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This publication includes lecture notes of papers presented at the 2019 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.

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PERFORMANCE OF FINE FESCUE CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS, 2019

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INTRODUCTION

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 group is tolerant of acidic soils and drought conditions and exhibits the best performance under lower fertility levels. These qualities give the fine fescues a reputation as low maintenance grasses. 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 and wear 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 fescue and slender creeping red fescue 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. brevipila* R. Tracey) is a bunch-type grass that spreads by tillering. It has a dark green color forms a dense cover and grows slowly. 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 fescue (*F. ovina* L.) and blue fescue (*F. glauca* Vill.) are the least widely used species of the fine fescues. They are bunch-type and have a wide variation in color that ranges 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 ft² 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 an *Epichloë festucae* Leuchtm. 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. *Epichloë festucae* Leuchtm. is a non-pathogenic fungus that grows intercellularly within the aboveground plant tissue. The beneficial effects of the endophyte are often very evident under stress conditions.

The Rutgers turfgrass breeding program has improved many of the characteristics desired for a superior fine fescue turf. However, 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 (NTEP), which evaluates many cultivars,

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collections, and experimental selections for turf performance across a wide range of geographical locations.

PROCEDURES

Seven fine fescue trials were seeded from 2014 to 2018 at the Rutgers Plant Science Research and Extension Farm in Adelphia, NJ (Tables 1 to 7). All tests consisted of 3 ft x 5 ft plots. The fine fescues were sown at 3.7 lb per 1000ft². Plots were replicated three times in a randomized complete block design. A 6-inch unseeded border was left between plots to limit contamination. Tests were maintained at different fertility levels 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 8. All tests were treated with pre-emergent herbicides and broadleaf weed control. The trials were irrigated to prevent severe stress and were mowed frequently with rotary mowers to avoid excessive accumulations of clippings.

All tests were rated monthly throughout the growing season for turf quality as well as for other characteristics including diseases such as gray leaf spot (*Pyricularia oryzae* Cavara.). Turf quality is a subjective characteristic that includes density, texture, color, growth habit, damage due to disease or insects, and overall performance. Plots were rated by different evaluators to help minimize personal biases toward a particular trait. With exception to percent cover, all ratings were based on a 1 to 9 scale, where 9 represented the most desirable turf characteristics. Percent cover ratings were visually estimated based on a 0 to 100 scale, where 100 represented a plot with complete ground cover. Data for all trials were statistically analyzed using analysis of variance (ANOVA), and means were separated using Fisher's protected least significant difference (LSD) means separation test.

RESULTS AND DISCUSSION

Results in Tables 1 to 7 are presented with cultivars or selections grouped according to species and ranked according to best overall multiple-year turf quality average. A high quality average is generally indicative of good disease resistance, dark green color, high shoot density and uniformity, fine leaf texture, low growth habit, good mowing quality, and minimal damage due to insects. The trial data were further ranked according to additional evaluation parameters (i.e., establishment, color, percent cover, disease rating, etc.) to distinguish two or more cultivars or selections

that were equally ranked based on turf quality ratings. In addition to trial data collected in 2019, data from previous years are also included in the tables. These data have been discussed in prior proceedings articles and are included here for viewer convenience.

Care should be taken when drawing conclusions from the data for 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 trials established in 2018 are sorted by turfgrass quality in 2019 only and reflects quality during the first year of establishment; some cultivars may perform differently as the turfgrass stand matures.

Turf Quality

For all trials included herein, the hard fescues, as a group, had the highest average turf quality, followed closely by the Chewings fescues (Tables 1 to 6); except in the 2018 fine fescue trial (Table 7) where the Chewings fescues had the highest average turf quality. The strong creeping red fescues, slender creeping red fescues, and sheeps fescues were variable for turf quality, but, in general, had lower turf quality ratings than the hard fescues and the Chewings fescues (Tables 1 to 7). In the 2014 fine fescue trial (Table 1), the experimental selections 14H5, 14H2, and 14H4 hard fescue had the highest turf quality. The lowest ranked hard fescues for turf quality included Reliant IV, PST-4BND, and Blueray. The highest ranked Chewings fescues were Conductor and 14W4. The lowest ranked Chewings fescue were Survivor and Shadow III. The highest ranked strong creeping red fescue were DSRxBLMT, PPG_FRR 115 and Chorus while PST-4GRD-P, Oracle, and Fenway strong creeping red fescue had the lowest turf quality. Lighthouse slender creeping red fescue and Daisy sheeps fescue also had low turf quality.

In the 2014 fine fescue NTEP trial (Table 2), Resolute and DLFPS-FL/3066 hard fescue had the highest quality. Sword had the lowest turf quality of the hard fescues but was still higher ranked than all of the strong creeping red fescues. Chewings fescues entries with the highest quality included Compass II, Radar, Bolster and DLF FRC 3338. Sandrine and Cascade had the lowest turfgrass quality of the Chewings fescue. Strong creeping red fescues with the highest quality were Cardinal II, DLF-FRR 6162, PST-4BEN, and 7C34. Boreal, Navigator II and RAD FRR33R strong creeping red fescues had the lowest turf quality.

In the 2015 fine fescue trial (Table 3), FH3, FH2, and FH4 hard fescue had the highest turf quality, while Stonehenge, Ecostar Plus and Heron hard fescue had the lowest turf quality. Better performing Chewings fescues included FW2 and FW3 experimental selections and the cultivars Woodall, Compass II and Radar. Chewings fescue with low turf quality ratings included Enchantment, J-5 and Shadow III. Strong creeping red fescues exhibiting good turf quality included PPG-FRR 115 and PPG-FRR 116 while Gibraltar Gold and Xeric strong creeping red fescue exhibited very low turf quality. SeaMist slender creeping red fescue had improved turf quality compared to Lighthouse and Seabreeze GT.

In the 2016 fine fescue trial (Table 4), A52 and A56 hard fescue had the highest turf quality; Reliant IV and Blueray had the lowest turfgrass quality of the hard fescues. WYR, Z16-RCF, and Woodall were top performing Chewings fescue while PST-4SHR-CH and PST-4CHT exhibited poor performing Chewings fescue. PPG-FRR 116, Z16-DR and 5Z5 were top performing strong creeping red fescues albeit quite a bit lower than the best performing hard fescues. Oracle, Fenway, and PST-4GRY strong creeping red and Blue Mesa sheeps fescue had the lowest turf quality.

In the 2017 fine fescue trial (Table 5), HAQ1, PPG-FL 122, HAQ2, and Minimus hard fescue exhibited the best turf quality in the trial, while Eureka II and Spartan II exhibited the lowest turf quality of the hard fescues. CHU1 and Z16-RCF were the top performing Chewings fescue. Windward and PST-Syn-4DUB were the lowest performing Chewings fescue. Strong creeping red fescues with the highest turf quality included PPG-FRR 121 and PPG-FRR 116, while Oracle and Epic had the lowest turf quality. SeaMist slender creeping red fescue exhibited improved performance compared to Shoreline slender creeping red fescue.

In the 2017 fine fescue CTBT trial (Table 6), PPG-FL 115, DLF-FL 53 M3, Z16-RHF, and DLF-FL 63 hard fescue had the highest turf quality, while ACF309 and Eureka II had the lowest turf quality. DLF-FRC 50, Z16-FRC, and PPG-FRC 120 Chewings fescue had the highest turf quality while Koket and DLF-FRC 52 had the lowest turf quality. The better performing strong creeping red fescues were ASC295, PPG-FRR 115, and ASR197, while Boreal, DLF-FRR 76, and DLF-FRR 75 strong creeping red had the lowest turf quality.

In the 2018 fine fescue trial (Table 7), Gray leaf spot disease caused significant damage to the hard fescues and resulted lower turf quality of the hard fescues in 2019. Radar, PSFC09-2, and CLS2 Chewings fescue had the highest turf quality. Carousel Chewings fescue had the lowest turf quality. PPG-FL 121, FL 58 SEL, and AS6 were top performing hard fescues and exhibited the best tolerance to gray leaf spot, while Azay Blue, SR 3150, and SR 3210 hard fescue were the lowest performing hard fescues and were the most susceptible to gray leaf spot. Navigator II, Rosecity, and FT7 SEL were top performing strong creeping red fescues and the poorest strong creeping red fescues were Class One and Maxima.

Dollar Spot

Dollar spot (caused by *Clariireedia jacksonii*, formerly known as *Sclerotinia homoeocarpa* F.T. Bennet) is one of the most common diseases of cool-season turfgrasses and is particularly troublesome in fine fescue (Bonos et al., 2007). Dollar spot causes silver dollar-shaped spots of dead turf, which can converge to form larger areas of damage (Belanger et al., 2005; Bonos et al., 2007). In general, the hard fescues and Chewings fescues are more tolerant to dollar spot disease compared to the strong creeping red fescues which are generally more susceptible to dollar spot disease (Table 1, 2 and 4). Dollar spot disease reaction was recorded in 2018 in the 2014 turf trials (Tables 1 and 2) and in the 2016 trial (Table 4) in 2019. In the 2016 fine fescue trial (Table 4), Z16-RHF, Stonehenge II, PPG-FL 113, and A52 comp hard fescues had the least dollar spot disease, additionally Z16-RCF and WYR Chewings fescue also had very good dollar spot tolerance. The best strong creeping red fescues for dollar spot disease tolerance were Z16-DRBM and Z16-DRBM2X. The cultivars with the most susceptibility to dollar spot disease in the 2016 trial (Table 4) were Gladiator hard fescue, Treasure II Chewings fescue, PST-4DR4, Ruddy, Navigator II, Orbit and Kent strong creeping red fescues.

Summer Patch

Summer patch is a root disease caused by *Magnaportheopsis poae* and *Magnaportheopsis meyerifestucae* (Luo et al., 2017). Symptoms of summer patch disease are typically described as distinct sunken and depressed zones of necrotic turf with an irregular shape (Smiley et al., 2005). In the 2017 fine fescue trial (Table 5), PPG-FRR 121, Cardinal II, Z16-DR, Ruddy, and Class One strong creeping red fescues had the least dollar spot disease, addition-

ally CHU1, Z16-RCF, and Castle Chewings fescue also had good tolerance to summer patch. The best sheeps fescue for summer patch disease tolerance was PST-4GUDS Bulk, and the best hard fescue for summer patch disease tolerance were PPG-FL 122 and BM2 SEL. The cultivars with the most susceptibility to summer patch disease in 2017 trial (Table 5) were Eureka II and Spartan II hard fescue, PST-Syn-4DUB Chewings fescue, Azure and Quatro sheeps fescue.

Color

In the United States, a dark green turf color is typically considered more desirable when compared to a light green turf color. In addition to the consideration of genetic color when rating for turf quality, the color for each cultivar was also assessed in the 2014 fine fescue NTEP test (Table 2). Kent, Navigator II, RAD-FR47, and FAD-FR33R strong creeping red fescue and RAD-FC44 Chewings fescue had the darkest green color, and Minimus, Beacon, and Gladiator hard fescue and DLFPS-FRC-3057 Chewings fescue had the lightest green color.

Percent Cover

Percent cover is a measure of the competitive ability of a turfgrass on a long-term basis; cultivars and selections with greater percent cover are better able to persist under the environment of a given trial, whereas poor cover is a characteristic of a declining turf stand. In the 2014 fine fescue NTEP trial (Table 2), Resolute and Sword hard fescue had the highest percent cover, while Beudin hard fescue and Navigator II and DLFPS-FRR-3068 strong creeping fescue had the lowest percent cover.

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 (*Laetisaria fuciformis*) for the fine fescues, and for the hard fescues, efforts should be focused on summer patch (caused by *Magnaporthiopsis poae*) and gray leaf spot (caused by *Pyricularia oryzae*) disease resistance.

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REFERENCES

- Belanger, F.C., S.A. Bonos, and W.A. Meyer. 2005. Improving dollar spot resistance in creeping bentgrass. USGA Green Section Record, July-August.
- Bonos, S.A., R.J. Buckley, and B.B. Clarke. 2007. An integrated approach to dollar spot disease in turfgrasses. Rutgers Cooperative Research and Extension. FS1070.
- Luo, J., Vines, P., Grimshaw, A., Hoffman, L., Walsh, E., Bonos, S., ... Zhang, N. (2017). *Magnaporthiopsis meyeri-festucaae*, sp. nov., associated with a summer patch-like disease of fine fescue turfgrasses. *Mycologia*, 109(5), 780–789. <https://doi.org/10.1080/00275514.2017.1400306>
- Meyer, W.A., and C.R. Funk. 1989. Progress and benefits to humanity from breeding cool-season grasses for turf. Pages 31-48 In: D.A. Sleper, K.H. Asay, and J.F. Pederson (eds.), *Contributions from breeding forage and turf grasses*. CSSA Spec. Pub. No. 15. CSSA, Madison, WI.
- Murphy, J.A. 1996. Fine fescues: low-maintenance species for turf. Rutgers Cooperative Research and Extension FS688.
- Smiley, R., Dernoeden, P., & Clarke, B. (2005). *Compendium of turfgrass diseases* (3rd ed.). St. Paul, Minn: APS Press.

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----						Establish-	-----Leaf Spot ³ -----			Dollar
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	ment ² 8 Oct. 2014	26 Jun. 2015	29 Apr. 2016	31 Aug. 2018	
HARD FESCUE											
1 14H5	5.9	5.8	5.9	5.7	5.5	6.3	4.3	7.3	5.7	8.0	
2 14H2	5.8	5.6	6.2	6.0	5.5	6.0	4.7	7.7	5.7	7.3	
3 14H4	5.7	5.5	6.0	5.5	5.4	6.3	4.3	8.0	5.7	7.3	
4 14H6	5.7	5.7	5.7	5.4	5.3	6.4	4.7	8.0	5.0	7.3	
5 Clarinet	5.6	5.5	5.6	5.3	5.5	6.3	4.7	7.7	4.0	5.0	
6 Extra	5.6	5.5	5.9	5.7	5.1	6.0	4.7	7.7	3.7	7.3	
7 7H1	5.6	5.5	5.7	5.4	5.3	6.0	4.0	7.0	5.3	7.0	
8 7HF	5.5	5.9	5.9	5.0	5.3	5.5	3.3	7.7	5.7	7.3	
9 14H7	5.5	5.3	5.3	5.3	5.2	6.3	4.7	8.0	4.3	6.3	
10 Jetty	5.5	5.8	5.9	5.4	4.9	5.4	3.0	8.3	5.7	7.0	
11 14H1	5.5	5.6	5.3	5.4	5.0	6.1	4.3	7.7	3.3	7.7	
12 H572	5.4	5.4	5.7	5.0	5.0	5.8	3.0	8.0	5.7	7.3	
13 Beacon	5.4	5.5	5.3	5.1	4.9	6.0	5.0	7.0	3.3	6.7	
14 7H6	5.4	5.9	5.9	5.1	4.9	5.0	5.3	7.0	4.7	6.7	
15 7H3	5.3	5.3	5.7	5.0	5.2	5.5	3.0	7.3	4.7	7.0	
16 7H4	5.3	5.6	5.6	4.9	5.1	5.4	3.0	7.0	4.3	7.7	
17 Sword	5.3	5.1	5.7	5.1	4.9	5.4	2.7	8.0	3.3	7.0	
18 Minimus	5.2	5.5	5.3	5.1	4.8	5.6	5.3	7.7	4.0	7.0	
19 Firefly	5.2	5.7	5.1	4.8	4.6	5.7	5.7	8.0	3.3	6.0	
20 Chariot	5.1	5.7	5.0	4.8	4.4	5.4	5.7	6.7	3.0	6.7	
21 PPG-FL 108	5.0	5.1	4.9	4.8	4.6	5.5	4.7	6.3	3.0	5.3	
22 PPG-FL 107	5.0	5.2	5.3	4.6	4.5	5.2	2.7	8.0	4.0	7.3	

(Continued)

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----						Establish-	-----Leaf Spot ³ -----			Dollar
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	ment ² 8 Oct. 2014	26 Jun. 2015	29 Apr. 2016	31 Aug. 2018	
HARD FESCUE (continued)											
23 PST-4HES	4.9	5.4	5.0	4.7	4.7	4.9	3.3	6.3	3.7	6.3	
24 Stonehenge	4.9	5.4	4.8	4.6	4.6	5.2	4.0	7.0	2.3	6.3	
25 Nanook	4.9	5.2	4.9	4.7	4.3	5.3	2.7	7.0	3.7	6.3	
26 Rescue 911	4.9	6.0	4.6	4.7	4.0	5.1	5.3	8.0	3.3	5.3	
27 Oxford	4.8	5.2	5.2	4.5	4.3	5.0	4.7	6.3	4.0	4.7	
28 AHF188	4.8	5.4	5.1	4.4	4.7	4.6	5.7	6.7	3.3	6.0	
29 Reliant IV	4.7	5.3	4.7	4.6	4.2	4.9	6.0	7.0	2.7	5.3	
30 PST-4BND	4.7	5.3	4.7	4.4	4.3	4.8	5.0	7.0	3.0	5.3	
31 Blueray	4.7	5.3	4.9	4.5	4.3	4.4	3.3	8.0	3.3	6.7	
CHEWINGS FESCUE											
1 Conductor	4.7	4.9	4.6	3.8	5.2	5.1	5.0	5.0	6.0	6.0	
2 14W4	4.7	4.9	4.4	4.0	5.3	4.9	4.7	5.3	3.0	5.0	
3 14W2	4.6	4.6	4.5	3.7	5.4	4.8	5.0	4.0	5.3	6.3	
4 14W1	4.5	5.2	4.1	3.9	4.6	4.9	4.3	4.7	3.0	5.0	
5 PPG-FRC 119	4.5	5.3	4.6	3.6	4.7	4.4	6.0	6.3	3.7	5.3	
6 Radar	4.5	5.1	3.9	3.7	4.9	4.9	6.7	5.0	2.7	6.0	
7 Fairmont	4.4	4.7	4.2	3.7	4.7	4.7	4.7	5.7	4.0	5.0	
8 Brittany II	4.4	5.5	4.0	3.5	4.3	4.7	5.7	7.0	4.3	4.0	
9 Momentum	4.3	5.0	3.9	3.4	4.5	4.8	5.0	6.7	4.0	5.0	
10 Compass II	4.2	4.9	4.2	3.5	4.4	4.3	3.7	7.0	3.3	4.3	

(Continued)

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----						Establish-	-----Leaf Spot ³ -----			Dollar
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	ment ² 8 Oct. 2014	26 Jun. 2015	29 Apr. 2016	31 Aug. 2018	
CHEWINGS FESCUE (continued)											
11 PPG-FRC 115	4.2	4.8	4.1	3.3	4.4	4.2	4.3	5.3	4.0	5.0	
12 Sonar	4.2	4.8	3.7	3.5	4.3	4.4	5.7	6.0	3.0	4.3	
13 PPG-FRC 107	4.1	4.8	4.1	3.0	4.7	3.7	4.0	6.0	4.3	4.3	
14 Shadow II	4.0	5.0	3.4	3.4	4.4	4.1	4.0	5.3	3.0	4.0	
15 PST-4C30D	4.0	4.9	3.7	3.3	4.1	4.0	4.3	4.0	3.3	4.0	
16 Treazure II	4.0	4.7	4.0	3.3	3.8	4.1	2.7	7.0	3.3	3.7	
17 Compass	4.0	5.2	3.1	3.1	4.3	4.1	6.0	5.0	2.0	4.7	
18 Heathland	3.9	4.6	3.8	3.5	3.8	4.0	3.3	4.7	3.7	3.3	
19 PST-4CHT	3.9	4.8	3.9	3.5	3.8	3.7	3.0	5.0	3.3	3.0	
20 PST-4SHR-CH	3.9	5.1	3.1	3.3	4.1	3.9	5.3	5.7	2.3	3.7	
21 Enchantment	3.9	5.2	3.9	3.4	3.4	3.4	6.0	5.3	3.7	2.7	
22 J-5	3.9	4.8	3.9	3.2	3.7	3.8	3.7	5.7	2.7	4.3	
23 Tiffany	3.9	4.7	3.4	3.2	4.1	3.8	4.3	4.3	3.3	4.3	
24 PST-Syn-4SWT-13	3.8	4.7	3.6	3.7	3.3	3.7	4.3	5.7	2.3	3.3	
25 Ambrose	3.8	5.0	3.3	3.0	3.8	3.8	4.7	5.7	2.7	4.0	
26 PST-4CHY	3.6	4.7	3.4	3.3	3.4	3.4	4.3	5.3	2.3	2.3	
27 Survivor	3.5	3.3	3.8	3.1	3.8	3.4	1.3	7.0	3.7	3.0	
28 Shadow III	3.5	3.8	3.3	3.0	3.3	3.9	2.3	5.7	2.3	3.7	

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(Continued)

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----						Establish- ment ²	-----Leaf Spot ³ -----			Dollar Spot ⁴
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	8 Oct. 2014	26 Jun. 2015	29 Apr. 2016	31 Aug. 2018	
SHEEP FESCUE											
1 Marco Polo	4.5	5.3	4.5	3.8	4.2	4.4	5.7	8.3	4.7	6.0	
2 Bighorn GT	4.3	5.0	4.5	4.2	3.8	4.1	3.3	8.7	3.7	5.7	
3 Azure	3.8	5.2	4.2	3.4	3.3	2.9	4.7	8.3	4.7	4.7	
4 Daisy	3.7	4.4	3.7	3.7	3.1	3.5	3.3	7.7	2.0	2.7	
STRONG CREEPING RED FESCUE											
1 DSRxBLMT	4.4	4.7	4.1	3.9	4.5	4.5	4.3	4.0	3.3	4.7	
2 PPG-FRR 115	4.2	4.5	4.0	3.4	4.4	4.6	6.3	4.0	1.3	4.3	
3 Chorus	4.2	5.0	4.6	3.3	3.6	4.3	5.0	5.7	5.0	3.0	
4 Soilguard	4.1	4.2	4.3	4.1	4.0	3.7	1.3	7.0	3.3	4.0	
5 14R2	4.0	4.7	4.1	3.4	3.7	4.2	4.7	4.0	3.0	2.3	
6 Cardinal II	3.9	4.4	3.7	3.3	4.1	4.1	6.0	3.3	2.3	4.0	
7 14R4	3.8	4.6	3.9	3.1	3.3	4.0	4.3	4.0	4.0	2.0	
8 ASC 295	3.8	4.8	3.4	3.1	4.0	3.6	5.7	5.0	2.0	3.0	
9 14R1	3.7	4.7	3.9	2.9	3.5	3.6	5.0	3.3	2.3	2.3	
10 PennASC295	3.7	4.7	3.4	2.9	3.7	3.7	4.7	5.3	2.3	2.7	
11 PST-4BEN	3.7	4.1	3.6	3.5	3.7	3.4	5.3	4.3	2.3	3.7	
12 PST-4RUE	3.6	4.0	4.0	3.3	3.5	3.4	5.3	3.3	1.7	4.3	
13 FT345	3.6	4.8	3.9	2.8	3.5	3.2	3.3	5.0	2.7	2.0	
14 PST-4ED4	3.6	4.2	3.4	3.4	3.4	3.4	5.3	3.7	2.3	3.0	
15 Kent	3.5	4.3	3.0	2.9	3.4	3.9	5.3	3.7	1.0	4.0	

(Continued)

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----						Establish-	-----Leaf Spot ³ -----			Dollar
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	ment ² 8 Oct. 2014	26 Jun. 2015	29 Apr. 2016	31 Aug. 2018	
STRONG CREEPING RED FESCUE (continued)											
16 PST-4SP14	3.4	4.1	3.6	2.6	3.3	3.7	5.3	3.3	2.0	3.0	
17 Marvel	3.4	4.7	4.0	2.9	2.9	2.7	6.0	4.3	3.3	1.3	
18 PST-4DR4-BS	3.4	4.1	3.5	2.9	3.3	3.4	5.3	3.7	2.3	3.0	
19 Pennlawn	3.4	4.2	3.7	2.8	3.3	3.0	6.7	3.7	2.7	1.7	
20 Audubon	3.4	4.5	3.6	2.7	3.0	3.0	5.7	3.7	2.7	1.7	
21 Aberdeen	3.3	4.4	3.7	2.5	2.9	3.2	4.3	4.0	1.7	1.7	
22 PPG-FRR 110	3.3	4.6	3.4	2.3	3.2	3.2	5.3	4.0	2.7	1.3	
23 Crossbow II	3.3	4.1	3.3	2.6	3.3	3.4	6.0	3.0	2.3	1.7	
24 PST-4CRD-U	3.3	4.4	3.9	2.4	3.0	2.8	3.7	4.7	2.7	2.0	
25 PST-Syn-4SP24	3.2	4.2	3.1	2.7	3.2	3.0	5.3	3.3	1.0	2.0	
26 Pathfinder	3.2	4.7	3.0	2.4	3.3	2.7	5.7	3.3	1.7	2.3	
27 RAD-FR35	3.2	4.3	3.5	2.2	3.3	2.7	4.0	4.3	3.3	2.0	
28 Cardinal	3.2	4.6	3.1	2.5	2.9	2.8	6.0	4.3	1.3	1.7	
29 PST-4GRY	3.1	4.0	3.5	2.5	2.7	2.8	3.3	4.0	3.0	2.0	
30 Navigator II	3.1	4.4	3.0	2.7	3.0	2.4	5.7	3.3	1.3	1.0	
31 Gibraltar	3.1	4.3	3.2	2.5	2.8	2.6	5.7	4.0	2.0	1.7	
32 FF2	3.1	4.1	2.9	2.6	2.9	2.8	4.7	3.3	2.0	1.7	
33 Miser	3.0	4.3	3.0	2.1	3.0	2.7	4.3	3.3	2.7	3.0	
34 Orbit	3.0	4.5	3.2	2.2	2.9	2.3	6.7	3.3	2.3	2.0	
35 Creeper	3.0	4.1	3.3	2.2	2.9	2.3	2.7	4.7	2.0	1.3	
36 PST-4RED	2.9	4.0	2.9	2.2	2.7	2.8	4.3	4.0	1.7	2.0	
37 PST-4GRP	2.8	3.7	3.0	2.2	2.6	2.7	5.0	3.0	2.3	2.3	

(Continued)

Table 1. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----						Establish-	-----Leaf Spot ³ -----			Dollar
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	ment ² 8 Oct. 2014	26 Jun. 2015	29 Apr. 2016	31 Aug. 2018	
STRONG CREEPING RED FESCUE (continued)											
38 Gibraltar Gold	2.8	4.5	3.5	2.0	2.4	1.6	5.3	4.0	4.0	1.3	
39 Shademaster III	2.8	4.1	3.2	2.0	2.8	2.0	3.7	4.3	2.7	1.7	
40 Xeric	2.8	3.9	3.0	2.3	2.7	2.1	5.3	3.7	1.7	2.0	
41 PST-4CRD-P	2.8	4.2	3.1	1.9	2.7	2.0	5.7	4.0	1.0	3.7	
42 Oracle	2.8	3.6	2.8	2.4	2.6	2.5	6.0	2.7	1.3	1.7	
43 Fenway	2.7	4.1	2.9	2.1	2.4	1.9	5.7	3.0	1.7	1.3	
BLENDS/MIXTURES											
1 Scottish Links Mixture	4.1	4.9	4.1	3.7	3.8	4.1	4.3	6.7	3.3	4.7	
2 Irish links mixture	3.4	4.1	3.2	3.1	3.4	3.3	3.0	4.7	2.0	4.7	
SLENDER CREEPING RED FESCUE											
1 PST-4SEA	3.6	4.8	3.1	3.1	3.2	3.7	3.7	5.0	1.3	2.7	
2 Seabreeze GT	3.6	5.1	2.9	3.3	3.0	3.6	2.7	5.7	1.0	1.7	
3 Lighthouse	2.7	3.7	2.8	2.2	2.3	2.3	6.3	3.0	2.0	1.3	
LSD @ 5%= ⁴	0.4	0.6	0.6	0.6	0.7	1.0	1.1	1.5	1.7	1.6	

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¹9 = best turf quality
²9 = fastest establishment
³9 = least disease
⁴9 = least disease

Table 2. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ. Includes all entries from the 2014 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	-----Turf Quality ¹ -----						Establish- ment ²	-----Color ³ -----					-----Percent Cover ⁴ -----					Dollar Spot ⁵
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	8 Oct. 2014	8 Oct. 2015	14 Oct. 2016	25 Sep. 2017	19 Nov. 2018	18 Nov. 2019	8 Oct. 2015	14 Oct. 2016	25 Sep. 2017	19 Nov. 2018	18 Nov. 2019	31 Aug. 2018
HARD FESCUE																		
1 Resolute	5.7	5.4	5.9	5.4	5.6	6.1	4.7	7.7	8.0	8.0	6.0	6.0	87.7	93.3	99.0	96.0	96.3	7.0
2 DLFPS-FL/3066	5.5	5.8	5.8	5.3	5.2	5.3	5.0	6.7	6.3	7.7	6.3	4.7	88.0	95.0	99.0	93.0	88.3	6.7
3 Gladiator	5.3	5.5	5.6	5.0	5.0	5.6	5.0	7.0	7.3	6.3	3.0	3.0	81.3	96.3	99.0	90.0	91.3	7.3
4 Minimus	5.3	6.1	5.4	5.1	4.6	5.4	4.7	7.0	4.0	7.0	4.0	5.7	86.3	90.0	99.0	96.0	78.3	6.3
5 MNHD-14	5.3	5.5	5.7	5.3	4.7	5.4	4.7	6.7	8.0	7.0	5.7	5.0	93.0	96.3	99.0	92.7	86.7	6.7
6 Jetty	5.2	5.3	5.4	5.0	5.2	5.2	2.7	7.3	7.0	7.7	6.0	7.7	90.0	91.7	99.0	96.0	90.0	6.0
7 DLFPS-FL/3060	5.2	5.4	5.8	5.3	4.6	4.8	4.0	6.3	8.0	7.0	5.3	6.3	92.0	93.3	99.0	89.7	81.7	6.0
8 Beacon	5.2	5.8	5.5	5.1	4.5	4.9	4.7	5.7	7.3	5.7	4.0	4.7	86.0	95.0	99.0	92.7	88.3	5.3
9 PST-4BND	4.9	5.7	5.3	4.9	4.1	4.7	5.0	7.0	4.3	7.3	4.7	7.7	91.7	93.3	99.0	86.7	75.0	5.3
10 Sword	4.8	4.5	5.4	4.9	4.6	4.8	2.3	7.3	7.0	7.0	7.0	7.0	93.0	90.0	99.0	96.0	93.0	6.3
CHEWINGS FESCUE																		
1 Compass II	4.6	5.3	4.2	3.9	5.1	4.7	5.7	6.3	5.3	6.7	5.3	4.0	92.7	95.0	96.0	96.0	85.0	5.7
2 Radar	4.5	5.4	4.2	3.5	5.0	4.5	5.0	6.3	8.0	5.7	5.0	4.3	96.0	85.0	94.3	96.0	88.0	6.3
3 Bolster	4.4	4.9	4.4	3.8	4.9	4.2	5.3	6.7	6.0	5.7	5.0	3.7	89.7	90.0	96.3	99.0	88.3	5.7
4 DLF-FRC 3338	4.4	5.4	4.2	3.7	4.4	4.3	5.0	7.3	5.3	5.7	5.3	5.3	97.0	80.0	99.0	93.0	80.0	5.0
5 DLFPS-FRC/3057	4.3	4.9	4.4	3.8	4.4	4.0	5.0	6.0	6.0	6.7	4.0	2.7	91.7	88.3	99.0	93.0	81.7	4.7
6 Momentum	4.3	4.8	4.0	3.8	4.8	4.3	4.7	7.7	7.0	7.0	6.0	5.3	93.0	90.0	99.0	99.0	86.7	5.7
7 Castle	4.2	4.8	4.1	3.5	4.3	4.4	4.7	7.3	5.0	7.0	7.3	7.3	94.3	86.7	89.7	80.0	68.3	4.3
8 BAR VV-VP3-CT	4.2	5.2	3.5	3.8	4.1	4.4	5.0	7.3	5.3	5.7	4.7	5.3	86.7	83.3	94.3	86.7	71.7	3.7
9 DLFPS-FRC/3060	4.1	5.2	3.5	3.6	4.4	3.9	5.7	6.7	6.0	6.7	6.3	5.3	91.7	80.0	99.0	92.7	76.7	4.3
10 RAD-FC44	3.9	4.8	3.6	3.6	3.9	3.7	4.7	7.7	6.0	7.0	8.0	7.3	88.3	75.0	94.7	86.7	53.3	3.3

(Continued)

Table 2. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ. Includes all entries from the 2014 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹						Establishment ²		Color ³					Percent Cover ⁴					Dollar Spot ⁵
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	8 Oct. 2014	8 Oct. 2015	14 Oct. 2016	25 Sep. 2017	19 Nov. 2018	18 Nov. 2019	8 Oct. 2015	14 Oct. 2016	25 Sep. 2017	19 Nov. 2018	18 Nov. 2019	31 Aug. 2018	
CHEWINGS FESCUE (continued)																			
11 Sandrine	3.6	4.4	3.2	2.9	3.3	4.0	5.0	6.0	5.0	6.0	4.3	6.7	90.7	63.3	70.0	66.7	63.3	2.3	
12 Cascade	3.4	4.5	2.9	3.0	3.2	3.3	5.7	6.3	5.0	6.0	5.0	5.7	81.7	63.3	91.3	76.7	58.3	2.7	
SHEEP FESCUE																			
1 Quatro	4.4	5.4	3.8	4.4	4.0	4.2	4.7	6.3	6.0	7.0	5.3	6.3	93.3	83.3	99.0	93.0	81.7	5.0	
SLENDER CREEPING FESCUE																			
1 Sea Mist	4.5	5.2	4.0	4.0	4.6	4.8	5.0	6.0	5.3	5.7	4.7	3.7	94.7	78.3	97.7	89.7	85.0	3.7	
2 Seabreeze GT	3.9	4.2	3.6	3.4	4.1	4.2	2.0	6.0	6.0	5.3	6.3	7.0	79.7	81.7	76.3	86.3	81.7	3.7	
3 Barpearl	3.5	4.3	2.8	3.0	3.4	4.1	4.3	5.3	4.0	5.0	5.0	7.0	78.3	71.7	69.7	80.0	80.0	2.3	
4 Beudin	3.0	4.2	2.7	2.7	2.5	2.9	5.0	5.0	5.0	5.7	4.7	7.0	80.0	51.7	81.7	43.3	56.7	1.7	
STRONG CREEPING FESCUE																			
1 Cardinal II	4.1	4.3	3.8	3.3	4.4	4.7	5.3	7.3	7.3	7.0	6.0	6.7	83.3	93.3	88.0	93.0	78.3	4.3	
2 DLF-FRR 6162	4.0	4.5	3.8	3.5	3.9	4.1	5.3	5.7	6.0	7.0	6.0	7.0	87.3	85.0	93.0	76.7	73.3	4.0	
3 PST-4BEN	3.8	4.4	3.7	3.5	3.9	3.6	5.3	6.7	6.0	7.3	6.0	7.3	94.0	66.7	97.7	76.7	68.3	3.7	
4 7C34	3.8	4.9	3.8	2.7	3.8	3.8	5.0	6.3	6.0	6.7	6.3	6.7	93.3	85.0	46.7	83.3	81.7	2.7	
5 DLFPS-FRR/3068	3.7	5.0	4.1	2.9	3.7	2.9	4.3	6.0	8.0	8.0	6.7	6.3	93.0	91.7	66.7	63.3	45.0	2.7	

(Continued)

Table 2. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2014 at Adelphia, NJ. Includes all entries from the 2014 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹						Establish- ment ²	Color ³					Percent Cover ⁴					Dollar Spot ⁵
	2015-19 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	8 Oct. 2014	8 Oct. 2015	14 Oct. 2016	25 Sep. 2017	19 Nov. 2018	18 Nov. 2019	8 Oct. 2015	14 Oct. 2016	25 Sep. 2017	19 Nov. 2018	18 Nov. 2019	31 Aug. 2018
STRONG CREEPING FESCUE (continued)																		
6 Marvel	3.4	4.7	3.7	2.7	3.1	2.9	5.0	6.3	5.0	7.0	6.0	6.3	97.3	90.0	56.7	70.0	58.3	1.0
7 PST-4ED4	3.4	4.1	3.6	3.1	3.3	2.9	5.0	6.7	4.0	6.3	5.7	8.0	71.7	66.7	86.7	63.3	60.0	3.0
8 PST-4DR4	3.4	4.1	3.7	2.6	3.4	3.0	4.7	7.0	6.0	6.0	6.7	8.7	81.3	70.0	63.3	70.0	58.3	2.7
9 DLFPS-FRR/3069	3.4	4.4	3.5	2.7	3.1	3.1	3.3	7.7	8.0	7.0	6.7	7.3	89.7	88.3	55.0	66.7	61.7	2.3
10 PST-4RUE	3.3	4.0	3.5	2.8	3.5	2.9	5.3	7.0	5.0	5.3	6.7	7.3	88.3	65.0	75.0	76.7	53.3	3.0
11 Kent	3.2	4.3	2.9	2.3	3.2	3.2	6.0	6.3	5.0	7.0	8.3	8.3	91.7	85.0	55.0	66.7	65.0	1.3
12 RAD-FR47	3.1	4.4	3.9	2.1	3.0	2.3	5.3	6.7	6.0	6.7	7.7	8.0	95.7	68.3	36.7	60.0	55.0	1.7
13 RAD-FR33R	3.1	4.1	3.2	2.5	3.0	2.9	5.0	7.0	6.7	7.0	7.7	7.3	85.0	80.0	63.3	66.7	55.0	1.7
14 Navigator II	3.1	4.5	3.1	2.5	3.2	2.3	4.7	7.3	8.0	7.3	7.7	7.0	83.0	73.3	65.0	56.7	46.7	1.7
15 Boreal	2.7	3.4	2.5	2.5	2.6	2.6	5.7	6.7	6.7	7.3	7.3	7.3	86.0	90.0	73.3	60.0	58.3	1.7
LSD @ 5%= ⁵	0.4	0.5	0.7	0.6	0.7	1.0	0.9	1.8	0.5	1.6	1.4	2.4	18.1	5.2	20.4	16.4	18.3	1.5

¹9 = best turf quality

²9 = fastest establishment

³9 = best genetic color

⁴100 = complete plot cover

⁵9 = least disease

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2015 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Establish- ment ² 22 Sep. 2015	Leaf Spot ³ 5 May 2016
	2016-2019 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.		
HARD FESCUE							
1 FH3 Comp	5.8	5.5	6.3	5.5	6.0	5.7	5.0
2 FH2 Comp	5.6	5.5	5.5	5.6	5.9	6.3	5.7
3 FH4 Comp	5.5	5.1	5.7	5.5	5.7	5.7	4.7
4 MNHD-15	5.4	5.1	5.7	5.2	5.5	6.0	5.7
5 FH1 Comp	5.3	5.3	5.3	5.2	5.5	6.0	5.7
6 H572	5.2	4.9	5.5	5.3	5.3	6.0	4.3
7 PPG-FL 112	5.1	5.1	5.6	4.6	5.1	6.0	5.0
8 PPG-FL 113	5.1	5.1	5.1	4.9	5.1	6.0	5.0
9 Beacon	5.0	5.0	5.5	4.4	5.0	6.7	4.3
10 Gladiator	4.9	5.4	5.4	4.2	4.6	7.3	4.3
11 Sword	4.8	5.1	4.9	4.4	4.9	6.0	5.3
12 Stonehenge II	4.8	4.9	4.8	4.6	4.9	5.3	4.3
13 Minimus	4.8	5.3	5.2	3.9	4.7	6.3	4.3
14 Firefly	4.7	5.0	4.8	4.3	4.6	6.7	5.0
15 PPG-FL 108	4.6	4.4	4.5	4.7	4.8	5.7	4.3
16 PST-4BND	4.3	4.6	4.6	3.9	4.2	5.3	4.3
17 Reliant IV	4.2	4.4	4.9	3.5	4.1	5.3	3.7
18 Jetty	4.2	2.9	4.8	4.8	4.2	1.3	4.7
19 Viking H20	4.2	4.4	4.7	3.5	4.1	6.0	4.0
20 Blueraay	4.2	4.7	4.6	3.4	4.0	6.0	5.0

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(Continued)

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2015 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Establish- ment ² 22 Sep. 2015	Leaf Spot ³ 5 May 2016	
	2016-2019 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.			
HARD FESCUE (continued)								
21	Chariot	4.1	4.1	4.3	3.7	4.1	6.3	3.7
22	Stonehenge	4.0	4.6	4.3	3.2	3.8	6.3	3.3
23	Ecostar Plus	3.9	4.3	3.9	3.7	3.7	6.7	4.7
24	Heron	3.7	3.8	4.3	3.2	3.6	4.0	3.7
CHEWINGS FESCUE								
1	FW2 Comp	5.2	5.2	5.0	5.4	5.4	7.7	5.0
2	FW3 Comp	5.0	5.2	4.7	5.0	5.2	6.7	6.3
3	Compass II	4.9	4.6	5.0	5.0	5.1	6.3	5.3
4	Woodall	4.9	5.0	4.5	5.1	5.0	8.3	5.0
5	Radar	4.9	4.4	4.7	5.3	5.0	7.7	5.3
6	PPG-FRC 119	4.8	4.8	4.4	4.9	5.0	7.3	4.0
7	FW1 Comp	4.7	5.2	4.3	4.7	4.6	7.7	7.0
8	PPG-FRC 120	4.7	4.8	4.1	4.9	4.8	5.7	6.3
9	Fairmont	4.4	4.5	3.9	4.7	4.5	7.3	4.7
10	Castle	4.2	4.4	4.2	4.0	4.3	7.7	4.0
11	Sonar	4.1	4.2	4.1	3.9	4.1	6.3	4.7
12	PPG-FRC 118	4.1	4.1	3.9	4.0	4.2	6.7	4.0
13	Wrigley 2	4.0	4.3	4.0	3.7	4.0	8.7	4.0
14	Ambrose	4.0	4.0	3.9	4.0	4.1	4.7	5.7
15	Shadow II	4.0	4.1	3.5	4.2	4.0	6.0	3.7

(Continued)

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2015 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Establish- ment ² 22 Sep. 2015	Leaf Spot ³ 5 May 2016
	2016-2019 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.		
CHEWINGS FESCUE (continued)							
16 PST-4CHT	3.8	4.3	3.8	3.3	3.8	3.7	4.3
17 PST-4CHY	3.7	4.5	3.5	3.4	3.6	3.7	4.3
18 Compass	3.6	3.6	3.5	3.5	3.6	6.7	2.3
19 PST-4SHR-CH	3.5	3.8	3.3	3.4	3.7	6.7	3.7
20 Shadow III	3.5	3.3	3.5	3.6	3.7	2.0	4.3
21 J-5	3.4	3.7	3.2	3.3	3.5	7.0	3.7
22 Enchantment	3.3	2.6	3.7	3.4	3.6	1.0	4.3
SHEEP FESCUE							
1 Marco Polo	4.1	4.2	4.1	3.9	4.0	7.7	5.3
2 Bighorn GT	4.0	4.2	4.3	3.6	4.0	6.7	4.7
3 PPG-FO 102	3.8	3.8	4.0	3.5	3.9	5.3	2.3
SLENDER CREEPING RED FESCUE							
1 Sea Mist	4.7	4.7	4.4	4.9	4.9	7.3	5.0
2 SLS Comp	4.4	4.8	4.1	4.1	4.5	6.7	6.3
3 PST-4SEA	3.7	4.0	3.8	3.2	3.8	3.3	3.3
4 Seabreeze GT	3.0	3.7	3.0	2.4	2.9	2.3	4.0
5 Lighthouse	2.0	2.3	1.8	1.7	2.0	9.0	1.7

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(Continued)

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2015 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Establish- ment ² 22 Sep. 2015	Leaf Spot ³ 5 May 2016
	2016-2019 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.		
STRONG CREEPING RED FESCUE							
1 PPG-FRR 115	5.0	5.0	5.0	5.1	5.1	6.3	4.7
2 PPG-FRR 116	4.9	4.9	4.9	4.8	4.9	6.3	4.3
3 BMS-DSR	4.7	5.2	4.3	4.6	4.8	5.3	5.7
4 FR2 Comp	4.7	5.4	4.7	3.9	4.8	6.0	5.3
5 FR3 Comp	4.7	5.4	4.4	4.1	4.8	7.0	5.3
6 FR4 Comp	4.5	4.6	4.3	4.6	4.6	7.7	4.0
7 FR1 Comp	4.4	4.9	4.2	3.9	4.4	7.0	4.0
8 BMS-OSBM	4.3	4.3	4.3	4.1	4.3	5.7	4.3
9 BMS-BRBMX2	4.2	4.3	4.2	4.0	4.3	4.3	4.7
10 ASC 295	4.2	4.3	4.0	4.2	4.2	6.7	4.3
11 Cardinal II	3.8	4.5	4.3	2.5	3.7	6.0	4.7
12 Navigator II	3.6	4.3	4.0	2.7	3.5	7.3	4.0
13 RUF1	3.5	4.3	3.5	2.7	3.3	4.0	5.7
14 Marvel	3.4	4.1	3.7	2.6	3.4	6.7	4.3
15 SR 5250	3.4	3.9	4.0	2.4	3.4	5.7	4.7
16 Shademaster III	3.4	4.2	3.6	2.6	3.3	3.3	6.0
17 PST-4BEN	3.4	4.1	4.1	2.1	3.2	7.0	4.0
18 PPG-FRR 114	3.4	3.8	3.7	2.5	3.4	6.7	1.7
19 Cardinal	3.3	4.3	3.6	2.2	3.2	5.3	5.3
20 PST-4GRY	3.3	3.9	3.9	2.2	3.1	2.3	4.3

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(Continued)

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2015 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Establish- ment ² 22 Sep. 2015	Leaf Spot ³ 5 May 2016
	2016-2019 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.		
STRONG CREEPING RED FESCUE (continued)							
21 PST-4DR4	3.3	3.9	3.6	2.4	3.2	6.0	4.0
22 Garnet	3.3	3.9	3.6	2.4	3.2	4.7	2.7
23 Epic	3.3	3.3	3.5	2.8	3.3	3.3	2.0
24 PST-4ED4	3.1	4.0	3.2	2.3	3.1	5.7	3.0
25 PST-4SP14	3.1	3.7	3.5	2.3	3.0	5.0	3.7
26 PST-4RED	3.1	3.4	3.8	2.3	3.1	2.7	3.7
27 Kent	3.1	3.5	3.3	2.5	3.2	7.3	3.3
28 PST-4RUE-14	3.1	3.5	3.6	2.2	3.0	6.0	2.7
29 Audubon	3.1	3.5	3.9	2.0	3.0	8.3	3.0
30 PST-4CRD-U	3.0	3.4	3.6	2.2	2.9	2.3	5.0
31 FR 35	3.0	3.8	3.0	2.1	3.1	6.7	3.7
32 Fenway	3.0	3.4	3.6	2.0	2.9	8.7	1.3
33 Orbit	2.9	3.7	2.7	2.4	3.0	7.7	3.7
34 PST-4CRD-P	2.9	3.8	3.2	1.9	2.8	7.7	3.7
35 Xeric	2.8	3.4	3.4	1.9	2.7	7.3	1.7
36 Gibraltar Gold	2.8	3.4	3.4	1.8	2.7	5.7	3.7

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(Continued)

Table 3. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2015 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Establish- ment ² 22 Sep. 2015	Leaf Spot ³ 5 May 2016
	2016-2019 Avg.	2016 Avg.	2017 Avg.	2018 Avg.	2019 Avg.		
BLENDS/MIXTURES							
1 Scottish Links Mixture	3.7	3.5	3.5	3.9	3.7	5.7	4.0
2 Irish Links Mixture	2.9	3.5	2.7	2.5	2.9	4.7	3.0
LSD @ 5%=	0.6	0.8	0.8	0.7	1.2	1.8	1.8

¹9 = best turf quality
²9 = fastest establishment
³9 = least disease

Table 4. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2016 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				Dollar Spot ² 25 Jul. 2019
	2017-2019 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	
HARD FESCUE					
1 A52 comp	5.4	4.7	5.6	5.9	7.0
2 A56 comp	5.3	5.4	5.6	4.9	6.7
3 Z16-RHF	5.2	5.0	5.3	5.4	7.3
4 A55 comp	5.2	5.3	5.1	5.3	6.7
5 A51 comp	5.2	5.7	4.9	4.9	6.0
6 PPG-FL 113	5.1	5.5	5.1	4.8	7.0
7 A5C7 comp	5.1	5.2	5.2	4.8	6.0
8 Jetty	4.9	4.8	5.2	4.7	6.7
9 PPG-FL 115	4.9	5.0	4.8	4.9	6.7
10 Sword	4.9	5.3	4.6	4.9	6.7
11 A54 comp	4.9	4.5	5.2	5.0	5.3
12 SPHD16 comp	4.9	4.5	5.0	5.2	6.7
13 A53 comp	4.8	4.8	5.1	4.7	5.3
14 Stonehenge II	4.5	4.8	4.1	4.7	7.3
15 Beacon	4.5	4.8	4.2	4.6	6.3
16 Minimus	4.5	5.0	4.5	3.9	4.7
17 Gladiator	4.4	5.0	4.7	3.5	3.7
18 PST-4BND	4.3	3.9	4.3	4.6	6.0
19 Viking H2O	4.2	4.7	4.1	4.0	4.3
20 Reliant IV	4.2	4.1	3.9	4.5	6.3
21 Blueray	4.0	4.5	4.1	3.3	5.0
CHEWINGS FESCUE					
1 WYR comp	5.4	5.3	5.1	5.8	7.0
2 Z16-RCF	5.2	5.0	5.0	5.7	7.7
3 Woodall	5.1	4.9	5.0	5.4	6.7
4 PPG-FRC 120	5.0	4.9	5.0	5.1	6.7
5 WTC comp	5.0	4.8	4.7	5.3	6.0
6 Fairmont	4.6	4.8	4.7	4.4	4.0
7 Compass II	4.5	4.6	4.4	4.4	4.0
8 Radar	4.4	4.5	4.2	4.4	6.7
9 Treasure II	4.4	4.4	4.4	4.4	3.7
10 PST-4SWT	4.0	4.3	3.6	4.1	6.7

(Continued)

Table 4. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2016 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				Dollar Spot ² 25 Jul. 2019
	2017-2019 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	
CHEWINGS FESCUE (continued)					
11 Ambrose	4.0	3.8	3.6	4.6	6.3
12 PST-4SHR-CH	3.7	3.4	3.6	4.0	5.3
13 PST-4CHT	3.6	3.1	3.8	3.8	4.7
SHEEP FESCUE					
1 Azure	3.9	4.0	3.8	3.9	5.7
2 Blue Mesa	2.8	3.1	2.9	2.5	4.0
SLENDER CREEPING RED FESCUE					
1 Sea Mist	4.3	4.4	3.9	4.6	6.7
STRONG CREEPING RED FESCUE					
1 PPG-FRR 116	4.7	4.8	4.7	4.5	6.3
2 Z16-DR	4.6	4.7	4.6	4.5	5.7
3 5Z5 comp	4.6	5.1	4.8	3.8	3.7
4 PH comp	4.5	4.8	4.3	4.5	3.7
5 Z16-RCRF	4.5	4.7	4.3	4.5	5.0
6 5Z4 comp	4.4	5.1	4.2	3.8	2.0
7 5Z3 Comp	4.3	5.1	4.2	3.7	3.3
8 Z16-DRBM2X	4.2	4.1	3.9	4.7	6.7
9 5Z2 comp	4.2	5.2	3.9	3.4	3.0
10 PST-Syn-45PR	4.1	4.0	4.7	3.7	6.3
11 Z16-DRBM	4.1	4.0	3.8	4.4	7.3
12 5Z1 comp	4.0	5.0	4.1	3.0	1.7
13 Cardinal II	4.0	4.4	4.0	3.8	5.3
14 Shademaster III	3.6	4.0	3.7	3.0	2.3
15 PST-4BEN	3.5	4.4	3.3	2.6	2.3
16 PST-4DR4	3.4	4.3	3.4	2.6	1.0
17 Ruddy	3.4	4.7	3.0	2.4	1.0
18 PST-4CRD-P	3.3	4.3	2.9	2.9	2.0
19 Marvel	3.3	4.4	3.0	2.6	1.3
20 PST-4SP14	3.3	3.9	3.5	2.6	2.0

(Continued)

Table 4. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2016 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				Dollar Spot ² 25 Jul. 2019
	2017-2019 Avg.	2017 Avg.	2018 Avg.	2019 Avg.	
STRONG CREEPING RED FESCUE (continued)					
21 Kent	3.3	4.1	3.2	2.6	1.3
22 Navigator II	3.3	4.5	3.2	2.1	1.0
23 PST-4RUE-14	3.3	3.8	3.3	2.7	2.7
24 PST-4ED4	3.2	3.9	3.3	2.5	1.3
25 PST-4CRD-U	3.2	4.2	3.1	2.3	1.3
26 Orbit	3.2	4.1	3.0	2.5	1.0
27 Xeric	3.2	4.1	3.0	2.5	1.7
28 Wendy Jean	3.1	4.0	2.8	2.6	1.3
29 Kent	3.1	4.0	2.6	2.6	1.0
30 Fenway	2.8	3.5	2.7	2.1	2.7
31 PST-4GRY	2.8	2.0	3.2	3.1	4.0
32 Fenway	2.7	3.0	2.7	2.5	1.7
33 Oracle	2.6	3.1	2.4	2.2	3.3
LSD @ 5%=	0.5	0.6	0.8	0.7	1.6

¹9 = best turf quality

²9 = least disease

Table 5. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			Summer Patch ² 25 Sep. 2019
	2018-2019 Avg.	2018 Avg.	2019 Avg.	
HARD FESCUE				
1 HAQ1	6.0	5.9	6.0	7.0
2 PPG-FL 122	5.9	5.7	6.1	7.3
3 HAQ2	5.8	5.4	6.1	6.7
4 Minimus	5.8	5.3	6.2	6.3
5 PPG-FL 115	5.7	5.4	6.0	5.0
6 PPG-FL 124	5.7	5.8	5.6	5.0
7 BM2 SEL	5.6	5.4	5.8	7.3
8 Z16-RHF	5.6	5.5	5.6	4.7
9 PPG-FL 123	5.5	5.7	5.3	3.7
10 Jetty	5.5	5.6	5.4	5.3
11 PPG-FL 113	5.5	5.4	5.5	5.3
12 Beacon	5.2	5.0	5.3	4.3
13 Sword	5.0	4.9	5.1	6.3
14 FL 58 SEL M2	5.0	5.2	4.7	5.0
15 Viking H2O	4.9	4.6	5.3	6.7
16 Gladiator	4.9	5.0	4.8	5.0
17 SR 3150	4.7	4.5	4.8	4.7
18 Reliant IV	4.6	4.3	4.8	5.7
19 Stonehenge II	4.0	4.1	3.9	3.7
20 Spartan II	3.8	3.9	3.6	3.3
21 Eureka II	3.3	3.5	3.1	2.7
CHEWINGS FESCUE				
1 CHU1	5.9	5.7	6.0	7.7
2 Z16-RCF	5.6	5.4	5.8	8.3
3 PPG-FRC 120	5.3	5.1	5.4	7.3
4 PPG-FRC 126	5.2	5.3	5.0	5.7
5 CHU2	5.1	5.3	5.0	5.0
6 Fairmont	5.0	5.2	4.9	6.7
7 Radar	5.0	5.2	4.8	6.3
8 Woodall	5.0	4.9	5.0	5.7
9 CHP1	4.9	5.1	4.7	6.0
10 LaCrosse	4.9	4.9	4.9	6.7

(Continued)

Table 5. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			Summer Patch ² 25 Sep. 2019
	2018-2019 Avg.	2018 Avg.	2019 Avg.	
CHEWINGS FESCUE (continued)				
11 Leeward	4.8	4.9	4.7	6.3
12 Wrigley 2	4.8	4.5	5.0	7.0
13 CHP2	4.7	4.8	4.5	5.0
14 SR 5130	4.5	4.3	4.8	6.7
15 Castle	4.5	4.4	4.6	7.7
16 Compass II	4.5	4.8	4.1	4.3
17 Ambrose	4.3	4.2	4.4	7.0
18 Sonar	4.3	4.6	4.0	3.7
19 Longfellow 3	4.2	4.5	3.8	4.0
20 Windward	3.7	3.9	3.4	5.0
21 PST-Syn-4DUB	2.1	2.3	1.9	3.0
SHEEP FESCUE				
1 PST-4GUDS Bulk	4.0	4.3	3.8	7.7
2 Azure	3.6	3.9	3.4	2.7
3 Quatro	3.2	3.8	2.7	3.0
4 Blue Mesa	3.1	3.5	2.7	4.0
SLENDER CREEPING RED FESCUE				
1 Seamist	4.6	4.6	4.6	6.0
2 PPG-FRT 103	4.3	4.0	4.6	4.0
3 Shoreline	3.7	3.4	4.0	6.3
STRONG CREEPING RED FESCUE				
1 PPG-FRR 121	5.3	5.0	5.6	8.7
2 PPG-FRR 116	4.8	5.1	4.5	6.7
3 Cardinal II	4.6	4.6	4.6	8.0
4 Navigator II	4.5	4.6	4.5	6.7
5 Z16-DR	4.5	4.0	4.9	7.7
6 Z16-RCRF	4.3	4.4	4.3	7.0
7 Ruddy	4.3	4.4	4.2	7.7
8 PPG-FRR 122	4.3	4.3	4.2	7.3
9 Marvel	4.3	4.4	4.1	6.3
10 Chantilly	4.2	4.7	3.8	6.3

(Continued)

Table 5. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			Summer Patch ² 25 Sep. 2019
	2018-2019 Avg.	2018 Avg.	2019 Avg.	
STRONG CREEPING RED FESCUE (continued)				
11 Garnet	4.2	4.2	4.1	7.0
12 Cindy Lou	4.1	4.2	4.0	5.7
13 Z16-DRBM	4.1	3.8	4.3	7.0
14 Orbit	4.0	3.9	4.1	7.7
15 Rose City	3.9	4.1	3.6	6.7
16 Jasper II	3.6	3.4	3.8	7.3
17 Class One	3.5	3.5	3.6	7.7
18 ORC 126	3.4	2.9	3.9	6.3
19 Z16-DRBM2X	3.2	3.1	3.2	6.3
20 Epic	2.0	2.3	1.8	5.0
21 Oracle	1.9	2.3	1.6	5.5
LSD at 5%=	1.0	0.9	1.2	2.7

¹9 = best turf quality

²9 = least disease

Table 6. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2017 at Adelphia, NJ. Includes all entries from the 2017 Cooperative Turfgrass Breeders Test (CTBT).

Cultivar or Selection	-----Turf Quality ¹ -----			Establishment ² 12 Oct. 2017
	2018-2019 Avg.	2018 Avg.	2019 Avg.	
HARD FESCUE				
1 PPG-FL 115	6.7	6.6	6.9	6.3
2 DLF-FL 53 M3	6.3	5.9	6.6	5.3
3 Z16-RHF	6.2	6.0	6.4	6.0
4 DLF-FL 63	6.2	5.8	6.6	5.7
5 PPG-FL 113	6.1	5.8	6.4	6.3
6 AHF205	5.8	5.2	6.4	5.3
7 ACF314	5.8	5.6	5.9	6.7
8 DLF-FL 64	5.7	5.9	5.5	5.3
9 Beacon	5.6	5.5	5.7	6.3
10 DLF-FL 54 M3	5.5	5.3	5.6	5.7
11 ACF328	5.4	5.0	5.8	7.0
12 ACF303	5.3	5.2	5.3	6.3
13 AHF222	5.2	4.7	5.7	6.0
14 AHF218	5.2	4.9	5.4	7.3
15 AHF225	5.2	5.0	5.3	6.3
16 SR 3150	5.1	4.8	5.4	7.0
17 ACF319	5.1	4.7	5.4	6.7
18 AHF211	4.7	4.5	5.0	7.0
19 ACF327	4.6	4.4	4.8	8.3
20 PST-4BND	4.5	4.4	4.6	4.7
21 Eureka II	4.3	3.9	4.6	7.0
22 ACF309	4.0	3.7	4.3	7.0
CHEWINGS FESCUE				
1 DLF-FRC 50	6.2	5.6	6.7	7.0
2 Z16-RCF	5.9	5.3	6.6	6.3
3 PPG-FRC 120	5.9	5.6	6.2	6.7
4 DLF-FRC 54	5.8	5.4	6.2	6.0
5 Radar	5.7	5.7	5.6	7.7
6 PPG-FRC 118	5.3	5.1	5.5	7.3
7 DLF-FRC 51	5.3	4.8	5.8	8.0
8 Sonar	5.2	4.9	5.5	8.0
9 PPG-FRC 113	5.1	4.8	5.4	4.3
10 PST-4SWT	4.7	4.1	5.3	7.3

(Continued)

Table 6. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2017 at Adelphia, NJ. Includes all entries from the 2017 Cooperative Turfgrass Breeders Test (CTBT).

Cultivar or Selection	-----Turf Quality ¹ -----			Establishment ² 12 Oct. 2017
	2018-2019 Avg.	2018 Avg.	2019 Avg.	
CHEWINGS FESCUE (continued)				
11 Survivor	4.7	4.4	4.9	8.0
12 Culumbra II	4.5	4.4	4.5	6.3
13 DLF-FRC 52	3.6	3.7	3.5	5.7
14 Koket	2.4	2.2	2.5	7.3
SHEEP FESCUE				
1 PST-4GUD	4.3	4.6	4.1	3.7
2 Bighorn GT	4.2	3.9	4.6	5.7
3 PPG-FO 102	4.1	4.4	3.8	4.0
SLENDER CREEPING RED FESCUE				
1 SeaMist	4.3	3.9	4.6	8.7
2 Seabreeze GT	3.1	3.3	2.8	4.3
STRONG CREEPING RED FESCUE				
1 ASC295	4.8	4.6	4.9	5.0
2 PPG-FRR 115	4.7	4.5	4.9	7.7
3 ASR197	4.7	4.1	5.4	8.3
4 DLF-FRR 79	4.5	4.3	4.7	6.3
5 PPG-FRR 116	4.5	4.1	4.8	7.3
6 PST-4CR7	4.4	4.2	4.6	8.3
7 Cardinal II	4.3	4.0	4.7	4.0
8 ASC350	4.3	4.0	4.5	8.0
9 ASC359	4.1	4.1	4.0	7.3
10 ASC362	4.0	3.7	4.3	7.0
11 DLF-FRR 72 M2	4.0	3.7	4.3	8.3
12 ASC361	3.9	4.0	3.9	7.3
13 Z16-DRBM	3.8	3.5	4.2	7.7
14 PST-4SP14	3.8	3.5	4.0	3.7
15 PST-4BEN	3.8	3.7	3.8	5.0
16 ASC348	3.7	3.6	3.7	6.0
17 ASC351	3.6	3.6	3.6	8.0
18 ASC356	3.6	3.5	3.7	7.3
19 ASR175	3.6	3.3	3.9	3.7
20 DLF-FRR 77	3.6	3.5	3.6	6.7

(Continued)

Table 6. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2017 at Adelphia, NJ. Includes all entries from the 2017 Cooperative Turfgrass Breeders Test (CTBT).

Cultivar or Selection	-----Turf Quality ¹ -----			Establishment ² 12 Oct. 2017
	2018-2019 Avg.	2018 Avg.	2019 Avg.	
STRONG CREEPING RED FESCUE (continued)				
21 Shademaster III	3.5	3.4	3.7	6.3
22 PPG-FRR 114	3.4	3.2	3.6	9.0
23 PST-4RUE	3.4	3.4	3.4	4.0
24 ASC347	3.3	3.4	3.2	6.3
25 Lustrous	3.3	3.2	3.4	8.7
26 PST-4DR4	3.3	3.5	3.0	3.7
27 ASC354	3.2	3.1	3.2	6.3
28 PST-4ED4	3.0	3.4	2.7	8.0
29 Z16-DRBM2X	3.0	2.8	3.1	3.0
30 Xeric	2.9	3.0	2.9	7.0
31 DLF-FRR 75	2.1	2.2	1.9	7.3
32 DLF-FRR 76	1.8	2.0	1.6	8.7
33 Boreal	1.7	1.9	1.6	9.0
LSD at 5%=	0.6	0.7	0.9	1.5

¹9 = best turf quality

²9 = fastest establishment

Table 7. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2019 Avg.	Gray Leaf Spot ² 17 Oct. 2018
CHEWINGS FESCUE		
1 Radar	5.1	9.0
2 PSFC09-2	5.0	9.0
3 CLS2	5.0	9.0
4 FRC 45 SEL	4.9	9.0
5 Intrigue	4.8	9.0
6 Compass II	4.7	9.0
7 Woodall	4.7	9.0
8 Momentum	4.6	9.0
9 Lacrosse	4.6	9.0
10 LS3000	4.5	9.0
11 Enchantment	4.5	9.0
12 Brittany 2	4.4	8.7
13 PST-Syn-4SWG	4.2	8.7
14 Treazure II	4.2	9.0
15 Ambrose	4.2	9.0
16 Conductor	4.2	9.0
17 Shadow III	4.0	9.0
18 Carson	4.0	9.0
19 Wrigley 2	4.0	9.0
20 PST-4SWTM	4.0	9.0
21 Castle	4.0	9.0
22 Z16-RCF	4.0	8.5
23 Longfellow 3	3.9	9.0
24 SR 5130	3.9	9.0
25 Chancellor	3.8	8.7
26 RAD-FC63	3.7	9.0
27 Windward	3.1	9.0
28 PST-4SWT	2.9	9.0
29 Caldris	2.9	9.0
30 Carousel	2.2	9.0
HARD FESCUE		
1 PPG-FL 121	5.0	7.0
2 FL 58 SEL	4.9	5.7
3 AS6	4.9	6.0
4 Jetty	4.8	5.3
5 Beacon	4.2	4.3

(Continued)

Table 7. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2019 Avg.	Gray Leaf Spot ² 17 Oct. 2018
HARD FESCUE (continued)		
6 BM2 SEL	4.1	5.3
7 Z16-RHF	4.0	5.5
8 Blueray	3.9	7.3
9 Viking H2O	3.8	6.0
10 Clarinet	3.8	4.0
11 Stonehenge II	3.7	5.5
12 Minimus	3.6	3.0
13 RAD-FL67	3.5	3.0
14 SPHD Comp	3.5	3.0
15 Granite	3.4	4.0
16 Sword	3.4	4.0
17 Beudin	3.3	7.0
18 Reliant IV	3.1	4.3
19 Spartan 2	3.1	4.5
20 Eureka II	3.1	5.0
21 Gladiator	2.9	.
22 Quatro	2.1	1.5
23 SR 3210	2.0	1.0
24 SR 3150	1.8	.
25 Azay Blue	1.6	8.0
STRONG CREEPING RED FESCUE		
1 Navigator II	4.5	9.0
2 Rosecity	4.3	9.0
3 FT7 SEL	4.3	9.0
4 RAD-FR64	4.2	9.0
5 Cindy Lou	4.2	9.0
6 FRR 77B	4.2	9.0
7 PPG-FRR 121	4.1	9.0
8 Z16-DR-BM2X	4.1	9.0
9 Orbit	4.1	9.0
10 PST-4ED4	4.0	9.0
11 Chantilly	4.0	9.0
12 Ruddy	3.8	9.0
13 Wendy Jean	3.8	9.0
14 Marvel	3.8	8.7
15 Chorus	3.7	9.0

(Continued)

Table 7. Performance of fine fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2019 Avg.	Gray Leaf Spot ² 17 Oct. 2018
STRONG CREEPING RED FESCUE (continued)		
16 Jasper II	3.7	8.7
17 Cardinal II	3.7	8.7
18 ORC 126 M2	3.7	9.0
19 Z16-RCRF	3.6	9.0
20 Leigh	3.6	9.0
21 Kent	3.5	9.0
22 Z16-DRBM	3.5	9.0
23 Fox Fire 2	3.5	9.0
24 Fenway	3.4	9.0
25 PST-4CR7	3.4	9.0
26 Wisp	3.3	9.0
27 Xeric	3.1	9.0
28 Fenway	3.1	9.0
29 Epic	3.0	8.3
30 PST-420E	2.9	8.7
31 Z16-DR	2.9	8.7
32 Shademaster III	2.8	9.0
33 Garnet	2.8	9.0
34 SR 5250	2.7	9.0
35 Maxima	2.6	8.7
36 Class One	2.3	9.0
SHEEP FESCUE		
1 Bighorn GT	3.5	7.3
2 PST-4GUD Plus	3.1	8.5
3 Dall	2.8	7.3
4 Blue Mesa	2.8	8.7
5 PPG-FO 103	2.6	1.0
LSD at 5%= ²	1.0	1.0

¹9 = best turf quality

²9 = least disease

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

	-----2014-----		-----2015-----		-----2016-----		-----2017-----		-----2018-----		-----2019-----	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht	N	Ht	N	Ht
Table 1 (2014)	–	1.50	1.50	1.50	1.50	1.50	1.00	1.50	1.50	1.50	1.50	1.50
Table 2 (2014 NTEP)	–	1.50	1.50	1.50	1.50	1.50	1.00	1.50	1.50	1.50	1.50	1.50
Table 3 (2015)	–	–	–	1.50	1.00	1.50	1.00	1.50	1.50	1.50	1.50	1.50
Table 4 (2016)	–	–	–	–	–	1.50	1.00	1.50	1.50	1.50	1.50	1.50
Table 5 (2017)	–	–	–	–	–	–	–	1.50	1.50	1.50	1.50	1.50
Table 6 (2017 CTBT)	–	–	–	–	–	–	–	1.50	1.50	1.50	1.50	1.50
Table 7 (2018)	–	–	–	–	–	–	–	–	–	1.50	1.50	1.50

¹Annual N applied (lb/1000 ft²)

²Mowing height (inches)