

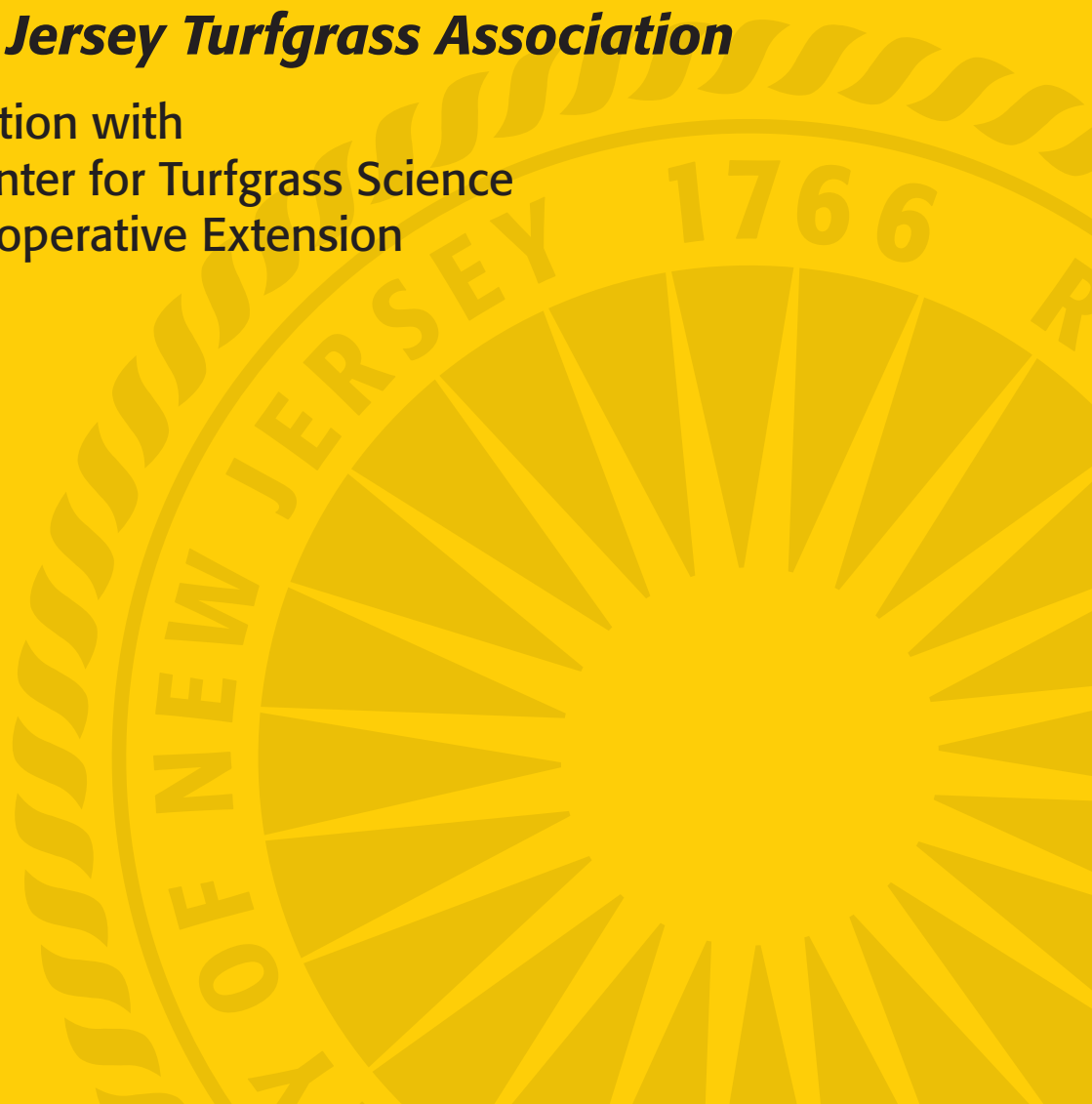
# RUTGERS

New Jersey Agricultural  
Experiment Station

## **2014 Turfgrass Proceedings**

***The New Jersey Turfgrass Association***

In Cooperation with  
Rutgers Center for Turfgrass Science  
Rutgers Cooperative Extension



# **2014 RUTGERS TURFGRASS PROCEEDINGS**

of the

## **GREEN EXPO Turf and Landscape Conference**

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**Borgata Hotel**

**Atlantic City, New Jersey**

The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public.

This publication includes lecture notes of papers presented at the 2014 GREEN EXPO Turf and Landscape Conference. Publication of these lectures provides a readily available source of information

covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

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

Special thanks are given to those who have submitted papers for this proceedings, to the New Jersey Turfgrass Association for financial assistance, and to Barbara Fitzgerald, Anne Diglio, and Ann Jenkins for administrative and secretarial support.

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

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

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The fine fescues (*Festuca* spp.) are a group of cool-season grasses that have distinct, fine-textured leaves. Compared to other cool-season grasses, the fine fescues are better adapted to cool, dry, and shaded environments. This species group is tolerant of infertile and acidic soils and drought conditions and exhibit the best performance under lower fertility levels. The fine fescues perform best in well drained soils and are not suited for saturated soil conditions (Murphy, 1996). In general, these grasses have poor heat tolerance and lack tolerance to excessive nitrogen fertilization during periods of high temperatures (Meyer and Funk, 1989).

There are many species and subspecies of fine fescue, but only six are generally used as turfgrasses. There are three subspecies of *F. rubra*: strong creeping red fescue (*F. rubra* L. *rubra*), slender creeping red fescue (*F. rubra* L. var. *littoralis* Vasey ex Beal), and Chewings fescue [*F. rubra* L. subsp. *fallax* (Thuill.) Nyman]. Both the strong creeping red and slender creeping red fescues are referred to as creeping red fescues because they spread by rhizomes. As the name infers, the strong creeping red fescues have a more aggressive spreading habit than slender creeping red fescues. Chewings fescue is a dense and low growing bunch type grass with the greatest tolerance to low mowing heights in comparison to the other fine fescues.

Hard fescue (*F. brevilipa* R. Tracey) is a bunch type grass that spreads by tillering. It has a dark green color and forms a dense cover. Compared to Chewings fescue, hard fescue is considered to be more tolerant of heat, drought, and low fertility. The species is widely used in many low maintenance situations due to increased disease resistance, even under low maintenance conditions.

Sheeps (*F. ovina* L.) and blue (*F. glauca* Vill.) fescues are the least widely used species of the fine fescues. They are bunch-type and have a wide variation in color from blue or green to a silvery-blue or silvery-green. These two species are rarely used in seed mixtures because of their color. They have a non-aggressive growth habit which makes them a good addition to wildflower mixes to aid in the prevention of erosion and to add an interesting color to the mix. These species are also becoming more popular in ornamental landscapes due to their color.

When heavily fertilized, fine fescues can become soft, succulent, and thatchy, which makes them more susceptible to diseases and summer stresses. A fertilizer rate of 1 to 2 lb nitrogen per 1000 ft<sup>2</sup> per year is ideal for fine fescues. The increasing demand for lower fertilizer and water usage makes fine fescues an option for use in certain situations to address some of these issues.

Many of the newer fine fescue cultivars contain a *Neotyphodium* endophyte that improves drought tolerance, resistance to above ground feeding insects, and in some cases, diseases. The presence of endophyte can reduce the need for chemical inputs normally used to treat for insects and diseases. *Neotyphodium* is a non-pathogenic fungus that grows intercellularly within the above-ground plant tissue. The beneficial effects of the endophyte are often very evident under stress conditions.

Although the Rutgers turfgrass breeding program has improved many of the characteristics desired for a superior fine fescue turf, further work is needed, particularly in the areas of disease and insect resistance and wear tolerance. Rutgers continues to cooperate with the National Turfgrass Evaluation Program

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(NTEP), which evaluates many cultivars, collections, and experimental selections for turf performance across a wide range of geographical locations.

## PROCEDURES

Five fine fescue turf trials were conducted at the Rutgers Biology and Pathology Research and Extension Station in Adelphia, NJ (Tables 1 to 5). All tests consisted of 3 x 5 ft plots. The fine fescues were sown at 3.7 lb per 1000 ft<sup>2</sup>.

Plots were replicated three times in a randomized complete block design. Tests were maintained at different fertility levels and mowing heights depending on the objectives of the test as well as the occurrence of disease or insects. Mowing height and fertilizer inputs of all tests are shown in Table 6. All tests (Tables 1 to 5) were treated with pre-emergent herbicides and broadleaf weed control. In addition, the trials were irrigated to prevent severe stress and were mowed frequently with rotary mowers to avoid excessive accumulation of clippings.

## EVALUATION

All tests were visually rated throughout the year on a scale of 1 to 9, where 9 represented the most desirable turf quality. Turf quality is a subjective characteristic that includes density, texture, color, growth habit, damage due to diseases or insects, and overall performance. Trials were rated monthly throughout the growing season for turf quality as well as for other characteristics including resistance to diseases such as red thread (caused by *Laetisaria fuciformis*) and leaf spot (caused by *Bipolaris*, *Drechslera*, and *Exserohilum* fungi). Plots were rated by different evaluators to help minimize personal biases towards a particular trait.

Data for all trials were statistically analyzed using analysis of variance, and means were separated using Fisher's protected least significant difference (LSD) means separation test. Results in Tables 1 to 4 are presented with selections grouped according to species and ranked according to the best overall turf performance (multiple-year quality average). Entries in Table 5 (seeded in 2013) are ranked, by species, according to the turf quality average in 2014.

Care should be used when drawing conclusions from some of these trials. First, these tests were

grown as monocultures in full sun. These conditions tend to cause different stresses that may not occur under other conditions. Second, the 2013 test (Table 5) was in its first year of evaluation. Some cultivars perform much differently during establishment than they do after a mature sod has developed.

## RESULTS AND DISCUSSION

### Turf Quality

As a group, the hard fescues were rated highest for average turf quality, followed closely by the Chewings and strong creeping fescues (Tables 1 to 5). For the hard fescues, the highest quality selections and cultivars were Predator, PSG 3J2921, TE1 Comp, BM2 Comp, H573 Comp, H572 Comp, AHF203, Firefly, 7H7 comp, 7H4 Comp, DA2 Comp, DA3 Comp, and DA1 Comp. The lowest quality hard fescues were Aurora Gold, Mp, SR3210, PSG 3CAN45, Eureka II, Soil Guard, Brigade, PST-SYN-4NOD, 5-12FF-5, and 5-12FF-8. The highest rated Chewings fescue selections and cultivars were Carson, CK2 Comp, C572 Comp, C571 Comp, ACF277, IS-FRC36, PPG-FRC 112, PSG 50C3, 7W2 comp, 7W3 Comp, and PPG-FRC 114. The lowest quality Chewings fescue were Sandpiper, SR 5100, PSG 5WSG4, PSG 5WSG1, PSG SPRS, Koket, PSG SDPR2, SDOC3, PST-4CHY, and Ambassador. The highest quality strong creeping red fescue selections and cultivars were PSG 5J1551, 3-10 Frr Bulk, 2-10 Frr Bulk, FRR 71, PPG-FRR 102, PPG-FRR106, 7C6 Comp, PSFC09-2, 7C5 Comp, 7C3 Comp, and Z13-01. The lowest quality strong creeping red fescue selections and cultivars were SR 5210, Cindy Lou, 4DEN, Custer FR-13, Boreal, SHSM, 07-1FF, and 5-12FF-4.

### Disease Resistance

Disease resistance within the fescue species can be quite variable. The performance of the entries in the 2012 trial (Table 4) includes ratings for red thread, which is a foliar disease that does not infect the crown and roots. Symptoms of this disease appear as circular patches of tan or pink turf. As a species the hard fescues were the least susceptible to red thread, whereas the strong creeping red fescues were most susceptible. The most resistant selections and cultivars were the hard fescues 7H7 comp and H573 comp and the Chewings fescues PSG 50C3 and 7W4 comp. The most susceptible selections and cultivars were the strong creeping red fescues FRR 103 and Audubon (Table 4). In general there was a

large range of susceptibility to red thread among the fine fescues.

The performance of the entries in the 2010 (Table 1) and 2012 (Table 4) trials includes ratings for leaf spot (caused by *Bipolaris sorokiniana*). Leaf spot appears as dark lesions that girdle leaf blades and sheathes, causing yellowing and dieback from tip. This disease can result in severe thinning of the turf. In general, the hard and Chewings fescues were the most resistant to leaf spot, while the strong creeping red fescues were the most susceptible. The most tolerant selections and cultivars to leaf spot were Lot 08-4, Firefly, SR 3150, 4NY, PSG 50C3, 7W4 comp, and 7H7 comp, whereas the most susceptible selections and cultivars were FT1 Comp, OR C1-5, Navigator, 4CRD-P, 4RED, B-RS-G, and Oracle (Tables 1 and 4).

### SUMMARY

Overall, it is encouraging to see that many of the higher-ranking fine fescues within all species are new experimental selections. Although advances in breeding efforts continue, there is still need for considerable improvement in resistance to red thread and summer patch (particularly in the hard fescues), and increased seed production.

One little-studied area that could make a significant impact on the use of fine fescues in a wider array of situations is the improvement of wear tolerance,

particularly under drought stress conditions. Breeding efforts at Rutgers continue in an effort to develop high quality turfgrasses with the ability to make a great environmental impact with minimal environmental cost.

### ACKNOWLEDGMENTS

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- Murphy, J. A. 1996. Fine fescues: low-maintenance species for turf. Rutgers Cooperative Research and Extension FS688.

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2010 at Adelphia, NJ.

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |              |              |              |              | Leaf Spot <sup>2</sup><br>June 2014 |
|------------------------|--------------------------------------|--------------|--------------|--------------|--------------|-------------------------------------|
|                        | 2011-<br>2014<br>Avg.                | 2011<br>Avg. | 2012<br>Avg. | 2013<br>Avg. | 2014<br>Avg. |                                     |
| <b>CHEWINGS FESCUE</b> |                                      |              |              |              |              |                                     |
| 1 Carson               | 5.7                                  | 6.2          | 6.0          | 5.9          | 4.7          | 5.0                                 |
| 2 CK2 Comp             | 5.6                                  | 5.9          | 6.3          | 6.1          | 4.2          | 5.0                                 |
| 3 Lot 08-4             | 5.4                                  | 5.2          | 5.6          | 5.7          | 5.0          | 7.0                                 |
| 4 OC1                  | 5.3                                  | 5.7          | 6.1          | 5.3          | 4.0          | 4.0                                 |
| 5 Lot 08-5             | 5.3                                  | 5.4          | 5.6          | 5.5          | 4.6          | 5.7                                 |
| 6 CK1 Comp             | 5.1                                  | 5.2          | 5.5          | 5.4          | 4.5          | 4.7                                 |
| 7 SR 5130              | 5.1                                  | 5.3          | 5.8          | 5.5          | 4.0          | 5.0                                 |
| 8 MVS-FRC 101          | 5.1                                  | 5.8          | 6.1          | 4.8          | 3.8          | 4.3                                 |
| 9 ACF 266              | 5.1                                  | 5.4          | 5.6          | 4.9          | 4.4          | 5.0                                 |
| 10 PPG-FRC 103         | 5.0                                  | 5.3          | 5.0          | 5.3          | 4.5          | 3.7                                 |
| 11 PSG 50C3            | 5.0                                  | 5.6          | 5.4          | 4.6          | 4.3          | 5.7                                 |
| 12 Intrigue 2          | 4.9                                  | 5.2          | 5.3          | 4.8          | 4.2          | 5.7                                 |
| 13 Intrigue            | 4.8                                  | 5.4          | 5.0          | 5.0          | 3.9          | 4.3                                 |
| 14 Compass             | 4.8                                  | 4.7          | 5.4          | 5.2          | 4.0          | 3.3                                 |
| 15 PST-Syn-4WSH        | 4.8                                  | 4.7          | 5.1          | 5.1          | 4.2          | 5.0                                 |
| 16 Longfellow II       | 4.8                                  | 4.6          | 5.2          | 5.3          | 4.0          | 4.7                                 |
| 17 Ambassador          | 4.8                                  | 4.7          | 4.9          | 5.0          | 4.4          | 4.7                                 |
| 18 7 Seas              | 4.7                                  | 4.9          | 5.2          | 4.7          | 4.1          | 4.3                                 |
| 19 Syn-4CH20-10        | 4.7                                  | 5.0          | 5.0          | 4.8          | 4.1          | 5.0                                 |
| 20 Treazure II         | 4.7                                  | 5.3          | 5.3          | 4.5          | 3.8          | 5.3                                 |
| 21 1-10 Frc Bulk       | 4.6                                  | 4.8          | 4.7          | 4.7          | 4.3          | 6.0                                 |
| 22 J-5                 | 4.6                                  | 4.6          | 4.8          | 4.7          | 4.1          | 5.3                                 |
| 23 Culumbra II         | 4.5                                  | 4.7          | 4.4          | 4.8          | 4.1          | 4.3                                 |
| 24 4CHT                | 4.5                                  | 4.3          | 4.5          | 4.5          | 4.5          | 4.0                                 |
| 25 Shadow II           | 4.4                                  | 4.1          | 4.4          | 4.6          | 4.7          | 4.3                                 |
| 26 Silhouette          | 4.3                                  | 4.1          | 4.4          | 4.9          | 3.6          | 4.0                                 |
| 27 Heathland           | 4.3                                  | 4.6          | 5.2          | 4.1          | 3.2          | 5.0                                 |
| 28 Ambrose             | 4.2                                  | 4.5          | 4.4          | 4.2          | 3.8          | 4.7                                 |
| 29 4CHY                | 4.1                                  | 3.8          | 4.5          | 4.3          | 3.9          | 6.0                                 |
| 30 Tiffany             | 4.1                                  | 4.0          | 4.3          | 4.1          | 3.9          | 4.7                                 |
| 31 CW1                 | 4.1                                  | 5.0          | 3.5          | 3.6          | 4.3          | 4.0                                 |
| 32 Sandpiper           | 3.9                                  | 3.8          | 3.9          | 4.3          | 3.5          | 5.0                                 |
| 33 SR 5100             | 3.9                                  | 3.5          | 4.0          | 4.2          | 3.8          | 4.7                                 |

(Continued)

Table 1. Fine fescue turf trial, 2010 (continued).

| Cultivar or Selection             | -----Turf Quality <sup>1</sup> ----- |              |              |              |              | Leaf Spot <sup>2</sup><br>June 2014 |
|-----------------------------------|--------------------------------------|--------------|--------------|--------------|--------------|-------------------------------------|
|                                   | 2011-<br>2014<br>Avg.                | 2011<br>Avg. | 2012<br>Avg. | 2013<br>Avg. | 2014<br>Avg. |                                     |
| <b>HARD FESCUE</b>                |                                      |              |              |              |              |                                     |
| 1 Predator                        | 5.5                                  | 5.8          | 6.2          | 6.0          | 4.2          | 6.7                                 |
| 2 PSG 3J2921                      | 5.5                                  | 5.8          | 6.5          | 5.5          | 4.2          | 5.3                                 |
| 3 TE1 Comp                        | 5.5                                  | 5.7          | 6.4          | 5.7          | 4.2          | 6.0                                 |
| 4 BM2 Comp                        | 5.5                                  | 6.0          | 6.3          | 6.0          | 3.6          | 5.0                                 |
| 5 BM1 Comp                        | 5.4                                  | 5.7          | 6.4          | 5.7          | 3.9          | 5.7                                 |
| 6 Firefly                         | 5.4                                  | 5.7          | 6.0          | 5.9          | 3.9          | 7.0                                 |
| 7 TE2 Comp                        | 5.3                                  | 5.4          | 6.0          | 5.8          | 4.0          | 6.3                                 |
| 8 Berkshire                       | 5.3                                  | 5.4          | 6.2          | 5.6          | 3.9          | 5.3                                 |
| 9 Reliant IV                      | 5.0                                  | 5.8          | 5.8          | 5.0          | 3.6          | 6.0                                 |
| 10 S2SE+                          | 5.0                                  | 5.6          | 5.7          | 5.3          | 3.6          | 6.0                                 |
| 11 SR 3150                        | 4.9                                  | 4.9          | 5.4          | 5.3          | 4.0          | 7.0                                 |
| 12 Oxford                         | 4.9                                  | 4.8          | 5.7          | 5.2          | 4.0          | 6.3                                 |
| 13 PSG 3TH3                       | 4.9                                  | 5.4          | 6.0          | 4.8          | 3.2          | 6.0                                 |
| 14 Nordic                         | 4.9                                  | 4.9          | 5.4          | 5.1          | 4.1          | 6.3                                 |
| 15 4NY                            | 4.7                                  | 4.9          | 5.2          | 5.1          | 3.8          | 7.0                                 |
| 16 Rescue 911                     | 4.5                                  | 4.3          | 4.7          | 5.0          | 4.0          | 6.7                                 |
| 17 Spartan                        | 4.2                                  | 3.8          | 4.4          | 4.5          | 4.0          | 4.3                                 |
| 18 Aurora II                      | 4.2                                  | 4.1          | 4.5          | 4.4          | 3.7          | 5.0                                 |
| 19 Aurora Gold                    | 4.0                                  | 4.0          | 4.3          | 4.1          | 3.7          | 4.0                                 |
| 20 Mp                             | 2.2                                  | 1.2          | 1.5          | 2.6          | 3.5          | 3.3                                 |
| <b>STRONG CREEPING RED FESCUE</b> |                                      |              |              |              |              |                                     |
| 1 PSG 5J1551                      | 5.5                                  | 6.0          | 6.1          | 5.7          | 4.3          | 3.0                                 |
| 2 3-10 Frr Bulk                   | 5.5                                  | 6.1          | 5.7          | 5.6          | 4.7          | 5.3                                 |
| 3 2-10 Frr Bulk                   | 5.5                                  | 6.0          | 5.8          | 5.7          | 4.5          | 5.0                                 |
| 4 PST-Syn-4BED                    | 5.4                                  | 5.3          | 6.1          | 5.7          | 4.5          | 3.7                                 |
| 5 FT3 Comp                        | 5.3                                  | 5.4          | 5.6          | 5.8          | 4.5          | 3.7                                 |
| 6 FT6 Comp                        | 5.3                                  | 5.4          | 5.5          | 5.5          | 4.9          | 2.7                                 |
| 7 OS3                             | 5.3                                  | 5.9          | 5.6          | 5.5          | 4.0          | 6.7                                 |
| 8 FT2 Comp                        | 5.1                                  | 5.3          | 5.7          | 5.3          | 4.0          | 2.7                                 |
| 9 FT7 Comp                        | 5.1                                  | 5.7          | 4.8          | 5.4          | 4.4          | 4.0                                 |
| 10 4GRY                           | 4.8                                  | 4.9          | 5.3          | 4.9          | 4.2          | 3.0                                 |

(Continued)

Table 1. Fine fescue turf trial, 2010 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |              |              |              |              | Leaf Spot <sup>2</sup><br>June 2014 |
|---|--------------------------------------|--------------|--------------|--------------|--------------|-------------------------------------|
|   | 2011-<br>2014<br>Avg.                | 2011<br>Avg. | 2012<br>Avg. | 2013<br>Avg. | 2014<br>Avg. |                                     |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |              |              |              |              |                                     |
| 11 FT5 Comp                                   | 4.8                                  | 5.0          | 4.7          | 4.7          | 4.7          | 3.3                                 |
| 12 PSG 5RM                                    | 4.8                                  | 6.5          | 4.1          | 4.6          | 4.0          | 4.7                                 |
| 13 Syn-4ED0                                   | 4.8                                  | 5.4          | 5.1          | 4.7          | 3.8          | 3.0                                 |
| 14 OS2  | 4.8                                  | 6.0          | 4.0          | 4.7          | 4.3          | 4.7                                 |
| 15 FT4 Comp                                   | 4.7                                  | 4.8          | 4.8          | 5.0          | 4.3          | 4.3                                 |
| 16 OR C1-6                                    | 4.7                                  | 5.4          | 4.3          | 4.9          | 4.2          | 3.7                                 |
| 17 OR1  | 4.6                                  | 5.7          | 4.0          | 4.8          | 4.1          | 3.3                                 |
| 18 FT1 Comp                                   | 4.6                                  | 5.4          | 4.6          | 4.3          | 4.1          | 2.3                                 |
| 19 PSG 5RJ5L                                  | 4.5                                  | 5.7          | 4.1          | 4.1          | 4.3          | 4.7                                 |
| 20 Shademaster III                            | 4.5                                  | 4.8          | 4.8          | 4.4          | 3.9          | 3.0                                 |
| 21 Jasper II                                  | 4.5                                  | 5.5          | 4.0          | 4.4          | 4.0          | 3.7                                 |
| 22 Cardinal                                   | 4.4                                  | 5.2          | 4.1          | 4.4          | 3.9          | 2.7                                 |
| 23 PSG 5RJE                                   | 4.4                                  | 5.2          | 3.9          | 4.5          | 4.0          | 4.0                                 |
| 24 PPG-FRR 103                                | 4.3                                  | 4.9          | 4.5          | 4.0          | 3.9          | 3.0                                 |
| 25 4RED                                       | 4.3                                  | 4.3          | 5.1          | 4.3          | 3.5          | 2.0                                 |
| 26 Jamestown IV                               | 4.2                                  | 4.4          | 4.5          | 4.5          | 3.6          | 4.3                                 |
| 27 Garnet                                     | 4.2                                  | 5.1          | 3.6          | 3.9          | 3.9          | 4.0                                 |
| 28 Lustrous                                   | 4.1                                  | 4.9          | 4.0          | 3.7          | 3.8          | 3.0                                 |
| 29 OR C1-2                                    | 4.1                                  | 5.1          | 3.7          | 3.8          | 3.8          | 4.0                                 |
| 30 SR 5250                                    | 4.1                                  | 4.6          | 4.0          | 4.0          | 3.8          | 3.7                                 |
| 31 Epic                                       | 4.0                                  | 4.8          | 3.6          | 3.7          | 4.0          | 3.7                                 |
| 32 Syn-4SPY                                   | 4.0                                  | 4.3          | 4.4          | 3.8          | 3.5          | 3.3                                 |
| 33 Audubon                                    | 4.0                                  | 4.4          | 3.9          | 3.8          | 3.8          | 3.0                                 |
| 34 Fortitude                                  | 3.9                                  | 4.1          | 3.8          | 3.8          | 4.0          | 2.7                                 |
| 35 Custer                                     | 3.9                                  | 4.9          | 3.7          | 3.5          | 3.4          | 3.3                                 |
| 36 Razor                                      | 3.9                                  | 4.8          | 3.8          | 3.6          | 3.3          | 3.0                                 |
| 37 OR C1-5                                    | 3.9                                  | 3.7          | 4.1          | 3.6          | 4.0          | 2.3                                 |
| 38 4CRD-8                                     | 3.8                                  | 5.1          | 3.0          | 3.6          | 3.6          | 3.0                                 |
| 39 Aberdeen                                   | 3.8                                  | 4.2          | 3.6          | 3.9          | 3.5          | 3.7                                 |
| 40 BRSDT                                      | 3.7                                  | 3.3          | 3.9          | 4.2          | 3.5          | 4.0                                 |
| 41 Navigator                                  | 3.7                                  | 3.9          | 4.1          | 3.4          | 3.5          | 2.3                                 |
| 42 Pathfinder                                 | 3.7                                  | 4.1          | 3.5          | 3.7          | 3.5          | 2.7                                 |
| 43 Tiara                                      | 3.7                                  | 4.4          | 3.4          | 3.5          | 3.3          | 3.0                                 |
| 44 4CRD-P                                     | 3.6                                  | 4.2          | 3.4          | 3.3          | 3.6          | 2.3                                 |
| 45 OR C1-1                                    | 3.4                                  | 2.9          | 3.7          | 3.1          | 3.7          | 3.0                                 |

(Continued)



Table 1. Fine fescue turf trial, 2010 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |              |              |              |              | Leaf Spot <sup>2</sup><br>June 2014 |
|---|--------------------------------------|--------------|--------------|--------------|--------------|-------------------------------------|
|   | 2011-<br>2014<br>Avg.                | 2011<br>Avg. | 2012<br>Avg. | 2013<br>Avg. | 2014<br>Avg. |                                     |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |              |              |              |              |                                     |
| 46 OR C1-3                                    | 3.4                                  | 3.2          | 3.9          | 3.1          | 3.3          | 3.0                                 |
| 47 OR C1-4                                    | 3.3                                  | 2.9          | 3.6          | 3.2          | 3.6          | 2.7                                 |
| 48 SR 52961                                   | 3.3                                  | 2.6          | 3.1          | 3.5          | 3.7          | 3.3                                 |
| 49 BRSHSM                                     | 3.2                                  | 2.7          | 3.5          | 3.3          | 3.5          | 3.3                                 |
| 50 BRSHST                                     | 3.2                                  | 2.8          | 3.4          | 3.1          | 3.4          | 3.3                                 |
| 51 07-1FF                                     | 2.9                                  | 1.9          | 3.1          | 2.9          | 3.8          | 3.7                                 |
| 52 Boreal                                     | 2.9                                  | 2.4          | 3.1          | 2.8          | 3.2          | 4.0                                 |
| 53 SR 5210                                    | 2.8                                  | 2.9          | 2.9          | 2.3          | 2.9          | 2.7                                 |
| 54 Cindy Lou                                  | 2.7                                  | 1.6          | 2.7          | 2.8          | 3.6          | 3.7                                 |
| <b>BLENDS</b>                                 |                                      |              |              |              |              |                                     |
| 1 SCFF2                                       | 4.9                                  | 5.2          | 5.2          | 5.1          | 4.2          | 5.3                                 |
| 2 SCFF1                                       | 4.8                                  | 4.4          | 5.3          | 5.3          | 4.0          | 6.0                                 |
| 3 SCFF4                                       | 4.6                                  | 4.8          | 4.9          | 4.7          | 4.0          | 5.3                                 |
| 4 SCFF3                                       | 3.9                                  | 3.8          | 4.3          | 4.4          | 3.3          | 5.0                                 |
| <b>SHEEPS FESCUE</b>                          |                                      |              |              |              |              |                                     |
| 1 Big Horn GT                                 | 3.8                                  | 3.9          | 4.3          | 3.8          | 3.3          | 6.3                                 |
| 2 Little Bighorn                              | 3.4                                  | 3.4          | 3.6          | 3.3          | 3.2          | 6.0                                 |
| 3 Azure                                       | 3.1                                  | 3.6          | 3.2          | 2.7          | 3.0          | 6.0                                 |
| <b>SLENDER CREEPING RED FESCUE</b>            |                                      |              |              |              |              |                                     |
| 1 4SEA  | 3.6                                  | 4.3          | 3.7          | 3.5          | 3.1          | 5.3                                 |
| 2 ASR050                                      | 3.6                                  | 4.6          | 3.4          | 3.0          | 3.4          | 4.0                                 |
| 3 Shoreline                                   | 3.6                                  | 4.1          | 3.7          | 3.3          | 3.1          | 5.7                                 |
| 4 Seabreeze GT                                | 3.6                                  | 4.4          | 3.1          | 3.6          | 3.1          | 5.3                                 |
| <b>BLUE FESCUE</b>                            |                                      |              |              |              |              |                                     |
| 1 SR 3210                                     | 2.7                                  | 3.3          | 2.5          | 2.6          | 2.5          | 3.3                                 |
| LSD at 5% =                                   | 0.6                                  | 0.8          | 0.8          | 0.9          | 0.8          | 1.9                                 |

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

<sup>2</sup>9 = least disease

Table 2. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2011 at Adelphia, NJ.

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |           |           |           |
|------------------------|--------------------------------------|-----------|-----------|-----------|
|                        | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |
| <b>HARD FESCUE</b>     |                                      |           |           |           |
| 1 H573 Comp            | 5.9                                  | 6.2       | 6.2       | 5.2       |
| 2 H572 Comp            | 5.8                                  | 5.9       | 6.6       | 5.0       |
| 3 H575 Comp            | 5.6                                  | 6.2       | 5.9       | 4.6       |
| 4 H571 Comp            | 5.5                                  | 6.1       | 6.0       | 4.3       |
| 5 H574 Comp            | 5.5                                  | 6.1       | 5.8       | 4.4       |
| 6 MNHDF-11             | 5.1                                  | 5.5       | 5.3       | 4.5       |
| 7 SR 3150              | 5.0                                  | 5.5       | 5.6       | 3.9       |
| 8 Predator             | 5.0                                  | 5.6       | 5.0       | 4.3       |
| 9 Oxford               | 4.9                                  | 4.8       | 5.6       | 4.2       |
| 10 Reliant IV          | 4.8                                  | 5.2       | 5.2       | 4.0       |
| 11 Blue Ray            | 4.5                                  | 5.3       | 5.2       | 3.0       |
| 12 4DON                | 4.3                                  | 4.2       | 4.8       | 3.9       |
| 13 Rhino               | 4.3                                  | 4.2       | 4.4       | 4.3       |
| 14 Ecostar             | 4.1                                  | 3.7       | 4.4       | 4.2       |
| 15 Rescue 911          | 4.0                                  | 3.8       | 4.5       | 3.8       |
| 16 PSG 3CAN1           | 3.2                                  | 3.5       | 3.1       | 3.1       |
| 17 Syn-4GUD            | 3.1                                  | 2.9       | 4.1       | 2.2       |
| 18 SR3210              | 3.0                                  | 3.2       | 3.4       | 2.3       |
| 19 PSG 3CAN45          | 2.7                                  | 2.5       | 3.4       | 2.2       |
| <b>CHEWINGS FESCUE</b> |                                      |           |           |           |
| 1 C572 Comp            | 5.2                                  | 5.7       | 5.2       | 4.8       |
| 2 C571 Comp            | 5.1                                  | 5.0       | 5.6       | 4.7       |
| 3 RAD-FC32             | 4.9                                  | 5.8       | 4.5       | 4.5       |
| 4 RAD-FC44             | 4.9                                  | 5.8       | 4.3       | 4.6       |
| 5 FRC 36               | 4.9                                  | 6.0       | 4.5       | 4.1       |
| 6 FRC 41               | 4.8                                  | 5.5       | 4.9       | 4.1       |
| 7 FRC 42               | 4.7                                  | 4.9       | 5.1       | 4.0       |
| 8 SR 5130              | 4.6                                  | 5.3       | 4.4       | 4.0       |
| 9 Longfellow II        | 4.6                                  | 4.8       | 4.5       | 4.4       |
| 10 Longfellow 3        | 4.6                                  | 5.1       | 4.4       | 4.2       |

(Continued)

Table 2. Fine fescue turf trial, 2011 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|------------------------------------|--------------------------------------|-----------|-----------|-----------|-----|
|                                    | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |     |
| <b>CHEWINGS FESCUE (continued)</b> |                                      |           |           |           |     |
| 11                                 | OC1                                  | 4.5       | 5.2       | 4.0       | 4.3 |
| 12                                 | FRC 30E+                             | 4.5       | 5.0       | 4.4       | 4.0 |
| 13                                 | FRC 34E+                             | 4.5       | 5.3       | 4.3       | 3.8 |
| 14                                 | PSG 5TPC2                            | 4.4       | 4.4       | 4.9       | 4.1 |
| 15                                 | Radar                                | 4.4       | 5.2       | 4.4       | 3.6 |
| 16                                 | 7 Seas                               | 4.4       | 4.6       | 4.5       | 4.0 |
| 17                                 | FRC 37                               | 4.3       | 5.3       | 3.9       | 3.6 |
| 18                                 | Wrigley 2                            | 4.2       | 4.3       | 4.4       | 4.0 |
| 19                                 | Carson                               | 4.2       | 5.1       | 3.9       | 3.8 |
| 20                                 | Jamestown IV                         | 4.0       | 4.3       | 4.1       | 3.8 |
| 21                                 | Shadow II                            | 4.0       | 4.2       | 4.1       | 3.7 |
| 22                                 | PSG 5TPC1                            | 4.0       | 3.6       | 4.2       | 4.1 |
| 23                                 | Syn-4SWT                             | 4.0       | 4.9       | 3.6       | 3.4 |
| 24                                 | Ambassador                           | 4.0       | 4.3       | 4.1       | 3.5 |
| 25                                 | Ambrose                              | 3.9       | 4.2       | 3.5       | 4.0 |
| 26                                 | J-5                                  | 3.9       | 3.9       | 3.9       | 3.8 |
| 27                                 | SR 5100                              | 3.8       | 3.6       | 4.3       | 3.6 |
| 28                                 | Columbra II                          | 3.8       | 4.2       | 3.7       | 3.4 |
| 29                                 | ACF 266 (Survivor)                   | 3.7       | 4.3       | 3.6       | 3.2 |
| 30                                 | Shadow III                           | 3.6       | 3.8       | 3.9       | 3.0 |
| 31                                 | PSG 5WSG5                            | 3.5       | 3.8       | 3.6       | 3.1 |
| 32                                 | Miser                                | 3.5       | 4.5       | 2.4       | 3.5 |
| 33                                 | Silhouette                           | 3.3       | 2.9       | 3.9       | 3.1 |
| 34                                 | PSG 5WSG4                            | 3.1       | 3.6       | 2.7       | 3.1 |
| 35                                 | PSG 5WSG1                            | 2.5       | 2.9       | 2.0       | 2.6 |
| <b>STRONG CREEPING RED FESCUE</b>  |                                      |           |           |           |     |
| 1                                  | FRR 71                               | 5.1       | 5.8       | 5.0       | 4.4 |
| 2                                  | PPG-FRR 102                          | 5.1       | 5.7       | 4.9       | 4.5 |
| 3                                  | FRR 70                               | 4.9       | 5.3       | 4.8       | 4.5 |
| 4                                  | S573 Comp                            | 4.8       | 5.3       | 4.5       | 4.6 |
| 5                                  | PPG-FRR 106                          | 4.8       | 4.6       | 5.4       | 4.3 |

(Continued)

Table 2. Fine fescue turf trial, 2011 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|---|--------------------------------------|-----------|-----------|-----------|-----|
|   | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |     |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |           |           |           |     |
| 6   | Syn-4DMH                             | 4.6       | 5.2       | 4.5       | 4.0 |
| 7   | Syn-R4U9                             | 4.6       | 5.1       | 4.4       | 4.2 |
| 8   | S571 Comp                            | 4.5       | 5.6       | 3.9       | 4.0 |
| 9   | Syn-4SP11                            | 4.5       | 4.2       | 5.2       | 3.9 |
| 10  | S572 Comp                            | 4.5       | 5.4       | 3.6       | 4.3 |
| 11  | 4DRE                                 | 4.3       | 4.7       | 4.2       | 4.1 |
| 12  | PPG-FRR 105                          | 4.3       | 4.6       | 4.1       | 4.1 |
| 13  | ASC 295                              | 4.2       | 5.2       | 3.7       | 3.7 |
| 14  | RAD-FR35                             | 4.1       | 4.7       | 3.7       | 3.9 |
| 15  | FRR 65 B                             | 4.0       | 5.4       | 2.8       | 3.9 |
| 16  | FRR 68 B                             | 3.9       | 5.0       | 3.1       | 3.7 |
| 17  | RAD-FR38                             | 3.9       | 4.9       | 2.8       | 3.8 |
| 18  | FRR 67 B                             | 3.8       | 5.3       | 2.8       | 3.4 |
| 19  | Navigator II                         | 3.8       | 4.8       | 2.8       | 3.8 |
| 20  | Pathfinder                           | 3.8       | 4.5       | 3.2       | 3.7 |
| 21  | Epic                                 | 3.7       | 5.0       | 2.9       | 3.3 |
| 22  | RAD-FR33                             | 3.6       | 4.8       | 3.0       | 3.1 |
| 23  | Chantilly                            | 3.6       | 4.9       | 2.5       | 3.3 |
| 24  | Rosecity                             | 3.6       | 4.7       | 2.7       | 3.3 |
| 25  | Razor                                | 3.6       | 4.5       | 2.8       | 3.4 |
| 26  | SR 5250                              | 3.6       | 4.1       | 2.9       | 3.6 |
| 27  | Garnet                               | 3.5       | 3.9       | 3.1       | 3.5 |
| 28  | Cindy Lou                            | 3.5       | 4.1       | 3.1       | 3.3 |
| 29  | Class One                            | 3.4       | 3.4       | 3.4       | 3.5 |
| 30  | Audubon                              | 3.4       | 3.6       | 3.1       | 3.4 |
| 31  | Crossbow                             | 3.2       | 3.3       | 3.2       | 3.2 |
| 32  | RASD-FR45                            | 3.2       | 4.4       | 2.3       | 2.9 |
| 33  | Lustrous                             | 3.2       | 3.7       | 2.7       | 3.2 |
| 34  | 4DEN                                 | 3.2       | 3.7       | 2.9       | 3.0 |
| 35  | Custer FR-13                         | 3.1       | 4.2       | 2.5       | 2.6 |
| <b>SLENDER CREEPING RED FESCUE</b>            |                                      |           |           |           |     |
| 1   | SSC Comp                             | 4.5       | 5.0       | 4.8       | 3.8 |
| 2   | Shoreline                            | 4.1       | 4.7       | 3.8       | 3.8 |
| 3   | ASR50                                | 3.9       | 5.0       | 3.3       | 3.5 |

(Continued)

Table 2. Fine fescue turf trial, 2011 (continued).

| Cultivar or Selection | -----Turf Quality <sup>1</sup> ----- |           |           |           |
|-----------------------|--------------------------------------|-----------|-----------|-----------|
|                       | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |
| <b>SHEEPS FESCUE</b>  |                                      |           |           |           |
| 1 Marco Polo          | 4.4                                  | 4.4       | 5.1       | 3.8       |
| 2 Azure               | 3.3                                  | 3.2       | 3.9       | 2.9       |
| LSD at 5% =           | 0.5                                  | 0.8       | 0.6       | 0.7       |

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

Table 3. Performance of fine fescue cultivars and selections from the 2011 Cooperative Turfgrass Breeders Test (CTBT) Fine Fescue Trial seeded in September 2011 at Adelphia, NJ.

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |           |           |           |
|------------------------|--------------------------------------|-----------|-----------|-----------|
|                        | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |
| <b>HARD FESCUE</b>     |                                      |           |           |           |
| 1 AHF203               | 5.7                                  | 6.7       | 6.2       | 4.3       |
| 2 Firefly              | 5.7                                  | 6.6       | 5.7       | 4.6       |
| 3 IS-FL47              | 5.4                                  | 5.9       | 6.3       | 4.1       |
| 4 IS-FL46              | 5.4                                  | 5.9       | 5.7       | 4.7       |
| 5 Spartan II           | 5.4                                  | 6.1       | 5.8       | 4.3       |
| 6 AHF181               | 5.4                                  | 5.4       | 5.8       | 4.9       |
| 7 Beacon               | 5.3                                  | 6.2       | 5.7       | 3.9       |
| 8 AHF204               | 5.3                                  | 6.1       | 5.3       | 4.4       |
| 9 S2SE                 | 5.2                                  | 5.9       | 5.4       | 4.2       |
| 10 AHF177              | 5.1                                  | 5.9       | 5.4       | 4.1       |
| 11 IS-FL50             | 5.1                                  | 5.6       | 5.4       | 4.3       |
| 12 4HES                | 5.1                                  | 6.0       | 5.2       | 4.0       |
| 13 SR 3150             | 5.1                                  | 5.8       | 5.7       | 3.7       |
| 14 3TH3                | 5.1                                  | 5.6       | 5.5       | 4.1       |
| 15 IS-FL48             | 4.9                                  | 5.5       | 5.0       | 4.1       |
| 16 AHF188              | 4.8                                  | 5.8       | 5.1       | 3.6       |
| 17 4NY                 | 4.8                                  | 5.2       | 5.2       | 4.1       |
| 18 4BIL                | 4.7                                  | 5.4       | 4.9       | 3.7       |
| 19 3J2927              | 4.7                                  | 5.7       | 4.6       | 3.7       |
| 20 Blue Ray            | 4.6                                  | 5.5       | 5.2       | 3.1       |
| 21 Eureka II           | 4.3                                  | 4.1       | 5.1       | 3.9       |
| 22 Soil Guard          | 4.3                                  | 4.7       | 4.4       | 3.7       |
| <b>CHEWINGS FESCUE</b> |                                      |           |           |           |
| 1 ACF277               | 5.5                                  | 6.7       | 5.3       | 4.4       |
| 2 IS-FRC36             | 5.3                                  | 6.4       | 5.3       | 4.2       |
| 3 ACF283               | 5.1                                  | 5.6       | 5.3       | 4.4       |
| 4 Intrigue 2           | 5.0                                  | 5.7       | 5.2       | 4.3       |
| 5 Radar                | 5.0                                  | 6.1       | 4.6       | 4.2       |
| 6 PPG-FRC103           | 5.0                                  | 5.7       | 5.0       | 4.3       |
| 7 50C3                 | 4.9                                  | 6.5       | 4.7       | 3.7       |
| 8 ACF261               | 4.8                                  | 5.6       | 4.6       | 4.3       |
| 9 Wrigley 2            | 4.8                                  | 5.2       | 5.2       | 4.0       |
| 10 Heathland           | 4.8                                  | 5.4       | 5.0       | 3.9       |

(Continued)

Table 3. Fine fescue turf trial, 2011, CTBT (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|------------------------------------|--------------------------------------|-----------|-----------|-----------|-----|
|                                    | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |     |
| <b>CHEWINGS FESCUE (continued)</b> |                                      |           |           |           |     |
| 11                                 | IS-FRC37                             | 4.8       | 5.5       | 4.8       | 4.0 |
| 12                                 | FC 09-2                              | 4.6       | 5.3       | 4.7       | 3.8 |
| 13                                 | ACF278                               | 4.6       | 5.6       | 4.3       | 3.9 |
| 14                                 | 4CHT                                 | 4.5       | 4.7       | 5.2       | 3.8 |
| 15                                 | ACF266                               | 4.5       | 5.7       | 4.4       | 3.5 |
| 16                                 | Longfellow III                       | 4.5       | 4.9       | 4.7       | 3.9 |
| 17                                 | ACF256                               | 4.5       | 5.2       | 4.2       | 4.0 |
| 18                                 | Longfellow II                        | 4.5       | 5.3       | 4.4       | 3.8 |
| 19                                 | Culumbra II                          | 4.4       | 5.2       | 4.2       | 3.9 |
| 20                                 | Enchantment                          | 4.2       | 4.9       | 3.9       | 3.9 |
| 21                                 | PST-4C30D                            | 4.1       | 4.8       | 4.2       | 3.2 |
| 22                                 | 4CHY                                 | 4.0       | 5.0       | 4.0       | 3.0 |
| 23                                 | 4SHR-CH                              | 4.0       | 4.0       | 4.3       | 3.6 |
| 24                                 | 4CRD-U                               | 3.8       | 4.6       | 3.1       | 3.7 |
| 25                                 | PSG SPRS                             | 3.7       | 3.5       | 4.4       | 3.1 |
| 26                                 | Koket                                | 3.6       | 3.2       | 4.1       | 3.5 |
| <b>STRONG CREEPING RED FESCUE</b>  |                                      |           |           |           |     |
| 1                                  | PPG-FRR102                           | 5.4       | 6.2       | 5.3       | 4.7 |
| 2                                  | PPG-FRR106                           | 5.1       | 5.1       | 5.4       | 4.8 |
| 3                                  | 5J51-15                              | 4.7       | 4.8       | 4.9       | 4.3 |
| 4                                  | PPG-FRR105                           | 4.5       | 5.2       | 3.9       | 4.3 |
| 5                                  | Lustrous                             | 4.5       | 4.9       | 4.4       | 4.1 |
| 6                                  | ASC295                               | 4.2       | 4.8       | 4.2       | 3.6 |
| 7                                  | PPG-FRR103                           | 4.2       | 5.2       | 3.4       | 4.1 |
| 8                                  | ASC320                               | 4.2       | 5.0       | 4.2       | 3.4 |
| 9                                  | IS-FRR65                             | 4.2       | 5.2       | 3.2       | 4.1 |
| 10                                 | ASC319                               | 4.2       | 4.6       | 4.1       | 3.8 |
| 11                                 | ASC321                               | 4.2       | 4.6       | 4.0       | 3.9 |
| 12                                 | PSG 5RM                              | 4.1       | 5.6       | 2.9       | 3.9 |
| 13                                 | ASC313                               | 4.1       | 4.6       | 3.8       | 3.9 |
| 14                                 | IS-FRR68C                            | 4.0       | 5.2       | 3.2       | 3.6 |
| 15                                 | ASC332                               | 4.0       | 4.6       | 3.3       | 4.0 |

(Continued)

Table 3. Fine fescue turf trial, 2011, CTBT (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|---|--------------------------------------|-----------|-----------|-----------|-----|
|   | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |     |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |           |           |           |     |
| 16  | Garnet                               | 3.9       | 4.8       | 3.3       | 3.7 |
| 17  | ASC323                               | 3.9       | 3.8       | 4.3       | 3.6 |
| 18  | ASC333                               | 3.7       | 4.4       | 3.4       | 3.3 |
| 19  | IS-FRR62                             | 3.7       | 5.6       | 2.6       | 3.0 |
| 20  | Navigator II                         | 3.7       | 4.9       | 2.7       | 3.5 |
| 21  | 5RJ1E                                | 3.7       | 4.6       | 3.0       | 3.5 |
| 22  | 4GRY                                 | 3.7       | 4.6       | 3.2       | 3.3 |
| 23  | Shademaster III                      | 3.6       | 4.7       | 2.9       | 3.2 |
| 24  | OS2                                  | 3.6       | 4.4       | 2.9       | 3.5 |
| 25  | 4CR10-08                             | 3.6       | 4.2       | 3.1       | 3.5 |
| 26  | PPG-FRR104                           | 3.5       | 4.3       | 3.0       | 3.3 |
| 27  | 5RJ1L                                | 3.5       | 5.0       | 2.5       | 3.1 |
| 28  | Cindy Lou                            | 3.5       | 4.2       | 2.9       | 3.4 |
| 29  | IS-FRR61                             | 3.5       | 4.9       | 2.5       | 3.1 |
| 30  | 4CRD-8                               | 3.5       | 4.5       | 3.0       | 2.9 |
| 31  | ORC 126                              | 3.5       | 4.0       | 3.0       | 3.5 |
| 32  | SO                                   | 3.4       | 3.5       | 3.4       | 3.3 |
| 33  | 4RED                                 | 3.4       | 4.3       | 2.9       | 2.9 |
| 34  | 4CRD-P                               | 3.3       | 4.1       | 2.7       | 3.1 |
| 35  | SDHT                                 | 3.2       | 3.2       | 3.3       | 3.1 |
| 36  | SDT                                  | 3.2       | 3.4       | 2.9       | 3.1 |
| 37  | SG                                   | 2.9       | 2.9       | 2.8       | 3.1 |
| 38  | SHST                                 | 2.8       | 2.8       | 2.8       | 2.8 |
| 39  | Boreal                               | 2.8       | 2.6       | 2.9       | 2.8 |
| 40  | SHSM                                 | 2.8       | 2.9       | 2.6       | 2.7 |
| 41  | Oracle                               | 2.6       | 2.8       | 2.5       | 2.6 |
| <b>SLENDER CREEPING RED FESCUE</b>            |                                      |           |           |           |     |
| 1   | ASR172                               | 4.9       | 5.5       | 5.0       | 4.2 |
| 2   | ASR184                               | 4.7       | 5.2       | 4.8       | 4.2 |
| 3   | ASR181                               | 4.4       | 4.7       | 4.7       | 3.8 |
| 4   | 4SEA                                 | 3.5       | 4.9       | 2.5       | 3.0 |
| 5   | ASR176                               | 3.3       | 5.0       | 2.2       | 2.5 |

(Continued)



Table 3. Fine fescue turf trial, 2011, CTBT (continued).

| Cultivar or Selection                          | -----Turf Quality <sup>1</sup> ----- |           |           |           |     |
|--|--------------------------------------|-----------|-----------|-----------|-----|
|  | 2012-2014 Avg.                       | 2012 Avg. | 2013 Avg. | 2014 Avg. |     |
| <b>SLENDER CREEPING RED FESCUE (continued)</b> |                                      |           |           |           |     |
| 6  | Seabreeze GT                         | 3.2       | 4.0       | 3.1       | 2.5 |
| 7  | 07-1FF                               | 2.7       | 2.6       | 2.8       | 2.7 |
| <b>SHEEPS FESCUE</b>                           |                                      |           |           |           |     |
| 1  | AZB                                  | 4.2       | 4.9       | 4.6       | 3.2 |
| 2  | Big Horn GT                          | 4.2       | 4.5       | 4.6       | 3.5 |
| <b>BLUE FESCUE</b>                             |                                      |           |           |           |     |
| 1  | Azay Blue                            | 4.0       | 4.2       | 4.5       | 3.1 |
| <hr/>  |                                      |           |           |           |     |
|  | LSD at 5% =                          | 0.5       | 0.7       | 0.7       | 0.7 |

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

Table 4. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2012 at Adelphia, NJ.

| Cultivar or Selection  | -----Turf Quality <sup>1</sup> ----- |              |              | Leaf Spot <sup>2</sup><br>June<br>2014 | Red Thread <sup>2</sup><br>June<br>2014 |
|------------------------|--------------------------------------|--------------|--------------|--|---|
|                        | 2013-<br>2014<br>Avg.                | 2013<br>Avg. | 2014<br>Avg. |  |   |
| <b>CHEWINGS FESCUE</b> |                                      |              |              |  |   |
| 1 PPG-FRC 112          | 6.0                                  | 6.5          | 5.5          | 5.0                                    | 7.3                                     |
| 2 PSG 50C3             | 5.7                                  | 6.0          | 5.4          | 6.0                                    | 8.0                                     |
| 3 7W2 comp             | 5.7                                  | 5.9          | 5.4          | 5.7                                    | 7.7                                     |
| 4 C572 comp            | 5.7                                  | 6.0          | 5.3          | 5.0                                    | 7.7                                     |
| 5 PPG-FRC 107          | 5.6                                  | 5.9          | 5.3          | 4.3                                    | 7.0                                     |
| 6 Radar                | 5.5                                  | 5.9          | 5.0          | 5.3                                    | 7.3                                     |
| 7 PPG-FRC 110          | 5.4                                  | 6.0          | 4.7          | 5.0                                    | 6.0                                     |
| 8 7W4 comp             | 5.4                                  | 5.4          | 5.3          | 6.0                                    | 8.0                                     |
| 9 7W3 comp             | 5.4                                  | 5.7          | 5.0          | 4.7                                    | 7.3                                     |
| 10 SR 5130             | 5.3                                  | 5.7          | 4.9          | 5.3                                    | 7.0                                     |
| 11 Fairmont            | 5.3                                  | 5.8          | 4.8          | 4.7                                    | 6.7                                     |
| 12 PPG-FRC 109         | 5.2                                  | 5.8          | 4.7          | 5.3                                    | 7.3                                     |
| 13 FRC 103             | 5.2                                  | 5.5          | 4.9          | 5.7                                    | 6.7                                     |
| 14 7W1 Comp            | 4.9                                  | 5.0          | 4.8          | 5.0                                    | 6.7                                     |
| 15 PS4BRT-34           | 4.9                                  | 5.3          | 4.4          | 5.3                                    | 7.3                                     |
| 16 PST-Heathland       | 4.8                                  | 5.3          | 4.4          | 5.3                                    | 6.7                                     |
| 17 OC1                 | 4.8                                  | 4.9          | 4.7          | 3.7                                    | 5.7                                     |
| 18 Ambassador          | 4.8                                  | 5.3          | 4.3          | 4.7                                    | 5.0                                     |
| 19 Longfellow II       | 4.8                                  | 4.9          | 4.6          | 4.7                                    | 6.7                                     |
| 20 Longfellow 3        | 4.7                                  | 4.7          | 4.6          | 5.0                                    | 7.3                                     |
| 21 Shadelinks          | 4.5                                  | 5.2          | 3.9          | 4.7                                    | 7.0                                     |
| 22 Survivor            | 4.4                                  | 4.9          | 4.0          | 4.0                                    | 5.3                                     |
| 23 PST-4CHY            | 4.4                                  | 4.6          | 4.1          | 5.0                                    | 6.3                                     |
| 24 Enchantment         | 4.4                                  | 4.8          | 4.0          | 3.7                                    | 5.7                                     |
| 25 Compass             | 4.4                                  | 4.5          | 4.3          | 3.7                                    | 5.3                                     |
| 26 PSG 51SPRS          | 4.3                                  | 4.7          | 4.0          | 3.7                                    | 5.3                                     |
| 27 Rushmore            | 4.2                                  | 4.4          | 4.0          | 4.3                                    | 6.3                                     |
| 28 Shadow II           | 4.2                                  | 4.4          | 3.9          | 4.3                                    | 4.7                                     |
| 29 PST-4SHR            | 4.2                                  | 4.5          | 3.8          | 4.0                                    | 5.7                                     |
| 30 Ambrose             | 4.1                                  | 4.4          | 3.9          | 4.3                                    | 6.0                                     |
| 31 PSG 5ISPE           | 4.0                                  | 4.5          | 3.6          | 4.0                                    | 4.7                                     |
| 32 Columbra II         | 4.0                                  | 4.4          | 3.5          | 3.7                                    | 4.3                                     |
| 33 PSG SDPR2           | 3.8                                  | 4.0          | 3.6          | 3.7                                    | 5.0                                     |
| 34 SDOC3               | 3.8                                  | 3.4          | 4.2          | 4.0                                    | 5.0                                     |
| 35 Koket               | 3.3                                  | 3.3          | 3.3          | 3.3                                    | 4.7                                     |

(Continued)

Table 4. Fine fescue turf trial, 2012 (continued).

| Cultivar or Selection | -----Turf Quality <sup>1</sup> ----- |              |              | Leaf Spot <sup>2</sup><br>June<br>2014 | Red Thread <sup>2</sup><br>June<br>2014 |
|-----------------------|--------------------------------------|--------------|--------------|--|---|
|                       | 2013-<br>2014<br>Avg.                | 2013<br>Avg. | 2014<br>Avg. |  |   |
| <b>HARD FESCUE</b>    |                                      |              |              |  |   |
| 1 H575 comp           | 5.8                                  | 5.9          | 5.6          | 4.3                                    | 7.7                                     |
| 2 7H7 comp            | 5.6                                  | 5.6          | 5.6          | 6.0                                    | 8.0                                     |
| 3 MNHD                | 5.5                                  | 5.4          | 5.6          | 4.3                                    | 7.0                                     |
| 4 H571 comp           | 5.5                                  | 5.9          | 5.1          | 5.0                                    | 7.7                                     |
| 5 7H2 comp            | 5.5                                  | 5.5          | 5.4          | 4.7                                    | 7.7                                     |
| 6 7H5 comp            | 5.4                                  | 5.7          | 5.1          | 5.0                                    | 7.0                                     |
| 7 BM1 comp            | 5.4                                  | 5.7          | 5.0          | 4.0                                    | 6.7                                     |
| 8 STTH3               | 5.3                                  | 5.4          | 5.3          | 5.0                                    | 7.0                                     |
| 9 PPG-FL 102          | 5.3                                  | 5.0          | 5.5          | 3.3                                    | 7.3                                     |
| 10 PSG 3J27F          | 5.3                                  | 5.5          | 5.1          | 4.3                                    | 5.7                                     |
| 11 PPG-FL 104         | 5.2                                  | 5.1          | 5.4          | 3.7                                    | 7.3                                     |
| 12 H573 comp          | 5.2                                  | 5.3          | 5.2          | 4.3                                    | 8.0                                     |
| 13 SR 3150            | 5.2                                  | 5.0          | 5.4          | 4.0                                    | 7.7                                     |
| 14 TE2 comp           | 5.2                                  | 5.4          | 4.9          | 4.7                                    | 6.7                                     |
| 15 Predator           | 5.2                                  | 5.0          | 5.3          | 3.7                                    | 6.3                                     |
| 16 7H4 comp           | 5.1                                  | 5.1          | 5.2          | 4.3                                    | 7.3                                     |
| 17 7H6 comp           | 5.1                                  | 5.6          | 4.6          | 4.3                                    | 6.7                                     |
| 18 TE1 comp           | 5.1                                  | 5.4          | 4.8          | 4.7                                    | 7.0                                     |
| 19 BM2 comp           | 5.0                                  | 5.3          | 4.6          | 4.7                                    | 7.3                                     |
| 20 7H1 comp           | 5.0                                  | 5.3          | 4.6          | 3.7                                    | 5.3                                     |
| 21 Spartan II         | 4.9                                  | 5.2          | 4.7          | 4.0                                    | 7.3                                     |
| 22 7H3 comp           | 4.9                                  | 4.9          | 4.9          | 4.7                                    | 6.7                                     |
| 23 Beacon             | 4.8                                  | 4.8          | 4.8          | 4.0                                    | 5.7                                     |
| 24 WB                 | 4.8                                  | 4.9          | 4.7          | 4.0                                    | 6.3                                     |
| 25 PSG 3TH3           | 4.8                                  | 5.2          | 4.4          | 4.0                                    | 6.0                                     |
| 26 S II LA            | 4.5                                  | 4.6          | 4.4          | 4.0                                    | 6.3                                     |
| 27 S II LB            | 4.4                                  | 4.6          | 4.3          | 3.7                                    | 6.3                                     |
| 28 Reliant IV         | 4.4                                  | 3.9          | 4.8          | 3.3                                    | 5.7                                     |
| 29 Oxford             | 4.2                                  | 4.2          | 4.2          | 4.0                                    | 5.0                                     |
| 30 Blue-ray           | 4.2                                  | 4.6          | 3.8          | 4.0                                    | 6.0                                     |
| 31 PST-4BND           | 4.1                                  | 3.8          | 4.3          | 4.0                                    | 6.3                                     |
| 32 Rescue 911         | 3.8                                  | 4.1          | 3.6          | 4.0                                    | 5.3                                     |
| 33 Stonehenge         | 3.8                                  | 3.8          | 3.7          | 3.7                                    | 5.0                                     |
| 34 Spartan            | 3.8                                  | 3.7          | 3.8          | 3.0                                    | 5.3                                     |
| 35 Brigade            | 3.7                                  | 3.8          | 3.6          | 3.7                                    | 5.7                                     |

(Continued)

Table 4. Fine fescue turf trial, 2012 (continued).

| Cultivar or Selection             | -----Turf Quality <sup>1</sup> ----- |              |              | Leaf Spot <sup>2</sup><br>June 2014 | Red Thread <sup>2</sup><br>June 2014 |
|-----------------------------------|--------------------------------------|--------------|--------------|-------------------------------------|--------------------------------------|
|                                   | 2013-2014<br>Avg.                    | 2013<br>Avg. | 2014<br>Avg. |                                     |                                      |
| <b>HARD FESCUE (continued)</b>    |                                      |              |              |                                     |                                      |
| 36 PST-SYN-4NOD                   | 3.4                                  | 3.4          | 3.4          | 3.0                                 | 4.7                                  |
| <b>STRONG CREEPING RED FESCUE</b> |                                      |              |              |                                     |                                      |
| 1 FRR-102                         | 5.1                                  | 5.3          | 4.9          | 5.0                                 | 5.3                                  |
| 2 7C6 Comp                        | 5.1                                  | 5.4          | 4.8          | 4.3                                 | 7.0                                  |
| 3 PSFC09-2                        | 5.1                                  | 5.3          | 4.9          | 5.3                                 | 6.0                                  |
| 4 7C5 Comp                        | 5.1                                  | 5.0          | 5.1          | 4.3                                 | 5.7                                  |
| 5 7C3 Comp                        | 5.1                                  | 5.4          | 4.7          | 5.0                                 | 6.0                                  |
| 6 7C2 Comp                        | 5.0                                  | 5.1          | 4.9          | 4.7                                 | 6.0                                  |
| 7 7C4 Comp                        | 5.0                                  | 5.0          | 5.0          | 4.7                                 | 6.3                                  |
| 8 PPG-FRR-110                     | 4.9                                  | 5.1          | 4.7          | 4.0                                 | 6.3                                  |
| 9 FT-3 Comp                       | 4.9                                  | 5.1          | 4.6          | 4.7                                 | 6.7                                  |
| 10 OS2                            | 4.9                                  | 4.9          | 4.9          | 5.0                                 | 5.7                                  |
| 11 S572 Comp                      | 4.8                                  | 5.1          | 4.6          | 4.3                                 | 4.7                                  |
| 12 PSG 5RM                        | 4.8                                  | 5.2          | 4.5          | 3.7                                 | 4.7                                  |
| 13 FT-5 Comp                      | 4.8                                  | 5.0          | 4.6          | 4.0                                 | 5.7                                  |
| 14 PPG-FRR-106                    | 4.7                                  | 4.9          | 4.5          | 3.7                                 | 5.3                                  |
| 15 FT-1 Comp                      | 4.6                                  | 4.7          | 4.6          | 3.3                                 | 4.7                                  |
| 16 PSG 5R5SIF                     | 4.6                                  | 4.9          | 4.3          | 3.0                                 | 5.7                                  |
| 17 FT-6 Comp                      | 4.6                                  | 4.8          | 4.4          | 3.3                                 | 4.7                                  |
| 18 7C1 Comp                       | 4.6                                  | 5.1          | 4.1          | 3.3                                 | 4.7                                  |
| 19 PST-SYN-4SHS                   | 4.6                                  | 4.8          | 4.3          | 2.7                                 | 3.7                                  |
| 20 ASC 295                        | 4.5                                  | 5.2          | 3.9          | 5.0                                 | 5.3                                  |
| 21 PST-SYN-4BEN                   | 4.5                                  | 4.6          | 4.5          | 4.0                                 | 5.0                                  |
| 22 PSG 5RJFL                      | 4.5                                  | 4.6          | 4.4          | 3.7                                 | 4.3                                  |
| 23 S571 Comp                      | 4.5                                  | 4.9          | 4.0          | 3.3                                 | 3.7                                  |
| 24 Miser                          | 4.5                                  | 4.8          | 4.1          | 4.0                                 | 4.7                                  |
| 25 FT-2 Comp                      | 4.4                                  | 4.6          | 4.3          | 3.0                                 | 4.3                                  |
| 26 PSG 5RJFE                      | 4.4                                  | 4.6          | 4.2          | 3.7                                 | 3.3                                  |
| 27 PSG 5RJME                      | 4.4                                  | 4.7          | 4.1          | 4.0                                 | 4.7                                  |
| 28 Garnet                         | 4.4                                  | 4.6          | 4.1          | 3.3                                 | 3.3                                  |
| 29 Navigator II                   | 4.3                                  | 4.8          | 3.8          | 3.3                                 | 4.0                                  |
| 30 Cardinal                       | 4.2                                  | 4.6          | 3.9          | 3.3                                 | 4.0                                  |

(Continued)

Table 4. Fine fescue turf trial, 2012 (continued).

| Cultivar or Selection                         | -----Turf Quality <sup>1</sup> ----- |              |              | Leaf Spot <sup>2</sup><br>June<br>2014 | Red Thread <sup>2</sup><br>June<br>2014 |
|---|--------------------------------------|--------------|--------------|--|---|
|   | 2013-<br>2014<br>Avg.                | 2013<br>Avg. | 2014<br>Avg. |  |   |
| <b>STRONG CREEPING RED FESCUE (continued)</b> |                                      |              |              |  |   |
| 31 Epic                                       | 4.2                                  | 4.3          | 4.1          | 4.0                                    | 5.3                                     |
| 32 ORC 126                                    | 4.2                                  | 4.3          | 4.0          | 3.3                                    | 5.0                                     |
| 33 Chantilly                                  | 4.1                                  | 4.6          | 3.6          | 3.3                                    | 4.0                                     |
| 34 Jasper II                                  | 4.1                                  | 4.2          | 4.0          | 4.0                                    | 5.0                                     |
| 35 FT-4 Comp                                  | 4.1                                  | 4.3          | 3.8          | 4.3                                    | 3.7                                     |
| 36 PSG 5RJML                                  | 4.0                                  | 4.2          | 3.8          | 3.3                                    | 4.0                                     |
| 37 FRR 103                                    | 4.0                                  | 4.4          | 3.6          | 3.3                                    | 3.0                                     |
| 38 Cindy Lou                                  | 3.9                                  | 4.1          | 3.8          | 2.7                                    | 4.3                                     |
| 39 PST-SYN-4REDY                              | 3.9                                  | 4.3          | 3.4          | 3.3                                    | 4.3                                     |
| 40 SRO 5250                                   | 3.8                                  | 4.1          | 3.6          | 3.3                                    | 4.0                                     |
| 41 PST-4GRY                                   | 3.8                                  | 4.0          | 3.6          | 3.3                                    | 4.3                                     |
| 42 PST-4CRD-U                                 | 3.8                                  | 4.2          | 3.3          | 2.3                                    | 4.0                                     |
| 43 ASR OSO                                    | 3.7                                  | 4.0          | 3.5          | 3.7                                    | 5.0                                     |
| 44 Shademaster III                            | 3.7                                  | 3.9          | 3.5          | 3.3                                    | 4.0                                     |
| 45 Audubon                                    | 3.7                                  | 4.0          | 3.4          | 2.3                                    | 2.3                                     |
| 46 BRSO                                       | 3.7                                  | 3.7          | 3.6          | 2.7                                    | 4.7                                     |
| 47 Fortify                                    | 3.6                                  | 4.0          | 3.3          | 2.3                                    | 4.0                                     |
| 48 Foxy II                                    | 3.6                                  | 4.1          | 3.2          | 3.3                                    | 3.7                                     |
| 49 Pathfinder                                 | 3.6                                  | 3.7          | 3.6          | 2.3                                    | 4.7                                     |
| 50 PST-4CRD-8                                 | 3.6                                  | 3.8          | 3.3          | 3.7                                    | 3.3                                     |
| 51 PST-4SEA                                   | 3.6                                  | 3.7          | 3.4          | 3.3                                    | 3.3                                     |
| 52 PST-4RED                                   | 3.6                                  | 3.9          | 3.2          | 3.0                                    | 3.7                                     |
| 53 Fenway                                     | 3.4                                  | 3.5          | 3.3          | 2.3                                    | 4.7                                     |
| 54 B-RS-G                                     | 3.2                                  | 3.2          | 3.3          | 2.0                                    | 4.7                                     |
| 55 BRSHSM                                     | 3.0                                  | 2.8          | 3.1          | 3.0                                    | 5.0                                     |
| 56 BRSHST                                     | 2.8                                  | 2.6          | 3.1          | 3.0                                    | 5.3                                     |
| 57 Oracle                                     | 2.8                                  | 2.6          | 2.9          | 1.7                                    | 3.7                                     |
| 58 Boreal                                     | 2.6                                  | 2.5          | 2.8          | 2.3                                    | 4.3                                     |
| 59 07-1FF                                     | 2.2                                  | 2.2          | 2.1          | 2.7                                    | 4.0                                     |
| <b>BLUE FESCUE</b>                            |                                      |              |              |  |   |
| 1 AZ BL+3                                     | 4.1                                  | 4.6          | 3.6          | 3.3                                    | 6.3                                     |
| 2 AZ BL+7                                     | 4.1                                  | 4.2          | 3.9          | 4.0                                    | 6.0                                     |
| 3 AZBL+4                                      | 3.9                                  | 4.2          | 3.7          | 3.7                                    | 5.7                                     |
| 4 AZ BL+9                                     | 3.9                                  | 4.2          | 3.7          | 3.0                                    | 6.3                                     |
| 5 AZ BL+5                                     | 3.9                                  | 4.2          | 3.6          | 3.3                                    | 5.7                                     |

(Continued)

Table 4. Fine fescue turf trial, 2012 (continued).

| Cultivar or Selection              | -----Turf Quality <sup>1</sup> ----- |              |              | Leaf Spot <sup>2</sup><br>June<br>2014 | Red Thread <sup>2</sup><br>June<br>2014 |
|------------------------------------|--------------------------------------|--------------|--------------|--|---|
|                                    | 2013-<br>2014<br>Avg.                | 2013<br>Avg. | 2014<br>Avg. |  |   |
| <b>BLUE FESCUE (continued)</b>     |                                      |              |              |  |   |
| 6 AZ BL+1                          | 3.9                                  | 4.0          | 3.7          | 3.7                                    | 6.0                                     |
| 7 AZ BL+14                         | 3.7                                  | 3.9          | 3.6          | 3.3                                    | 6.0                                     |
| 8 Azay Blue                        | 3.6                                  | 3.7          | 3.6          | 3.7                                    | 6.3                                     |
| 9 AZ BL+8                          | 3.5                                  | 3.9          | 3.1          | 3.7                                    | 6.3                                     |
| <b>SHEEPS FESCUE</b>               |                                      |              |              |  |   |
| 1 Marco Polo                       | 4.0                                  | 4.2          | 3.8          | 3.7                                    | 5.3                                     |
| 2 Big Horn GT                      | 4.0                                  | 4.0          | 4.0          | 3.0                                    | 6.0                                     |
| 3 Azure                            | 3.1                                  | 3.1          | 3.1          | 3.7                                    | 6.3                                     |
| <b>SLENDER CREEPING RED FESCUE</b> |                                      |              |              |  |   |
| 1 Shoreline                        | 3.8                                  | 3.9          | 3.7          | 3.7                                    | 3.3                                     |
| 2 Seabreeze GT                     | 3.6                                  | 3.7          | 3.6          | 3.7                                    | 3.3                                     |
| 3 Sealink                          | 3.5                                  | 3.6          | 3.4          | 4.0                                    | 3.7                                     |
| 4 SRX 5500                         | 2.7                                  | 3.0          | 2.3          | 2.3                                    | 4.7                                     |
| <b>BLENDS</b>                      |                                      |              |              |  |   |
| 1 Cutting Edge                     | 3.4                                  | 3.8          | 2.9          | 4.7                                    | 5.3                                     |
| 2 3CAN1                            | 2.8                                  | 2.9          | 2.7          | 2.7                                    | 3.7                                     |
| T                                  | LSD at 5% =                          |              |              |  |   |
|                                    | 0.5                                  | 0.6          | 0.7          | 1.2                                    | 2.2                                     |

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

<sup>2</sup>9 = least disease

Table 5. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2013 at Adelphia, NJ.

| Cultivar or Selection | Turf Quality <sup>1</sup><br>2014<br>Avg. | Establishment <sup>2</sup><br>Oct.<br>2014 |
|-----------------------|---|--|
| <b>HARD FESCUE</b>    |   |  |
| 1 7H4 Comp            | 5.4                                       | 3.7  |
| 2 DA2 Comp            | 5.4                                       | 2.7  |
| 3 DA3 Comp            | 5.4                                       | 2.7  |
| 4 DA1 Comp            | 5.4                                       | 3.0  |
| 5 7H2 Comp            | 5.3                                       | 3.0  |
| 6 PPG-FL 106          | 5.2                                       | 3.3  |
| 7 Firefly             | 5.2                                       | 4.0  |
| 8 7H3 Comp            | 5.2                                       | 3.7  |
| 9 7H6 Comp            | 5.1                                       | 3.3  |
| 10 7H1 Comp           | 5.1                                       | 3.3  |
| 11 PSG TH3            | 5.1                                       | 3.7  |
| 12 PST-4BND           | 5.1                                       | 3.3  |
| 13 DA5 Comp           | 5.1                                       | 3.0  |
| 14 PPG-FL 107         | 5.0                                       | 3.3  |
| 15 7H5                | 5.0                                       | 2.3  |
| 16 DA4 Comp           | 4.9                                       | 2.7  |
| 17 DA6 Comp           | 4.9                                       | 2.7  |
| 18 PPG-FL 103         | 4.8                                       | 3.7  |
| 19 SR 3150            | 4.7                                       | 3.0  |
| 20 PST-4A10 Bulk      | 4.6                                       | 3.0  |
| 21 Nanook             | 4.6                                       | 2.3  |
| 22 BlueRay            | 4.6                                       | 3.7  |
| 23 Beacon             | 4.5                                       | 4.3  |
| 24 Spartan II         | 4.5                                       | 3.3  |
| 25 Ecostar Plus       | 4.4                                       | 4.3  |
| 26 7H6                | 4.4                                       | 2.3  |
| 27 PPG-FL 108         | 4.4                                       | 3.3  |
| 28 MNHD-12            | 4.4                                       | 2.7  |
| 29 Rescue 911         | 4.3                                       | 4.3  |
| 30 Soil Guard         | 4.2                                       | 2.7  |
| 31 4-12FF-3           | 3.1                                       | 6.0  |
| 32 Reliant IV         | 3.0                                       | 1.0  |
| 33 5-12FF-5           | 2.9                                       | 5.3  |
| 34 5-12FF-8           | 2.7                                       | 4.7  |

(Continued)

Table 5. Fine fescue turf trial, 2013 (continued).

| Cultivar or Selection             | Turf Quality <sup>1</sup><br>2014<br>Avg. | Establishment <sup>2</sup><br>Oct.<br>2014 |
|-----------------------------------|---|--|
| <b>CHEWINGS FESCUE</b>            |   |  |
| 1 7W3 Comp                        | 5.4                                       | 3.0  |
| 2 PPG-FRC 114                     | 5.3                                       | 5.3  |
| 3 PPG-FRC 107                     | 5.2                                       | 5.3  |
| 4 PPG-FRC 113                     | 5.1                                       | 4.7  |
| 5 Radar                           | 5.1                                       | 6.7  |
| 6 3W4 Comp                        | 5.0                                       | 4.0  |
| 7 08-4FC Bulk                     | 5.0                                       | 4.7  |
| 8 08-5FCE+                        | 5.0                                       | 4.7  |
| 9 3W1 Comp                        | 4.9                                       | 4.3  |
| 10 3W2 Comp                       | 4.9                                       | 3.3  |
| 11 Ambrose                        | 4.7                                       | 5.0  |
| 12 3W3 Comp                       | 4.6                                       | 4.0  |
| 13 PPG-FRC 103                    | 4.6                                       | 3.7  |
| 14 7W2 Comp                       | 4.6                                       | 4.3  |
| 15 SR 5130                        | 4.6                                       | 4.3  |
| 16 Shadow II                      | 4.5                                       | 3.7  |
| 17 PPG-FRC 115                    | 4.4                                       | 5.0  |
| 18 Windward                       | 4.3                                       | 2.0  |
| 19 Zodiac                         | 4.3                                       | 5.0  |
| 20 Enchantment                    | 4.3                                       | 4.3  |
| 21 PST-4SHR                       | 4.1                                       | 4.7  |
| 22 J-5                            | 4.1                                       | 4.7  |
| 23 Shadelinks                     | 4.0                                       | 3.3  |
| 24 PSG 50C3                       | 3.6                                       | 1.0  |
| 25 PST-4CHY                       | 3.4                                       | 3.7  |
| 26 Ambassador                     | 2.8                                       | 1.0  |
| <b>STRONG CREEPING RED FESCUE</b> |   |  |
| 1 Z13-01                          | 5.2                                       | 4.3  |
| 2 7C5 Comp                        | 5.1                                       | 3.7  |
| 3 2-10 Frr Bulk                   | 5.1                                       | 5.7  |
| 4 2-10 Frr-6                      | 5.0                                       | 5.3  |
| 5 7C6 Comp                        | 5.0                                       | 4.0  |

(Continued)



Table 5. Fine fescue turf trial, 2013 (continued).

| Cultivar or Selection                         | Turf Quality <sup>1</sup><br>2014<br>Avg. | Establishment <sup>2</sup><br>Oct.<br>2014 |
|---|---|--|
| <b>STRONG CREEPING RED FESCUE (continued)</b> |   |  |
| 6 2-10-Frr-12                                 | 4.9                                       | 5.0  |
| 7 PPG-Frr-106                                 | 4.9                                       | 6.0  |
| 8 2-10 Frr-8                                  | 4.9                                       | 5.7  |
| 9 PPG-Frr 111                                 | 4.8                                       | 4.7  |
| 10 2-10-Frr-13                                | 4.7                                       | 5.7  |
| 11 2-10 Frr-4                                 | 4.6                                       | 7.0  |
| 12 Navigator II                               | 4.6                                       | 6.0  |
| 13 7C2 Comp                                   | 4.6                                       | 4.0  |
| 14 OR126                                      | 4.6                                       | 4.3  |
| 15 Wendy Jean                                 | 4.6                                       | 5.3  |
| 16 PPG-Frr 103                                | 4.5                                       | 6.0  |
| 17 Jasper II                                  | 4.4                                       | 5.0  |
| 18 PST-4RUE Bulk                              | 4.4                                       | 3.3  |
| 19 SR 5250                                    | 4.4                                       | 4.7  |
| 20 BMX  | 4.4                                       | 5.0  |
| 21 PSG 5RJL-3                                 | 4.4                                       | 4.0  |
| 22 PSG 5RJL-4                                 | 4.3                                       | 4.3  |
| 23 Audubon                                    | 4.3                                       | 5.3  |
| 24 Kent                                       | 4.2                                       | 4.0  |
| 25 PSG 5RJL-1                                 | 4.2                                       | 4.7  |
| 26 Shademaster III                            | 4.1                                       | 3.7  |
| 27 FF2  | 4.0                                       | 4.3  |
| 28 Garnet                                     | 4.0                                       | 4.7  |
| 29 PSG 5RJL-2                                 | 3.9                                       | 4.3  |
| 30 BRSO                                       | 3.9                                       | 4.3  |
| 31 Pathfinder                                 | 3.9                                       | 5.0  |
| 32 Shademaster III                            | 3.9                                       | 3.3  |
| 33 Gibraltar                                  | 3.8                                       | 4.3  |
| 34 Gibraltar Gold                             | 3.8                                       | 4.3  |
| 35 PST-4GRY                                   | 3.7                                       | 3.7  |
| 36 PST-4SEA                                   | 3.7                                       | 4.3  |
| 37 PST-Syn-4SP24                              | 3.6                                       | 3.7  |
| 38 CRF-11-4A                                  | 3.5                                       | 5.3  |
| 39 PST-4GRP                                   | 3.5                                       | 4.0  |
| 40 PSG 5RM                                    | 3.5                                       | 1.3  |

(Continued)

Table 5. Fine fescue turf trial, 2013 (continued).

| Cultivar or Selection                         | Turf Quality <sup>1</sup><br>2014<br>Avg. | Establishment <sup>2</sup><br>Oct.<br>2014 |
|---|---|--|
| <b>STRONG CREEPING RED FESCUE (continued)</b> |   |  |
| 41 BRSG                                       | 3.3                                       | 5.3  |
| 42 4-12FF-2                                   | 3.1                                       | 5.3  |
| 43 5-12FF-6                                   | 3.0                                       | 4.3  |
| 44 4-12FF-1                                   | 3.0                                       | 5.0  |
| 45 4-12FF-5                                   | 2.9                                       | 5.0  |
| 46 4-12FF-Bulk                                | 2.8                                       | 5.0  |
| 47 Oracle                                     | 2.8                                       | 2.3  |
| 48 5-12FF-Bulk                                | 2.7                                       | 4.3  |
| 49 5-12FF-4                                   | 2.5                                       | 4.3  |
| 50 Boreal                                     | 2.5                                       | 1.7  |
| <b>SLENDER CREEPING RED FESCUE</b>            |   |  |
| 1 PPG-FRT 101                                 | 5.1                                       | 4.7  |
| 2 Shoreline                                   | 4.3                                       | 5.0  |
| 3 Sealink                                     | 4.3                                       | 3.7  |
| 4 Seabreeze GT                                | 4.3                                       | 4.0  |
| 5 Sea Fire                                    | 4.0                                       | 3.7  |
| 6 Lighthouse                                  | 2.6                                       | 5.0  |
| <b>SHEEPS FESCUE</b>                          |   |  |
| 1 Bighorn GT                                  | 4.5                                       | 3.3  |
| 2 Marco Polo                                  | 4.4                                       | 3.3  |
| 3 PPG-FO 102                                  | 4.1                                       | 2.3  |
| 4 Daisy                                       | 3.6                                       | 1.7  |
| <b>BLENDS</b>                                 |   |  |
| 1 Scottish Links                              | 4.2                                       | 3.0  |
| <b>BLUE FESCUE</b>                            |   |  |
| 1 Azay Blue                                   | 4.2                                       | 3.3  |
| LSD at 5% =                                   | 0.6                                       | 1.1  |

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

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

Table 6. Yearly nitrogen (N) applied and mowing height (Ht) on fine fescue tests established at Adelphia, NJ.

|                          | 2011           |                 | 2012 |     | 2013 |     | 2014 |     |
|--------------------------|----------------|-----------------|------|-----|------|-----|------|-----|
|                          | N <sup>1</sup> | Ht <sup>2</sup> | N    | Ht  | N    | Ht  | N    | Ht  |
| Table 1 (2010).....      | 1.0            | 1.5             | 1.5  | 1.5 | 2.00 | 1.5 | 1.0  | 2.5 |
| Table 2 (2011).....      |                |                 | 1.5  | 1.5 | 2.25 | 1.5 | 1.0  | 2.5 |
| Table 3 (2011 CTBT)..... |                |                 | 1.5  | 1.5 | 2.25 | 1.5 | 1.0  | 2.5 |
| Table 4 (2012).....      |                |                 |      |     | 2.50 | 1.5 | 1.0  | 2.5 |
| Table 5 (2013).....      |                |                 |      |     |      |     | 1.5  | 2.5 |

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

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