       | 3.2                          | 3.3                     | 8.0                    | 2.0                      | 3.0 |
| 33  | Common Creeper                       | 3.0       | 3.0       | 3.0                          | 3.7                     | 7.0                    | 3.7                      | 3.7 |
| LSD at 5% =                                   |                                      | 0.6       | 0.6       | 0.8                          | 1.6                     | 1.9                    | 1.5                      | 1.8 |

<sup>1</sup>9 = best turf quality

<sup>2</sup>9 = earliest spring green-up

<sup>3</sup>9 = least disease

Table 4. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1998 at North Brunswick, NJ. (Includes entries in the 1998 National Turfgrass Evaluation Program.)

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |           | Spring Green-up <sup>2</sup><br>April 2000 | Red Thread <sup>3</sup><br>May 2000 | Vigor <sup>4</sup><br>July 2000 | Summer Injury <sup>5</sup><br>Aug. 2000 | Green <sup>6</sup> (%)<br>Sept. 2000 |
|------------------------|--------------------------------------|-----------|--|-------------------------------------|---------------------------------|---|--------------------------------------|
|                        | 1999-2000 Avg.                       | 1999 Avg. |  |                                     |                                 |   |                                      |
| 1 Bighorn              | 4.1                                  | 4.6       | 3.5  | 9.0                                 | 2.3                             | 1.7                                     | 6.0                                  |
| 2 SR 3200              | 3.6                                  | 4.0       | 3.2  | 9.0                                 | 1.7                             | 1.7                                     | 9.0                                  |
| <b>BLUE FESCUE</b>     |                                      |           |  |                                     |                                 |   |                                      |
| 1 Longfellow II        | 6.4                                  | 6.6       | 6.2  | 9.0                                 | 7.0                             | 7.7                                     | 79.3                                 |
| 2 ABT-CHW-2            | 6.4                                  | 6.4       | 6.3  | 8.3                                 | 6.7                             | 7.7                                     | 81.7                                 |
| 3 SRO FF 7             | 6.2                                  | 6.3       | 6.0  | 9.0                                 | 6.7                             | 6.7                                     | 70.0                                 |
| 4 Intrigue             | 6.0                                  | 6.1       | 5.9  | 9.0                                 | 6.3                             | 6.7                                     | 72.3                                 |
| 5 ABT-CHW-3            | 5.9                                  | 5.8       | 5.9  | 9.0                                 | 4.7                             | 8.3                                     | 63.3                                 |
| <b>CHEWINGS FESCUE</b> |                                      |           |  |                                     |                                 |   |                                      |
| 6 Ambassador           | 5.8                                  | 5.9       | 5.7  | 9.0                                 | 5.3                             | 7.3                                     | 58.3                                 |
| 7 Treazure             | 5.8                                  | 5.9       | 5.6  | 9.0                                 | 7.0                             | 7.0                                     | 73.3                                 |
| 8 Pick FRC A-93        | 5.5                                  | 5.2       | 5.8  | 9.0                                 | 4.7                             | 8.3                                     | 81.7                                 |
| 9 Shadow II            | 5.4                                  | 5.6       | 5.2  | 8.3                                 | 5.3                             | 7.3                                     | 73.3                                 |
| 10 SR 5100             | 5.3                                  | 5.0       | 5.7  | 9.0                                 | 6.0                             | 8.0                                     | 68.3                                 |
| 11 Magic               | 5.1                                  | 4.9       | 5.3  | 9.0                                 | 4.3                             | 7.0                                     | 49.3                                 |
| 12 SRO FF 6            | 5.0                                  | 5.1       | 4.9  | 8.3                                 | 4.7                             | 6.0                                     | 37.3                                 |
| 13 Tiffany             | 4.9                                  | 4.9       | 4.9  | 8.0                                 | 5.3                             | 6.3                                     | 61.7                                 |
| 14 Bridgeport          | 4.9                                  | 4.9       | 4.9  | 9.0                                 | 6.0                             | 6.3                                     | 54.3                                 |
| 15 Silhouette          | 4.9                                  | 4.9       | 4.8  | 9.0                                 | 3.3                             | 5.3                                     | 41.0                                 |

Table 4 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           | Spring Green-up <sup>2</sup> April 2000 | Red Thread <sup>3</sup> May 2000 | Vigor <sup>4</sup> July 2000 | Summer Injury <sup>5</sup> Aug. 2000 | Green <sup>6</sup> (%) Sept. 2000 |
|------------------------------------|--------------------------------------|-----------|---|----------------------------------|------------------------------|--------------------------------------|-----------------------------------|
|                                    | 1999-2000 Avg.                       | 2000 Avg. |   |                                  |                              |                                      |                                   |
| <b>CHEWINGS FESCUE (continued)</b> |                                      |           |   |                                  |                              |                                      |                                   |
| 16 Brittany                        | 4.8                                  | 4.5       | 5.2                                     | 8.7                              | 2.7                          | 7.3                                  | 67.3                              |
| 17 MB-63                           | 4.8                                  | 4.6       | 4.9                                     | 9.0                              | 4.3                          | 8.0                                  | 63.3                              |
| 18 Culombra                        | 4.7                                  | 4.6       | 4.8                                     | 9.0                              | 4.0                          | 6.7                                  | 39.3                              |
| 19 PST-4HM                         | 4.6                                  | 4.9       | 4.3                                     | 9.0                              | 3.7                          | 2.0                                  | 7.7                               |
| 20 Banner III                      | 4.4                                  | 4.4       | 4.4                                     | 9.0                              | 4.3                          | 5.0                                  | 15.7                              |
| 21 Sandpiper                       | 4.4                                  | 4.2       | 4.5                                     | 9.0                              | 4.0                          | 7.0                                  | 41.7                              |
| 22 ABT-CHW-1                       | 4.4                                  | 4.3       | 4.4                                     | 9.0                              | 3.7                          | 3.7                                  | 16.3                              |
| 23 ACF 083                         | 4.3                                  | 4.6       | 3.9                                     | 9.0                              | 6.0                          | 3.3                                  | 22.7                              |
| 24 ACF 092                         | 4.3                                  | 4.6       | 4.0                                     | 9.0                              | 4.7                          | 3.7                                  | 23.0                              |
| 25 BAR CHF 8 FUF2                  | 4.0                                  | 3.9       | 4.0                                     | 6.7                              | 3.7                          | 4.3                                  | 15.3                              |
| 26 Jamestown II                    | 3.7                                  | 3.6       | 3.7                                     | 8.3                              | 4.7                          | 3.3                                  | 21.3                              |
| <b>HARD FESCUE</b>                 |                                      |           |   |                                  |                              |                                      |                                   |
| 1 4001                             | 6.0                                  | 6.5       | 5.6                                     | 9.0                              | 5.3                          | 3.3                                  | 16.3                              |
| 2 ABT-HF1                          | 5.9                                  | 6.2       | 5.5                                     | 9.0                              | 5.3                          | 3.3                                  | 16.0                              |
| 3 SRX 3961                         | 5.6                                  | 6.2       | 5.0                                     | 9.0                              | 6.7                          | 2.7                                  | 12.3                              |
| 4 ABT-HF-2                         | 5.5                                  | 6.0       | 5.1                                     | 9.0                              | 6.3                          | 2.3                                  | 11.7                              |
| 5 Minotaur                         | 5.5                                  | 5.9       | 5.0                                     | 9.0                              | 4.7                          | 3.3                                  | 18.0                              |

Table 4 (continued).

| Cultivar or Selection          | -----Turf Quality <sup>1</sup> ----- |           | Spring Green-up <sup>2</sup> April 2000 | Red Thread <sup>3</sup> May 2000 | Vigor <sup>4</sup> July 2000 | Summer Injury <sup>5</sup> Aug. 2000 | Green <sup>6</sup> (%) Sept. 2000 |
|--------------------------------|--------------------------------------|-----------|---|----------------------------------|------------------------------|--------------------------------------|-----------------------------------|
|                                | 1999-2000 Avg.                       | 2000 Avg. |   |                                  |                              |                                      |                                   |
| <b>HARD FESCUE (continued)</b> |                                      |           |   |                                  |                              |                                      |                                   |
| 6 EHF E+                       | 5.5                                  | 6.1       | 4.8                                     | 4.7                              | 9.0                          | 5.7                                  | 11.0                              |
| 7 EHF E-                       | 5.4                                  | 6.0       | 4.8                                     | 4.3                              | 9.0                          | 5.3                                  | 10.7                              |
| 8 PST-4MB                      | 5.4                                  | 5.7       | 5.0                                     | 2.7                              | 9.0                          | 3.7                                  | 33.3                              |
| 9 ABT-HF-3                     | 5.3                                  | 5.8       | 4.8                                     | 4.3                              | 9.0                          | 5.0                                  | 15.0                              |
| 10 Oxford                      | 5.3                                  | 5.7       | 4.9                                     | 5.3                              | 9.0                          | 4.3                                  | 9.7                               |
| 11 4001 E+                     | 5.2                                  | 5.9       | 4.5                                     | 3.7                              | 9.0                          | 4.3                                  | 9.3                               |
| 12 ABT-HF-4                    | 5.1                                  | 5.7       | 4.4                                     | 3.0                              | 9.0                          | 3.7                                  | 9.7                               |
| 13 Rescue 911                  | 5.0                                  | 5.3       | 4.7                                     | 1.3                              | 9.0                          | 3.0                                  | 15.0                              |
| 14 BAR HF 8 FUS                | 5.0                                  | 5.4       | 4.6                                     | 6.3                              | 9.0                          | 3.7                                  | 13.3                              |
| 15 SRO FF 1                    | 5.0                                  | 5.9       | 4.0                                     | 3.7                              | 9.0                          | 4.7                                  | 10.0                              |
| 16 CIS FL 12                   | 4.9                                  | 5.0       | 4.9                                     | 2.7                              | 9.0                          | 3.7                                  | 14.3                              |
| 17 Reliant II                  | 4.9                                  | 5.6       | 4.2                                     | 4.3                              | 9.0                          | 4.3                                  | 9.7                               |
| 18 4001 E-                     | 4.9                                  | 5.8       | 4.0                                     | 4.7                              | 9.0                          | 4.7                                  | 7.0                               |
| 19 Nordic                      | 4.9                                  | 5.3       | 4.4                                     | 3.7                              | 9.0                          | 4.7                                  | 9.3                               |
| 20 Stonehenge                  | 4.9                                  | 4.7       | 5.0                                     | 3.0                              | 9.0                          | 4.7                                  | 24.7                              |
| 21 Pick FF A-97                | 4.8                                  | 5.1       | 4.5                                     | 4.0                              | 9.0                          | 3.3                                  | 12.3                              |
| 22 SRO FF 2                    | 4.8                                  | 5.7       | 3.9                                     | 3.3                              | 9.0                          | 4.0                                  | 8.3                               |
| 23 CIS FL 11                   | 4.7                                  | 5.2       | 4.2                                     | 2.3                              | 9.0                          | 4.0                                  | 13.7                              |
| 24 SRO FF 3                    | 4.7                                  | 5.2       | 4.1                                     | 5.3                              | 9.0                          | 3.7                                  | 26.0                              |
| 25 Discovery                   | 4.6                                  | 5.0       | 4.3                                     | 3.3                              | 9.0                          | 3.7                                  | 9.3                               |

Table 4 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           | Spring Green-up <sup>2</sup> April 2000 | Red Thread <sup>3</sup> May 2000 | Vigor <sup>4</sup> July 2000 | Summer Injury <sup>5</sup> Aug. 2000 | Green <sup>6</sup> (%) Sept. 2000 |
|------------------------------------|--------------------------------------|-----------|---|----------------------------------|------------------------------|--------------------------------------|-----------------------------------|
|                                    | 1999-2000 Avg.                       | 2000 Avg. |   |                                  |                              |                                      |                                   |
| 26 SRO FF 4                        | 4.6                                  | 5.2       | 3.9                                     | 9.0                              | 3.3                          | 1.7                                  | 10.0                              |
| 27 Heron                           | 4.4                                  | 4.6       | 4.2                                     | 9.0                              | 4.3                          | 2.0                                  | 9.3                               |
| 28 Defiant                         | 4.3                                  | 4.8       | 3.9                                     | 9.0                              | 3.0                          | 1.7                                  | 7.0                               |
| 29 Osprey                          | 4.2                                  | 4.7       | 3.8                                     | 9.0                              | 4.0                          | 2.3                                  | 8.0                               |
| 30 Attila E                        | 4.2                                  | 4.9       | 3.5                                     | 9.0                              | 4.3                          | 2.7                                  | 12.0                              |
| 31 Scaldis                         | 3.9                                  | 4.4       | 3.3                                     | 6.7                              | 1.7                          | 1.7                                  | 6.3                               |
| 32 MB-82                           | 3.5                                  | 4.0       | 3.0                                     | 8.3                              | 3.7                          | 1.7                                  | 5.3                               |
| 33 Scaldis II                      | 3.4                                  | 3.8       | 3.1                                     | 9.0                              | 2.0                          | 2.0                                  | 6.0                               |
| <b>HARD FESCUE (continued)</b>     |                                      |           |   |                                  |                              |                                      |                                   |
| <b>SHEEPS FESCUE</b>               |                                      |           |   |                                  |                              |                                      |                                   |
| 1 Quatro                           | 4.0                                  | 4.2       | 3.8                                     | 9.0                              | 5.3                          | 4.7                                  | 11.3                              |
| <b>SLENDER CREEPING RED FESCUE</b> |                                      |           |   |                                  |                              |                                      |                                   |
| 1 BAR SCF 8 FUS 3                  | 4.7                                  | 5.1       | 4.4                                     | 9.0                              | 5.0                          | 3.0                                  | 24.0                              |
| 2 ASR 049                          | 3.9                                  | 4.4       | 3.5                                     | 9.0                              | 2.7                          | 1.3                                  | 8.0                               |
| 3 SRO FF 8                         | 3.7                                  | 3.8       | 3.6                                     | 9.0                              | 3.7                          | 2.0                                  | 11.3                              |
| 4 Seabreeze                        | 3.7                                  | 3.8       | 3.6                                     | 9.0                              | 5.3                          | 1.7                                  | 11.3                              |
| 5 SRO FF 9                         | 3.3                                  | 3.9       | 2.7                                     | 9.0                              | 3.7                          | 1.3                                  | 6.0                               |
| 6 Dawson E+                        | 2.8                                  | 3.5       | 2.2                                     | 8.7                              | 3.7                          | 1.7                                  | 5.3                               |
| 7 SRO FF 10                        | 2.8                                  | 3.8       | 1.8                                     | 9.0                              | 3.0                          | 1.7                                  | 3.0                               |

Table 4 (continued).

| Cultivar or Selection             | ----- Turf Quality <sup>1</sup> ----- |           | Spring Green-up <sup>2</sup> April 2000 | Red Thread <sup>3</sup> May 2000 | Vigor <sup>4</sup> July 2000 | Summer Injury <sup>5</sup> Aug. 2000 | Green <sup>6</sup> (%) Sept. 2000 |
|-----------------------------------|---------------------------------------|-----------|---|----------------------------------|------------------------------|--------------------------------------|-----------------------------------|
|                                   | 1999-2000 Avg.                        | 1999 Avg. |   |                                  |                              |                                      |                                   |
| <b>STRONG CREEPING RED FESCUE</b> |                                       |           |   |                                  |                              |                                      |                                   |
| 1 Jasper II                       | 6.5                                   | 6.5       | 6.4                                     | 9.0                              | 9.0                          | 7.7                                  | 88.3                              |
| 2 CIS FRR 7                       | 6.2                                   | 6.0       | 6.4                                     | 9.0                              | 8.7                          | 8.3                                  | 87.0                              |
| 3 SRX 52961                       | 6.1                                   | 6.1       | 6.2                                     | 9.0                              | 9.0                          | 9.0                                  | 93.0                              |
| 4 ABT-CR-3                        | 6.1                                   | 6.5       | 5.8                                     | 9.0                              | 7.7                          | 8.0                                  | 93.3                              |
| 5 PK comp                         | 6.1                                   | 6.3       | 5.9                                     | 9.0                              | 8.3                          | 7.7                                  | 79.3                              |
| 6 4401 E+                         | 6.0                                   | 6.3       | 5.6                                     | 7.7                              | 8.0                          | 6.7                                  | 66.3                              |
| 7 CIS FRR 5                       | 5.9                                   | 6.0       | 5.7                                     | 9.0                              | 8.0                          | 8.7                                  | 91.3                              |
| 8 PST-EFL                         | 5.9                                   | 5.9       | 5.8                                     | 7.3                              | 7.7                          | 7.3                                  | 85.0                              |
| 9 ABT-CR-2                        | 5.7                                   | 6.6       | 4.8                                     | 6.3                              | 5.7                          | 4.7                                  | 45.0                              |
| 10 4401 E-                        | 5.7                                   | 6.2       | 5.1                                     | 8.0                              | 7.7                          | 5.3                                  | 36.7                              |
| 11 FLE comp                       | 5.6                                   | 5.5       | 5.7                                     | 9.0                              | 7.7                          | 7.3                                  | 70.0                              |
| 12 Florentine                     | 5.3                                   | 5.6       | 5.0                                     | 9.0                              | 7.7                          | 5.7                                  | 58.7                              |
| 13 Pathfinder                     | 5.2                                   | 5.9       | 4.5                                     | 7.3                              | 5.7                          | 5.0                                  | 62.7                              |
| 14 SPT-47TCR                      | 5.2                                   | 5.6       | 4.8                                     | 7.3                              | 6.3                          | 4.3                                  | 46.7                              |
| 15 Shademaster II                 | 5.2                                   | 5.3       | 5.1                                     | 8.7                              | 8.0                          | 6.7                                  | 75.0                              |
| 16 ASC 082                        | 5.1                                   | 5.3       | 4.8                                     | 7.3                              | 6.3                          | 7.7                                  | 76.0                              |
| 17 PST-4FR                        | 5.1                                   | 5.6       | 4.5                                     | 8.0                              | 5.7                          | 4.7                                  | 51.7                              |
| 18 BAR CF 8 FUS1                  | 5.0                                   | 5.2       | 4.9                                     | 6.0                              | 7.0                          | 7.0                                  | 61.7                              |
| 19 Gen 92                         | 4.9                                   | 5.2       | 4.6                                     | 8.0                              | 7.0                          | 6.0                                  | 34.0                              |
| 20 DGSC 94                        | 4.8                                   | 4.9       | 4.7                                     | 8.3                              | 6.7                          | 6.3                                  | 64.0                              |

Table 4 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |           | Spring Green-up <sup>2</sup> April 2000 | Red Thread <sup>3</sup> May 2000 | Vigor <sup>4</sup> July 2000 | Summer Injury <sup>5</sup> Aug. 2000 | Green <sup>6</sup> (%) Sept. 2000 |
|---|--------------------------------------|-----------|---|----------------------------------|------------------------------|--------------------------------------|-----------------------------------|
|   | 1999-2000 Avg.                       | 2000 Avg. |   |                                  |                              |                                      |                                   |
| 21 SRX 52LAV                                  | 4.6                                  | 4.7       | 4.3                                     | 8.3                              | 7.3                          | 7.3                                  | 56.7                              |
| 22 SRO FF 12                                  | 4.6                                  | 4.4       | 7.0                                     | 7.7                              | 5.7                          | 6.3                                  | 40.3                              |
| 23 ASC 172                                    | 4.5                                  | 4.1       | 3.3                                     | 9.0                              | 5.3                          | 5.0                                  | 55.7                              |
| 24 ASC 087                                    | 4.4                                  | 4.4       | 7.7                                     | 8.3                              | 7.3                          | 4.7                                  | 46.0                              |
| 25 Shademark                                  | 4.1                                  | 3.8       | 6.7                                     | 9.0                              | 6.0                          | 6.7                                  | 46.7                              |
| 26 Salsa                                      | 3.9                                  | 3.1       | 8.0                                     | 9.0                              | 7.3                          | 2.0                                  | 18.7                              |
| 27 SRO FF 11                                  | 3.3                                  | 3.1       | 7.7                                     | 9.0                              | 5.7                          | 3.7                                  | 18.7                              |
| 28 Common Creeper                             | 3.3                                  | 3.2       | 4.0                                     | 8.3                              | 5.7                          | 3.7                                  | 21.7                              |
| 29 Boreal                                     | 2.5                                  | 2.3       | 3.7                                     | 9.0                              | 4.3                          | 2.0                                  | 6.3                               |
| 30 Claudia                                    | 2.1                                  | 2.3       | 4.0                                     | 9.0                              | 3.3                          | 2.7                                  | 5.0                               |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |           |   |                                  |                              |                                      |                                   |
| LSD at 5% =                                   | 0.7                                  | 0.8       | 1.9                                     | 1.6                              | 1.6                          | 2.0                                  | 18.2                              |

<sup>1</sup>9 = best turf quality

<sup>2</sup>9 = earliest spring green-up

<sup>3</sup>9 = least red thread

<sup>4</sup>9 = best turf vigor

<sup>5</sup>9 = least summer injury

<sup>6</sup>9 = percent green turf cover

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

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |              |              | Spring Green-up <sup>2</sup><br>April 2000 |
|------------------------|--------------------------------------|--------------|--------------|--|
|                        | 1999-2000<br>Avg.                    | 1999<br>Avg. | 2000<br>Avg. |  |
| <b>BLUE FESCUE</b>     |                                      |              |              |  |
| 1 SR 3200              | 4.5                                  | 4.7          | 4.2          | 2.0  |
| 2 Azay                 | 4.5                                  | 4.4          | 4.5          | 4.3  |
| 3 Bighorn              | 4.4                                  | 4.6          | 4.2          | 2.0  |
| <b>CHEWINGS FESCUE</b> |                                      |              |              |  |
| 1 PST-4HM              | 5.1                                  | 5.2          | 5.1          | 2.3  |
| 2 Shadow II            | 5.1                                  | 5.4          | 4.8          | 4.3  |
| 3 Longfellow II        | 5.1                                  | 5.1          | 5.1          | 4.0  |
| 4 Pick FRC B-93        | 5.1                                  | 5.5          | 4.7          | 5.7  |
| 5 ABT-CHW-2            | 4.9                                  | 5.2          | 4.7          | 5.0  |
| 6 ABT-CHW-3            | 4.9                                  | 5.3          | 4.6          | 4.3  |
| 7 BAR CHF 8 FUS 2      | 4.9                                  | 5.1          | 4.7          | 4.7  |
| 8 ACF 092              | 4.9                                  | 5.4          | 4.4          | 6.3  |
| 9 Pick FRC A-93        | 4.9                                  | 5.3          | 4.4          | 4.0  |
| 10 Banner III          | 4.8                                  | 5.3          | 4.3          | 5.3  |
| 11 Silhouette          | 4.8                                  | 5.3          | 4.2          | 4.7  |
| 12 Ambassador          | 4.8                                  | 5.1          | 4.4          | 4.3  |
| 13 FC 39               | 4.8                                  | 5.2          | 4.3          | 4.7  |
| 14 Intrigue            | 4.7                                  | 5.2          | 4.2          | 3.7  |
| 15 Hood                | 4.7                                  | 5.0          | 4.5          | 5.3  |
| 16 FC 49               | 4.7                                  | 5.2          | 4.2          | 3.0  |
| 17 FC11                | 4.7                                  | 5.1          | 4.2          | 4.3  |
| 18 FC 51               | 4.6                                  | 5.1          | 4.1          | 4.7  |
| 19 MB-63               | 4.6                                  | 5.1          | 4.1          | 4.7  |
| 20 ACF 083             | 4.6                                  | 4.9          | 4.2          | 6.0  |
| 21 Silhouette          | 4.6                                  | 5.3          | 3.9          | 4.0  |
| 22 FC 50               | 4.6                                  | 5.0          | 4.1          | 3.7  |
| 23 Culombra            | 4.5                                  | 5.0          | 4.1          | 5.7  |
| 24 Victory RS          | 4.5                                  | 4.9          | 4.1          | 5.3  |
| 25 Treasure            | 4.5                                  | 4.6          | 4.3          | 4.0  |

Table 5 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup><br>April 2000 |     |
|------------------------------------|--------------------------------------|-----------|-----------|--|-----|
|                                    | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. |  |     |
| <b>CHEWINGS FESCUE (continued)</b> |                                      |           |           |  |     |
| 26                                 | Pick FRC A-93                        | 4.5       | 5.0       | 3.9  | 3.3 |
| 27                                 | Tiffany                              | 4.4       | 4.8       | 4.0  | 6.3 |
| 28                                 | ABT-CHW-1                            | 4.4       | 5.1       | 3.8  | 3.7 |
| 29                                 | Pick FRC 2-96                        | 4.4       | 4.9       | 3.9  | 3.7 |
| 30                                 | FC 28                                | 4.4       | 5.0       | 3.8  | 6.0 |
| 31                                 | Brittany                             | 4.4       | 4.8       | 3.9  | 4.7 |
| 32                                 | Victory II                           | 4.4       | 4.7       | 4.0  | 3.7 |
| 33                                 | Magic                                | 4.3       | 4.6       | 4.0  | 3.3 |
| 34                                 | Victory                              | 4.3       | 4.7       | 3.9  | 4.7 |
| 35                                 | Sandpiper                            | 4.2       | 4.7       | 3.7  | 4.0 |
| 36                                 | Bridgeport                           | 4.2       | 4.8       | 3.6  | 4.7 |
| 37                                 | Pick FRC A-97                        | 4.0       | 4.7       | 3.3  | 4.0 |
| 38                                 | SR 5100                              | 3.9       | 4.4       | 3.5  | 3.0 |
| 39                                 | Jamestown II                         | 3.8       | 4.1       | 3.4  | 2.7 |
| 40                                 | FLED                                 | 3.4       | 4.0       | 2.9  | 5.0 |
| <b>HARD FESCUE</b>                 |                                      |           |           |  |     |
| 1                                  | SRX 3961                             | 6.1       | 5.6       | 6.6  | 3.7 |
| 2                                  | 4001 E+                              | 6.1       | 5.7       | 6.4  | 4.0 |
| 3                                  | ABT-HF1                              | 6.0       | 5.7       | 6.3  | 4.0 |
| 4                                  | Heron                                | 5.9       | 5.9       | 6.0  | 3.0 |
| 5                                  | 4001                                 | 5.9       | 5.9       | 5.9  | 4.0 |
| 6                                  | ABT-HF-2                             | 5.9       | 5.8       | 6.0  | 4.0 |
| 7                                  | Oxford                               | 5.8       | 5.6       | 6.0  | 3.0 |
| 8                                  | 4001 E-                              | 5.7       | 5.5       | 5.9  | 3.0 |
| 9                                  | Pick GBM                             | 5.7       | 5.4       | 6.0  | 2.7 |
| 10                                 | ABT-HF-3                             | 5.6       | 5.4       | 5.8  | 3.3 |
| 11                                 | FL 54                                | 5.5       | 5.4       | 5.7  | 3.7 |
| 12                                 | EL 41                                | 5.5       | 5.3       | 5.6  | 3.3 |
| 13                                 | EL 20                                | 5.5       | 5.4       | 5.5  | 3.0 |
| 14                                 | Stonehenge                           | 5.4       | 5.3       | 5.5  | 3.3 |
| 15                                 | LL 22                                | 5.4       | 5.1       | 5.7  | 2.3 |

Table 5 (continued).

| Cultivar or Selection          | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup><br>April 2000 |     |
|--------------------------------|--------------------------------------|-----------|-----------|--|-----|
|                                | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. |  |     |
| <b>HARD FESCUE (continued)</b> |                                      |           |           |  |     |
| 16                             | Scaldis II                           | 5.4       | 5.3       | 5.5  | 3.3 |
| 17                             | Pick FF A-97                         | 5.3       | 5.4       | 5.3  | 3.0 |
| 18                             | BAR HF 8 FUS                         | 5.3       | 5.3       | 5.3  | 5.7 |
| 19                             | CIS FL 11                            | 5.3       | 5.1       | 5.5  | 3.3 |
| 20                             | ABT-HF 4                             | 5.3       | 5.2       | 5.4  | 3.3 |
| 21                             | Osprey                               | 5.3       | 5.3       | 5.3  | 3.7 |
| 22                             | Reliant II                           | 5.3       | 5.3       | 5.3  | 2.3 |
| 23                             | Attila E                             | 5.3       | 5.2       | 5.3  | 3.0 |
| 24                             | CIS FL 12                            | 5.2       | 5.1       | 5.3  | 3.0 |
| 25                             | Pick FF A-97                         | 5.2       | 5.3       | 5.1  | 3.0 |
| 26                             | Nordic                               | 5.1       | 5.0       | 5.2  | 2.3 |
| 27                             | Scaldis                              | 5.1       | 5.3       | 4.9  | 2.7 |
| 28                             | MB-82                                | 5.1       | 4.9       | 5.2  | 4.7 |
| 29                             | Rescue 911                           | 5.0       | 5.1       | 4.9  | 3.3 |
| 30                             | Spartan                              | 5.0       | 5.0       | 4.9  | 3.3 |
| 31                             | Minotaur                             | 5.0       | 5.0       | 5.0  | 3.0 |
| 32                             | Defiant                              | 4.9       | 4.9       | 4.9  | 4.0 |
| 33                             | Discovery                            | 4.9       | 4.9       | 4.8  | 3.0 |
| 34                             | PST-4MB                              | 4.8       | 4.9       | 4.8  | 2.0 |
| 35                             | Pick FF 6-94                         | 4.8       | 4.7       | 4.8  | 1.7 |
| 36                             | Pick FOD-93                          | 4.5       | 4.7       | 4.2  | 2.7 |
| 37                             | Pick FOG-93                          | 4.0       | 4.3       | 3.7  | 1.0 |
| 38                             | Warwick                              | 3.7       | 3.2       | 4.2  | 2.3 |
| 39                             | 18909                                | 3.1       | 3.5       | 2.8  | 3.7 |
| <b>SHEEPS FESCUE</b>           |                                      |           |           |  |     |
| 1                              | Quatro                               | 5.0       | 5.1       | 4.8  | 4.7 |
| 2                              | FO 53                                | 4.4       | 4.7       | 4.2  | 2.7 |
| 3                              | FO 52                                | 4.2       | 4.6       | 3.8  | 4.7 |
| 4                              | Teal                                 | 4.1       | 4.6       | 3.6  | 1.7 |

Table 5 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup><br>April 2000 |     |
|------------------------------------|--------------------------------------|-----------|-----------|--|-----|
|                                    | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. |  |     |
| <b>SLENDER CREEPING RED FESCUE</b> |                                      |           |           |  |     |
| 1                                  | BAR SCF 8 FUS3                       | 5.6       | 5.8       | 5.5  | 4.3 |
| 2                                  | ASR 049                              | 5.1       | 5.5       | 4.8  | 2.7 |
| 3                                  | Seabreeze                            | 4.6       | 4.6       | 4.6  | 3.3 |
| 4                                  | Dawson E+                            | 4.5       | 4.7       | 4.2  | 2.0 |
| <b>STRONG CREEPING RED FESCUE</b>  |                                      |           |           |  |     |
| 1                                  | Jasper II                            | 5.6       | 5.4       | 5.7  | 3.7 |
| 2                                  | PST EFL                              | 5.3       | 5.4       | 5.1  | 4.7 |
| 3                                  | Pick FDM                             | 5.1       | 5.2       | 5.0  | 5.0 |
| 4                                  | 4401 E-                              | 5.1       | 5.0       | 5.2  | 4.3 |
| 5                                  | 4401 E+                              | 5.1       | 5.0       | 5.2  | 3.7 |
| 6                                  | Florentine                           | 5.1       | 5.4       | 4.8  | 3.7 |
| 7                                  | ABT-CR-3                             | 5.0       | 5.1       | 4.9  | 5.3 |
| 8                                  | ABT-CR-2                             | 5.0       | 5.0       | 4.9  | 3.3 |
| 9                                  | FR 46                                | 4.9       | 4.9       | 4.8  | 3.7 |
| 10                                 | CIS FRR 7                            | 4.8       | 4.8       | 4.9  | 2.7 |
| 11                                 | PST-4FR                              | 4.8       | 5.1       | 4.4  | 5.0 |
| 12                                 | PST-47TCR                            | 4.7       | 4.8       | 4.6  | 3.3 |
| 13                                 | ASC 082                              | 4.6       | 4.9       | 4.3  | 3.7 |
| 14                                 | Pathfinder                           | 4.6       | 4.7       | 4.6  | 3.7 |
| 15                                 | BAR CF 8 FUS1                        | 4.6       | 4.9       | 4.2  | 4.3 |
| 16                                 | CIS FRR 5                            | 4.6       | 4.6       | 4.6  | 4.0 |
| 17                                 | SRX 52961                            | 4.6       | 4.5       | 4.6  | 2.3 |
| 18                                 | ASC 087                              | 4.6       | 4.8       | 4.3  | 3.3 |
| 19                                 | Jasper E-                            | 4.6       | 4.8       | 4.3  | 3.7 |
| 20                                 | DGSC 94                              | 4.4       | 4.7       | 4.1  | 3.7 |
| 21                                 | Jasper                               | 4.4       | 4.7       | 4.1  | 3.0 |
| 22                                 | Trapeze                              | 4.4       | 4.6       | 4.2  | 3.3 |
| 23                                 | FR27                                 | 4.3       | 4.7       | 3.9  | 3.7 |
| 24                                 | FR-01-4-25                           | 4.3       | 4.7       | 3.8  | 4.3 |
| 25                                 | Shademaster II                       | 4.2       | 4.3       | 4.1  | 3.7 |

Table 5 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |           |           | Spring Green-up <sup>2</sup><br>April 2000 |     |
|---|--------------------------------------|-----------|-----------|--|-----|
|   | 1999-2000 Avg.                       | 1999 Avg. | 2000 Avg. |  |     |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |           |           |  |     |
| 26  | Salsa                                | 4.2       | 4.2       | 4.1  | 4.7 |
| 27  | ASC 172                              | 4.1       | 4.7       | 3.5  | 2.7 |
| 28  | SRX 52LAV                            | 4.0       | 4.0       | 4.0  | 2.0 |
| 29  | Common Creeper                       | 4.0       | 4.0       | 4.0  | 6.7 |
| 30  | Boreal                               | 3.9       | 4.2       | 3.7  | 4.0 |
| 31  | FR 47                                | 3.9       | 4.2       | 3.5  | 2.7 |
| 32  | Shademark                            | 3.7       | 4.0       | 3.3  | 2.3 |
| <b>MISCELLANEOUS</b>                          |                                      |           |           |  |     |
| 1   | Syn 4U6                              | 5.2       | 5.3       | 5.2  | 3.7 |
| 2   | Vista                                | 4.2       | 4.6       | 3.8  | 5.0 |
| 3   | Syn 42 RR                            | 4.1       | 4.1       | 4.1  | 3.3 |
| <hr/>   |                                      |           |           |  |     |
|   | LSD at 5% =                          | 0.5       | 0.5       | 0.7  | 2.0 |

<sup>1</sup>9 = best turf quality

<sup>2</sup>9 = earliest spring green-up

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

|                        | Cultivar or Selection | Turf Quality <sup>1</sup><br>2000 Avg. | Establishment <sup>2</sup><br>Oct. 1999 | Dollar Spot <sup>3</sup><br>Oct. 2000 |
|------------------------|-----------------------|--|---|---------------------------------------|
| <b>BLUE FESCUE</b>     |                       |  |   |                                       |
| 1                      | 4-Blue-99             | 4.4                                    | 5.0                                     | 6.7                                   |
| <b>CHEWINGS FESCUE</b> |                       |  |   |                                       |
| 1                      | FRC B-93              | 5.8                                    | 4.3                                     | 6.3                                   |
| 2                      | SRX 5HH9              | 5.7                                    | 5.0                                     | 7.0                                   |
| 3                      | Victory II            | 5.5                                    | 2.0                                     | 7.0                                   |
| 4                      | Sandpiper             | 5.4                                    | 6.7                                     | 6.7                                   |
| 5                      | 4EC-99                | 5.4                                    | 4.3                                     | 8.3                                   |
| 6                      | Bridgeport            | 5.4                                    | 6.7                                     | 7.0                                   |
| 7                      | SR 5100               | 5.3                                    | 5.0                                     | 7.0                                   |
| 8                      | SR 5020               | 5.2                                    | 5.3                                     | 7.0                                   |
| 9                      | FRC A-93              | 5.2                                    | 5.0                                     | 7.0                                   |
| 10                     | Barnica               | 5.2                                    | 1.7                                     | 7.0                                   |
| 11                     | 4601 comp             | 5.1                                    | 4.3                                     | 7.0                                   |
| 12                     | Intrigue              | 5.1                                    | 5.7                                     | 8.0                                   |
| 13                     | DLC                   | 5.1                                    | 5.0                                     | 7.0                                   |
| 14                     | SRX 5II9              | 5.0                                    | 5.3                                     | 8.0                                   |
| 15                     | Ambassador            | 5.0                                    | 5.3                                     | 7.3                                   |
| 16                     | SRX 5GG9              | 5.0                                    | 5.0                                     | 7.3                                   |
| 17                     | Bargreen              | 5.0                                    | 4.3                                     | 7.0                                   |
| 18                     | FRC 2-96              | 4.9                                    | 4.3                                     | 6.7                                   |
| 19                     | FC 51                 | 4.9                                    | 5.0                                     | 6.0                                   |
| 20                     | Shadow II             | 4.8                                    | 4.7                                     | 7.3                                   |
| 21                     | Silhouette            | 4.7                                    | 4.7                                     | 6.7                                   |
| 22                     | SRX 5FF9              | 4.7                                    | 4.3                                     | 7.3                                   |
| 23                     | FRC A-97              | 4.6                                    | 3.3                                     | 6.0                                   |
| 24                     | Tiffany               | 4.3                                    | 1.3                                     | 6.0                                   |
| 25                     | New Chewing           | 4.1                                    | 5.3                                     | 6.7                                   |
| 26                     | Victory               | 4.0                                    | 6.3                                     | 7.0                                   |
| 27                     | FC 50                 | 3.2                                    | 3.7                                     | 6.3                                   |

Table 6 (continued).

|                                    | Cultivar or Selection | Turf Quality <sup>1</sup><br>2000 Avg. | Establishment <sup>2</sup><br>Oct. 1999 | Dollar Spot <sup>3</sup><br>Oct. 2000 |
|------------------------------------|-----------------------|--|---|---------------------------------------|
| <b>HARD FESCUE</b>                 |                       |  |   |                                       |
| 1                                  | ABT HF I '99          | 5.5                                    | 5.0                                     | 8.0                                   |
| 2                                  | ABT HF I '98          | 5.5                                    | 4.7                                     | 7.7                                   |
| 3                                  | E2H                   | 5.5                                    | 4.3                                     | 8.3                                   |
| 4                                  | Rescue 911            | 5.4                                    | 3.7                                     | 7.3                                   |
| 5                                  | 4AU-99                | 5.3                                    | 4.0                                     | 7.3                                   |
| 6                                  | Stonehenge            | 5.1                                    | 4.0                                     | 7.0                                   |
| 7                                  | 4MB-99                | 5.0                                    | 3.0                                     | 6.0                                   |
| 8                                  | Oxford                | 4.9                                    | 3.0                                     | 7.0                                   |
| 9                                  | LL 22                 | 4.9                                    | 4.0                                     | 7.7                                   |
| 10                                 | L2H                   | 4.9                                    | 4.0                                     | 8.0                                   |
| 11                                 | New Hard              | 4.7                                    | 5.0                                     | 7.7                                   |
| 12                                 | Bardur                | 4.7                                    | 3.3                                     | 6.7                                   |
| 13                                 | Heron                 | 4.6                                    | 4.3                                     | 7.3                                   |
| 14                                 | FL 54                 | 4.6                                    | 3.3                                     | 7.0                                   |
| 15                                 | 4HM-99 BS             | 4.6                                    | 3.3                                     | 8.0                                   |
| 16                                 | Syn 4CU-99            | 4.4                                    | 3.3                                     | 6.7                                   |
| 17                                 | SR 3100               | 4.4                                    | 4.7                                     | 7.3                                   |
| 18                                 | Syn 49th              | 4.4                                    | 4.0                                     | 6.7                                   |
| 19                                 | Discovery             | 4.3                                    | 1.0                                     | 7.7                                   |
| 20                                 | 4UB                   | 3.9                                    | 4.0                                     | 6.7                                   |
| 21                                 | Aurora Gold           | 3.7                                    | 1.0                                     | 6.7                                   |
| <b>SLENDER CREEPING RED FESCUE</b> |                       |  |   |                                       |
| 1                                  | New Slender           | 4.8                                    | 5.0                                     | 6.0                                   |
| 2                                  | Syn 4IT               | 4.8                                    | 2.7                                     | 6.7                                   |
| 3                                  | Barcrown              | 4.7                                    | 5.7                                     | 5.0                                   |
| 4                                  | Syn 453E              | 4.3                                    | 4.0                                     | 6.0                                   |
| <b>STRONG CREEPING RED FESCUE</b>  |                       |  |   |                                       |
| 1                                  | 4BBL                  | 5.9                                    | 4.0                                     | 7.7                                   |
| 2                                  | PK                    | 5.3                                    | 4.3                                     | 6.3                                   |
| 3                                  | Florentine            | 5.3                                    | 4.7                                     | 5.7                                   |
| 4                                  | Pathfinder            | 5.0                                    | 5.7                                     | 8.3                                   |
| 5                                  | Syn 4CRU              | 5.0                                    | 3.3                                     | 7.3                                   |

Table 6 (continued).

| Cultivar or Selection                         |                | Turf Quality <sup>1</sup><br>2000 Avg. | Establishment <sup>2</sup><br>Oct. 1999 | Dollar Spot <sup>3</sup><br>Oct. 2000 |
|---|----------------|--|---|---------------------------------------|
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                |  |   |                                       |
| 6   | Fenway         | 4.9                                    | 6.0                                     | 7.3                                   |
| 7   | 4FRR-99        | 4.8                                    | 5.3                                     | 6.3                                   |
| 8   | 4FR-99         | 4.8                                    | 3.0                                     | 5.3                                   |
| 9   | Syn 42RR       | 4.7                                    | 3.0                                     | 7.0                                   |
| 10  | 4676 comp      | 4.7                                    | 5.7                                     | 6.0                                   |
| 11  | Common Creeper | 4.7                                    | 6.0                                     | 6.3                                   |
| 12  | FLE comp       | 4.7                                    | 5.3                                     | 7.0                                   |
| 13  | DW 1           | 4.6                                    | 4.7                                     | 3.7                                   |
| 14  | EFL            | 4.6                                    | 5.0                                     | 6.7                                   |
| 15  | PSC comp       | 4.5                                    | 4.7                                     | 3.7                                   |
| 16  | New Strong     | 4.4                                    | 4.7                                     | 6.0                                   |
| 17  | TLS comp       | 4.4                                    | 4.0                                     | 5.0                                   |
| 18  | 47 TCL         | 4.2                                    | 4.0                                     | 6.0                                   |
| 19  | Syn 4VB3       | 4.1                                    | 3.7                                     | 6.0                                   |
| LSD at 5% =                                   |                | 1.3                                    | 1.0                                     | 1.8                                   |

<sup>1</sup>9 = best turf quality

<sup>2</sup>9 = best establishment

<sup>3</sup>9 = least dollar spot

Table 7. Performance of fine fescue cultivars and selections in a turf trial seeded in September 1999 at Adelphia, NJ. (Low-maintenance Test.)

|             | Cultivar or Selection | Species     | Turf Quality <sup>1</sup><br>2000 Avg. | Establishment <sup>2</sup><br>1999 |
|-------------|-----------------------|-------------|--|------------------------------------|
| 1           | New Hard              | Hard        | 7.0                                    | 6.7                                |
| 2           | LL 22                 | Hard        | 6.6                                    | 5.3                                |
| 3           | Heron                 | Hard        | 6.5                                    | 5.3                                |
| 4           | New Slender           | Slender cr. | 6.4                                    | 6.3                                |
| 5           | New Chewings          | Chewings    | 6.3                                    | 5.7                                |
| 6           | FC 51                 | Chewings    | 6.2                                    | 5.0                                |
| 7           | FL 54                 | Hard        | 6.1                                    | 5.0                                |
| 8           | Bridgeport            | Chewings    | 6.1                                    | 7.7                                |
| 9           | New Strong            | Strong cr.  | 5.8                                    | 6.3                                |
| 10          | Barcrown              | Slender cr. | 5.5                                    | 6.0                                |
| 11          | Barnica               | Chewings    | 5.4                                    | 4.7                                |
| 12          | Bargreen              | Chewings    | 5.2                                    | 5.3                                |
| 13          | MX-86A                | Sheeps      | 4.9                                    | 5.7                                |
| 14          | Bardur                | Hard        | 3.7                                    | 2.7                                |
| LSD at 5% = |                       |             | 0.6                                    | 0.8                                |

<sup>1</sup>9 = best turf quality

<sup>2</sup>9 = best establishment

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

|   | 1996           |                 | 1997 |     | 1998 |     | 1999 |     | 2000 |     |
|---|----------------|-----------------|------|-----|------|-----|------|-----|------|-----|
|   | N <sup>1</sup> | Ht <sup>2</sup> | N    | Ht  | N    | Ht  | N    | Ht  | N    | Ht  |
| Table 1 (1996 Adelphia) .....                       | 1.4            | 2.0             | 1.7  | 1.5 | 2.1  | 1.5 | 2.1  | 1.5 | 0.5  | 1.5 |
| Table 2 (1997 Adelphia) .....                       |                |                 | 1.4  | 1.5 | 2.6  | 1.5 | 1.9  | 1.5 | 1.5  | 1.5 |
| Table 3 (1998 Adelphia) .....                       |                |                 |      |     | 1.5  | 1.5 | 2.0  | 1.5 | 1.7  | 1.5 |
| Table 4 (1998 North Brunswick) .....                |                |                 |      |     | 1.5  | 3.0 | 1.0  | 3.0 | 1.9  | 1.5 |
| Table 5 (1998 Pittstown) .....                      |                |                 |      |     | 1.5  | 1.5 | 1.9  | 1.5 | 1.0  | 2.5 |
| Table 6 (1999 Adelphia) .....                       |                |                 |      |     |      |     |      |     | 1.7  | 1.5 |
| Table 7 (1999 Adelphia; low maintenance test) ..... |                |                 |      |     |      |     |      |     | 0    | 2.5 |

<sup>1</sup>Annual N applied (lb/1000 ft<sup>2</sup>)

<sup>2</sup>Mowing height in inches