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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, 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 2017 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 TALL FESCUE CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS, 2017

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Tall fescue [*Schedonorus arundinaceus* (Schreb.) Dumort.], a cool season grass that is native to Europe and some parts of Africa (Buckner et al., 1979), was introduced to the United States in the 1600s (Beard, 2013). Tall fescue gained popularity after the release of the first commercial cultivar 'KY-31' in 1940, which enhanced forage production in United States. The utility of tall fescue extended to turfgrass after the release of the first turf type tall fescue cultivar 'Rebel' in 1979 (Funk et al., 1981). Since then, tall fescue has become one of the major cool season turf species used in the United States because of its winter hardiness, persistence, adaptability to a wider range of soils, and tolerance to shade and drought. Tall fescue has a deep root system that enhances drought tolerance and allows the plant to stay green longer in dry conditions. Tall fescue also has among the best heat tolerance of the cool-season grasses. These qualities have increased the use of tall fescue in home lawns, sports fields, golf course roughs, recreational fields, sod farms, and roadsides.

The Rutgers tall fescue breeding program has focused on turf quality (darker leaf color, lower growth habit, finer leaf texture, and denser turf canopy) and the presence of endophytes that convey resistance to insects that feed above ground. Endophytic fungi live symbiotically inside the stem and leaf tissues (intercellular areas) and produce alkaloids that enhance tolerance to above ground insect feeding (Funk et al., 1993). The incorporation of endophytic fungi in tall fescue has been a major breeding objective for many years.

One of the major limitations of tall fescue is its susceptibility to brown patch, a disease caused by the fungus *Rhizoctonia solani*, in warm and humid

regions. Brown patch, a soilborne disease of both cool season and warm season turfgrasses, causes blighted, circular to irregularly-shaped patches to form in the turf which quickly fade to light brown. Breeding for disease resistance is one of the main objectives of the Rutgers breeding program. The demand for disease resistant cultivars, with concurrent higher turf quality and superior performance, is high among consumers.

The Rutgers turfgrass breeding program has continued to develop improved tall fescue cultivars. At present, thousands of germplasm sources have gone through numerous cycles of selection and hybridization to improve turf quality, disease resistance, billbug resistance, and wear and drought tolerance. To achieve these objectives, collected germplasm has also been incorporated in the breeding program to introduce beneficial genes into tall fescue populations. The program also utilizes a rainout shelter to screen for drought tolerance in tall fescue. As a result, this characteristic has greatly improved, which is a major goal for the tall fescue breeding program.

PROCEDURES

Field Establishment and Maintenance

Four tall fescue trials were established at the Rutgers Plant Biology Research and Extension Farm at Adelphia, NJ in 2012 and 2014 to 2016 (Tables 1 to 4). All tests were established in September by hand sowing 1.41 oz of seed per 3 x 5 ft plot (5.9 lb per 1000 ft²), except for the 2012 NTEP test which was sown at the rate of 2.29 oz of seed per 4 x 6 ft plot (5.9 lb per 1000 ft²). All tests were arranged in

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randomized complete block design with three replications, and each plot had a 6-inch unseeded border to limit contamination.

Broadleaf weeds were controlled with spring or fall applications of 2, 4-D, dicamba (Banvel), and MCPP. Dithiopyr (Dimension) was applied in spring to control annual grassy weeds. In July, metalaxyl (Subdue) was applied when required to prevent Pythium blight. Single applications of fertilizer did not exceed 1.0 lb nitrogen (N) per 1000 ft². The amount and timing of N applied to the turf varied to encourage disease and other stresses (Table 5). Each trial at establishment had an application of 10-10-10 fertilizer at the rate of 1.0 lb per 1000 ft². Field trials were mowed regularly (approximately 1 to 2 times per week) with rotary mowers to maintain a 1.5-inch height of cut.

The annual rate of N applied as well as mowing height for each test is presented in Table 5. Based on soil test results, lime was applied as needed to maintain a pH of 6.0 to 6.5. Irrigation was applied to each test as needed to avoid wilting.

Visual Assessment

All tests were rated throughout the growing season for visual turf quality (i.e., overall appearance, turf color, uniformity, density, mowing quality, reduced vertical growth rate, leaf texture, and damage due to insects and diseases). Other ratings such as color and damage due to specific diseases were documented when significant differences were evident. All plots were rated on a 1 to 9 scale, where 9 represented the best results. Plots were evaluated by a number of turfgrass specialists to reduce the impact of personal bias for particular characteristics. All data were summarized and subjected to an analysis of variance. Means were separated using Fisher's protected least significant difference (LSD) means separation test.

RESULTS AND DISCUSSION

Results of tall fescue tests are found in Tables 1 through 4. Tests in Tables 1 to 3 are ranked by overall (multi-year) turf quality average; the test in Table 4 is ranked by turf quality in 2017. A high quality average is generally indicative of better disease resistance, a darker green color, greater turf density and uniformity, finer leaf texture, lower growth habit, improved mowing quality, and less damage due to insects.

Turf Quality

Higher turf quality increases the utility of tall fescue in athletic fields, school grounds, sod farms, lawns, and parks. Turf quality characteristics include canopy density, uniformity, lower growth habit, finer leaf texture, dark green color, and tolerance to disease or environmental stress.

The selections and cultivars that had the highest quality ratings in the 2012 NTEP (National Turfgrass Evaluation Program) Tall Fescue Test (Table 1) were Regenerate, Thor, Avenger II, 4th Millennium SRP, Rebounder, Amity, MET 1, Titanium 2LS, Firecracker SLS, Rockwell, and Supersonic, and the selections and cultivars that had the lowest quality ratings were BAR Fa 120878 and Ky-31. In the 2014 tall fescue test (Table 2), the highest quality selections and cultivars were NT-3, 3N2 Comp, 3B3 Comp, and 13TFC18, and the selections and cultivars with the lowest quality ratings were PST-5BGR. In the 2015 tall fescue test (Table 3), the highest quality selections and cultivars were WN1 Comp, WN2 Comp, RS3 Comp, RS4, SCR2 Comp, NAI-15-3N2, HFBC1 Comp, PPG-TF-232, WB2 Comp, and HFBC2 Comp, and the lowest quality entries were Rain Dance, NoNet, Titan Rx, Titan Ultra, and Rendition RX. Finally, in the 2016 tall fescue test (Table 4), the highest quality rated selections and cultivars were RHF Comp, PPG-TF 268, PPG-TF 255, PPG-TF 267, PPG-TF 262, and PPG-TF 276, and the selections and cultivars with the lowest quality ratings were LLT-993, GO-FKYT, Scorpion II, and GO-FNKY.

Color

The 2012 NTEP Tall Fescue Test (Table 1) was rated for color in 2017 September. This rating is based on a 1 to 9 scale where 1 = light green and 9 = dark green. The darkest selections and cultivars were Regenerate, Foxhound, Hover, RAD-TF-92, and Kingdom, while the lightest colored selections and cultivars were BAR Fa 120878 and Ky-31.

Texture

The 2012 NTEP test was rated for leaf texture in 2017 (Table 1). The rating for leaf texture is based on a 1 to 9 scale where 1 = coarse texture (wide leaf blades) and 9 = finer texture (narrow leaf blades). The selections and cultivars with the finest texture in this test were Foxhound, Hover, Thor, Dynamite LS, Firecracker SLS, Reflection, Avenger II, Titanium 2LS, ATF 1612, Paramount, Xtender, and Unitus, while

the selections with the coarsest texture were BAR Fa 120878 and Ky-31.

Disease Resistance

Brown patch, a major disease of tall fescue, causes significant damage during humid and warm weather. Improved cultivars are available but none are completely resistant to this disease. In the 2012 NTEP test (Table 1), the selections and cultivars that showed the greatest resistance to brown patch were Thor, Screamer LS, Maestro, Foxhound, Reflection, BIZEM, and Rhambler 2 SRP, while the selections and cultivars most susceptible to this disease were Marauder, 204 Res. Blk 4, and Comp. Res. SST. In the 2014 tall fescue test (Table 2), the most resistant selections and cultivars were NT-3, Technique, Falcon H2O, Essential, 13TFC8, and 13TFC14, while the selections and cultivars least resistant to brown patch were Selkirk, Cumberland, PF5-18, Sequester, and NA-TDDM-VC. In the 2015 tall fescue test (Table 3), entries that were most resistant to brown patch were SCR2 Comp, HFBC2 Comp, PPG-TF-235, and PPG-TF-236, while those least resistant to brown patch were NAI-15-TXR, Sequester, GO-MNKY-H, and Tribute II. In the 2016 tall fescue test (Table 4), the selections and cultivars that were most resistant to brown patch were RH3 Comp, PPG-TF 231, and TSM Comp, while the selections and cultivars that were least resistant were LLT-809, LLT-993, and GO-FKYT.

SUMMARY

At Rutgers, turfgrass breeders are continuing to make progress in improving tall fescue to extend its acceptance in the turfgrass industry and among consumers. Resistance to brown patch, rapid establishment, and higher turf quality are among the primary goals of tall fescue breeding programs. Ongoing evaluation of cultivars and germplasm helps to identify superior lines that can be used by breeders to

develop new cultivars. Efforts to collect germplasm and incorporate endophytes in tall fescue may lead to increased persistence and tolerance to above ground insect feeding and diseases. Therefore, the efforts to improve tall fescue would extend its utility to the areas where it has not been used before and would be suitable to different regions in United States.

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Table 1. Performance of tall fescue cultivars and selections in a turf trial established in September 2012 at Adelphia, NJ. Includes all entries from the 2012 National Tall Fescue Test (NTEP).

	Cultivar or Selection	Turf Quality ¹					2017 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.	2017 Avg.	Color ² Sept. 2017	Brown Patch ³ July 2017	Leaf Texture ⁴ Sept. 2017
		2013-2017 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.									
1	Regenerate	6.6	6.6	6.5	6.8	6.1	6.6	6.5	6.8	6.1	7.2	9.0	6.0	8.0	
2	Thor	6.3	6.1	5.9	6.1	5.9	6.1	5.9	6.1	5.9	7.3	8.3	7.7	9.0	
3	Avenger II	6.2	5.5	6.3	6.0	6.5	5.5	6.3	6.0	6.5	6.7	7.7	6.3	9.0	
4	4th Millennium SRP	6.1	6.2	6.1	6.2	5.5	6.2	6.1	6.2	5.5	6.7	8.3	6.0	8.0	
5	Rebounder	6.1	5.9	6.1	6.4	5.9	5.9	6.1	6.4	5.9	6.3	7.7	4.7	8.0	
6	Amity	6.1	5.8	6.0	6.5	5.5	5.8	6.0	6.5	5.5	6.7	7.3	6.7	8.0	
7	MET 1	6.1	5.8	6.0	5.8	6.1	5.8	6.0	5.8	6.1	7.0	8.0	6.7	7.0	
8	Titanium 2LS	6.1	6.1	6.3	5.8	5.5	6.1	6.3	5.8	5.5	6.8	7.7	5.7	9.0	
9	Firecracker SLS	6.1	6.4	5.8	5.6	5.9	6.4	5.8	5.6	5.9	6.7	8.0	6.3	9.0	
10	Rockwell	6.0	6.0	6.0	5.9	6.1	6.0	6.0	5.9	6.1	6.1	8.0	4.3	8.0	
11	Supersonic	6.0	6.0	6.1	5.8	5.6	6.0	6.1	5.8	5.6	6.5	6.7	6.7	7.0	
12	Traverse 2 SRP	5.9	6.2	6.0	6.0	5.2	6.2	6.0	6.0	5.2	6.3	7.3	4.3	7.0	
13	Annapolis	5.9	6.5	5.4	6.0	5.6	6.5	5.4	6.0	5.6	5.8	8.3	5.0	8.7	
14	Fayette	5.8	6.3	5.3	5.8	5.7	6.3	5.3	5.8	5.7	6.0	8.3	6.7	8.0	
15	IS-TF 269 SEL	5.8	6.2	5.9	5.5	5.6	6.2	5.9	5.5	5.6	5.8	8.3	4.7	7.0	
16	Raptor III	5.8	5.8	5.7	5.8	5.4	5.8	5.7	5.8	5.4	6.2	7.3	5.3	7.0	
17	Reflection	5.8	5.5	6.0	5.7	5.2	5.5	6.0	5.7	5.2	6.4	8.0	7.0	9.0	
18	Paramount	5.8	5.2	6.0	5.7	5.4	5.2	6.0	5.7	5.4	6.5	7.3	6.7	9.0	
19	Hot Rod	5.7	5.4	5.8	5.7	5.4	5.4	5.8	5.7	5.4	6.3	7.0	6.0	7.7	
20	Screamer LS	5.7	5.6	5.7	5.4	5.5	5.6	5.7	5.4	5.5	6.5	8.3	7.3	8.0	
21	Rowdy	5.7	6.0	5.5	5.4	5.6	6.0	5.5	5.4	5.6	6.1	7.3	6.7	7.3	
22	MET-3	5.7	5.5	5.8	5.7	5.6	5.5	5.8	5.7	5.6	6.0	7.7	6.0	8.3	
23	Firewall	5.7	5.3	5.8	5.6	5.6	5.3	5.8	5.6	5.6	6.3	8.0	5.3	8.7	
24	GTO	5.7	5.3	5.8	5.4	5.3	5.3	5.8	5.4	5.3	6.5	8.0	6.7	8.0	
25	PPG-TF-135	5.7	5.0	5.5	5.7	5.7	5.0	5.5	5.7	5.7	6.5	7.3	5.7	8.0	

(Continued)

Table 1. Tall fescue turf trial, 2012 (NTEP) (continued).

Cultivar or Selection	Turf Quality ¹					Color ² Sept. 2017	Brown Patch ³ July 2017	Leaf Texture ⁴ Sept. 2017
	2013- 2017 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.			
26 Crossfire 4	5.6	5.8	5.6	5.4	5.0	8.0	5.7	8.0
27 ATF 1612	5.6	5.4	5.6	5.6	5.2	7.7	4.3	9.0
28 Valkyrie LS	5.6	5.3	5.8	5.4	5.2	8.0	6.7	8.0
29 Hemi	5.6	5.2	5.8	5.4	5.5	7.3	6.7	8.3
30 Temple	5.6	5.7	5.7	5.3	5.3	7.7	3.7	8.0
31 Black Tail	5.6	5.8	5.5	5.2	5.4	7.0	5.0	7.7
32 PSG-PO1	5.6	5.4	5.3	5.7	5.6	7.7	5.0	7.7
33 IS-TF 311	5.6	5.5	5.4	5.5	5.6	7.0	5.3	8.0
34 Firebird 2	5.6	5.7	5.6	5.3	5.1	7.7	5.3	7.0
35 Maestro	5.6	5.3	5.4	5.3	5.6	7.3	7.3	7.3
36 IS-TF 308 SEL	5.5	5.0	5.6	5.2	5.6	7.7	6.7	7.3
37 Olympus	5.5	6.0	5.8	5.0	4.5	8.3	2.7	8.7
38 Xtender	5.5	5.5	5.3	4.8	5.7	7.3	4.7	9.0
39 Technique	5.4	5.4	5.3	5.4	5.3	7.0	4.7	7.0
40 Grande 3	5.4	4.8	5.7	5.4	5.0	7.7	5.3	8.0
41 Faith	5.4	5.5	5.3	5.2	5.3	8.0	5.0	8.0
42 BIZEM	5.4	5.1	5.5	5.1	5.3	8.0	7.0	8.0
43 Thunderstruck	5.4	6.3	5.5	5.0	4.9	8.3	5.7	7.0
44 F711	5.4	5.0	5.7	5.3	5.4	6.7	6.0	8.0
45 Bloodhound	5.4	4.9	5.4	5.4	5.4	7.0	6.0	7.0
46 Foxhound	5.4	5.6	5.3	4.9	5.1	8.7	7.0	9.0
47 Wichita	5.4	5.7	5.2	5.2	4.9	7.0	6.3	7.0
48 Diablo	5.3	5.8	5.4	5.3	5.0	8.0	4.0	8.3
49 PPG-TF-138	5.3	5.1	5.2	4.9	5.6	7.7	6.0	7.7
50 Hover	5.3	5.4	5.2	4.7	5.1	8.7	3.3	9.0

(Continued)

Table 1. Tall fescue turf trial, 2012 (NTEP) (continued).

Cultivar or Selection	Turf Quality ¹					Color ² Sept. 2017	Brown Patch ³ July 2017	Leaf Texture ⁴ Sept. 2017
	2013- 2017 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.			
51 TF-287	5.3	5.4	5.0	4.8	5.5	8.0	5.0	8.7
52 W41	5.3	5.1	5.8	4.9	5.2	8.0	4.3	8.0
53 RAD-TF-92	5.3	5.6	5.4	4.8	5.0	8.7	2.0	7.7
54 Turfway	5.3	5.5	5.6	4.9	5.0	8.0	5.7	7.0
55 Leonardo	5.3	5.2	5.5	5.0	5.0	7.0	6.7	7.7
56 Michalangelo	5.3	5.3	5.0	5.1	5.1	6.7	6.3	7.7
57 RAD-TF-89	5.3	5.7	5.3	4.9	5.0	8.0	3.0	8.7
58 K12-05	5.3	5.7	5.3	4.9	4.9	8.3	3.7	8.7
59 JS 916	5.3	5.2	5.2	5.0	5.4	8.0	5.7	7.7
60 Kingdom	5.3	5.8	5.8	5.2	4.8	8.7	4.3	7.3
61 PPG-TF-169	5.3	4.9	5.7	5.1	4.8	6.3	4.3	7.0
62 Nightcrawler	5.2	6.4	5.2	4.8	4.8	8.0	6.0	8.0
63 Embrace	5.2	5.1	5.4	5.1	4.7	7.3	6.7	6.0
64 ATF 1704	5.2	4.7	5.2	5.2	4.9	6.7	6.3	7.0
65 ATF 1754	5.2	5.0	5.2	5.5	4.9	6.3	4.3	8.0
66 RAD-TF-83	5.2	5.5	5.3	4.8	4.8	8.3	2.7	7.3
67 Bullseye	5.1	5.9	5.3	4.9	4.9	7.7	5.0	7.0
68 Falcon V	5.1	5.0	4.8	5.0	5.0	7.3	6.7	7.7
69 Meridian	5.1	5.0	4.8	4.7	5.0	6.7	3.7	8.0
70 Rhambler 2 SRP	5.1	6.1	4.4	4.9	4.8	7.0	7.0	7.0
71 PPG-TF-115	5.0	5.3	4.8	4.5	4.9	7.0	6.7	7.7
72 Unitus	5.0	6.0	4.6	4.7	5.1	7.3	3.7	9.0
73 Rhizing Moon	4.9	5.1	4.8	4.5	4.7	8.0	4.0	8.0
74 K12-MCD	4.9	4.9	4.9	4.9	4.8	6.3	3.7	6.0
75 IS-TF 272	4.9	4.7	4.9	4.8	4.8	8.3	3.3	7.7

(Continued)

Table 1. Tall fescue turf trial, 2012 (NTEP) (continued).

Cultivar or Selection	Turf Quality ¹					Color ² Sept. 2017	Brown Patch ³ July 2017	Leaf Texture ⁴ Sept. 2017
	2013- 2017 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.			
76 Hounddog 8	4.9	4.7	5.2	4.7	4.8	8.0	6.0	8.0
77 Feshova	4.8	5.7	5.0	4.5	4.7	7.7	6.3	6.3
78 Rebel V	4.8	4.9	4.6	4.7	4.9	7.3	5.7	6.0
79 Catalyst	4.8	4.6	4.7	4.7	5.0	6.7	6.0	6.3
80 Saitillo	4.7	4.7	4.5	4.3	4.9	7.0	4.3	7.0
81 BAR Fa 121095	4.7	4.6	4.6	4.6	4.8	8.3	4.0	6.0
82 PST-5MVD	4.7	4.9	4.8	4.3	4.6	7.3	5.0	6.0
83 IS-TF 276 M2	4.7	5.3	4.6	4.5	4.2	8.0	4.7	7.7
84 PST-5BPO	4.6	4.0	4.5	4.5	4.7	7.3	4.7	6.3
85 PST-5BRK	4.6	5.1	4.6	4.4	4.3	6.3	5.3	6.3
86 JS 818	4.6	5.1	4.2	4.7	4.5	8.3	3.3	7.3
87 Terrano	4.5	5.5	4.6	4.6	4.1	6.3	5.3	6.0
88 PST-5DZP	4.5	4.9	4.2	4.6	4.4	7.3	4.7	8.0
89 Ares	4.4	4.8	4.5	4.5	4.5	7.3	6.0	6.3
90 Ceasar	4.4	5.2	4.5	4.3	4.1	8.3	4.3	8.0
91 Memphis	4.4	4.9	4.7	4.0	4.3	7.3	3.0	6.0
92 Dynamite LS	4.4	4.8	4.0	4.1	4.4	8.3	5.7	9.0
93 Temptation	4.4	5.2	4.3	4.5	4.0	8.3	4.3	7.3
94 Comp. Res. SST	4.4	4.7	4.9	4.6	3.6	6.3	1.0	8.0
95 PSG-8BP2	4.3	4.5	4.0	4.4	4.3	7.7	5.0	7.0
96 BAR Fa 121089	4.3	4.2	4.3	4.1	4.3	7.7	5.0	6.0
97 JS 819	4.3	5.0	4.2	3.9	4.2	8.0	3.3	8.0
98 PSG-TT4	4.2	4.2	4.1	4.2	4.4	7.0	5.0	7.7
99 Swagger	4.2	4.5	4.4	4.3	4.0	6.3	6.0	6.0
100 Rain Dance	4.2	4.1	4.1	4.2	4.1	6.0	2.3	6.0

(Continued)

Table 1. Tall fescue turf trial, 2012 (NTEP) (continued).

Cultivar or Selection	Turf Quality ¹					Color ² Sept. 2017	Brown Patch ³ July 2017	Leaf Texture ⁴ Sept. 2017
	2013- 2017 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.			
101 PSG-GSD	4.2	4.6	4.2	4.0	4.4	6.3	4.7	6.0
102 204 Res. Blk 4	4.2	4.1	4.1	3.9	4.0	7.0	1.7	7.7
103 Annihilator	4.0	4.2	4.3	3.9	3.9	7.0	2.7	7.0
104 Marauder	4.0	4.2	4.5	3.9	3.7	7.3	1.7	8.0
105 K12-13	4.0	4.4	4.3	3.5	3.7	7.7	2.0	7.0
106 JS 809	4.0	4.7	4.1	3.9	3.7	8.3	2.7	8.0
107 Frontline	3.9	5.0	4.2	3.8	3.7	7.7	3.0	6.0
108 Falcon IV	3.8	4.6	3.9	3.6	3.6	6.7	4.0	3.3
109 Inspiration	3.7	4.1	3.3	3.4	3.9	6.3	5.3	3.3
110 PST-5EX2	3.7	3.5	3.3	3.6	3.7	4.7	5.0	5.0
111 BAR Fa 121091	3.6	3.0	3.5	3.7	4.1	8.0	2.7	6.0
112 Warhawk	3.6	4.0	3.7	3.5	3.3	7.7	2.7	7.0
113 JS 825	3.4	4.3	3.4	3.1	3.4	7.7	3.7	6.0
114 Aquaduct	3.3	3.8	3.5	3.4	3.2	7.3	4.7	6.0
115 BAR Fa 120878	2.1	2.6	2.1	2.0	1.9	3.7	2.7	2.3
116 Ky-31	1.2	1.3	1.3	1.3	1.2	1.0	2.0	1.0
LSD at 5% =	0.6	0.8	0.7	0.7	0.7	1.1	2.2	0.6

¹9 = best turf quality
²9 = best genetic color
³9 = least disease
⁴9 = finest leaf texture

Table 2. Performance of tall fescue cultivars and selections in a turf trial established in September 2014 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² July 2017
	2015-2017 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	
1 NT-3	6.1	5.6	6.3	6.5	7.3
2 3N2 Comp	6.0	5.1	6.1	6.9	5.3
3 3B3 Comp	6.0	5.2	6.3	6.5	6.3
4 13TFC18	5.9	5.5	6.2	6.0	5.7
5 ROL Comp	5.8	5.5	6.1	6.0	5.7
6 3N3 Comp	5.8	5.0	6.0	6.5	6.7
7 PPG-TF 205	5.8	5.0	6.1	6.2	4.3
8 PPG-TF 210	5.7	5.1	5.6	6.5	5.7
9 ROM Comp	5.7	5.1	5.7	6.4	5.0
10 PPG-TF 191	5.7	5.2	5.7	6.1	6.3
11 3N1 Comp	5.6	5.4	5.6	5.8	6.0
12 Reflection	5.6	4.9	5.9	6.0	5.7
13 Traverse 2 SRP	5.6	5.3	5.7	5.8	6.7
14 NT-2	5.5	5.2	5.3	6.1	5.0
15 3B2 Comp	5.5	5.0	5.7	5.8	6.7
16 PPG-TF 211	5.5	4.9	5.4	6.1	5.0
17 PPG-TF 189	5.4	5.3	5.4	5.6	4.7
18 TBT Comp	5.4	5.1	5.6	5.7	6.3
19 Trinity/BIZEM	5.4	5.1	5.4	5.8	5.3
20 PPG-TF 221	5.4	4.9	5.3	6.1	6.3
21 13TFC15	5.4	5.4	5.4	5.5	5.0
22 PPG-TF 176	5.4	5.6	5.3	5.3	6.0
23 PPG-TF 182	5.4	5.4	5.2	5.6	5.3
24 4th Millennium	5.4	5.2	5.8	5.2	4.7
25 NT-1	5.3	4.9	5.1	5.9	5.0
26 PPG-TF 178	5.3	5.1	5.3	5.5	4.0
27 PPG-TF 173	5.3	5.4	5.3	5.2	5.7
28 13TFC10	5.3	4.7	5.1	6.0	6.0
29 CTF-2115	5.3	5.0	5.3	5.5	6.7
30 Michelangelo	5.2	5.0	5.1	5.6	6.7
31 PPG-TF 203	5.2	5.0	5.4	5.3	5.3
32 PPG-TF 174	5.2	5.1	5.2	5.3	5.3
33 Thor	5.2	4.8	5.2	5.6	6.0
34 13TFC16	5.2	4.6	5.3	5.7	5.7
35 Leonardo	5.2	4.8	5.1	5.6	6.0

(Continued)

Table 2. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² July 2017
	2015-2017 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	
36 Technique	5.2	5.1	5.2	5.1	7.3
37 10-314	5.2	5.0	5.3	5.1	3.3
38 Selkirk	5.2	4.5	5.4	5.6	2.7
39 PPG-TF 198	5.2	4.9	5.3	5.3	4.3
40 PPG-TF 190	5.1	5.2	5.2	5.0	3.3
41 PPG-TF 180	5.1	5.1	5.0	5.2	3.7
42 PPG-TF 195	5.1	5.3	4.9	5.1	5.3
43 Essential	5.1	4.8	4.9	5.6	7.0
44 PPG-TF 177	5.1	5.1	5.2	5.0	6.0
45 ROE Comp	5.1	4.8	4.8	5.6	4.7
46 PST-Syn-5BYOB	5.1	4.6	5.5	5.2	4.7
47 13TFC8	5.0	4.4	4.9	5.8	7.0
48 PST-Syn-5STAR	5.0	4.6	5.0	5.5	4.0
49 Blacktail	5.0	5.3	4.8	4.9	5.7
50 ATF 1521	5.0	4.8	4.8	5.4	5.3
51 Regenerate	5.0	4.7	5.0	5.3	4.3
52 Rambler 2	5.0	5.1	4.9	4.9	5.3
53 PST-Syn-5DRU	5.0	4.7	4.9	5.3	4.0
54 Diablo	4.9	4.9	5.0	5.0	5.0
55 13TFC14	4.9	4.4	4.9	5.5	7.0
56 LS 1200	4.9	5.1	5.1	4.5	3.7
57 13TFC4	4.9	4.4	4.8	5.4	6.0
58 Rockwell	4.9	4.7	4.6	5.3	5.7
59 Penn RK4	4.9	4.5	4.9	5.2	5.7
60 Van Gogh	4.9	4.9	5.2	4.5	6.0
61 PST-5BRK	4.9	4.8	4.8	5.0	6.3
62 Persuasion	4.8	4.6	5.1	4.8	3.3
63 Meridian	4.8	4.7	5.0	4.8	4.7
64 13TFC2	4.8	4.9	4.7	4.9	6.7
65 Rhambler	4.8	4.6	4.6	5.2	4.7
66 PST-Syn-5NO	4.8	4.6	4.9	4.8	5.3
67 MET 1	4.8	4.8	4.7	4.8	5.3
68 PST-525D	4.8	4.6	4.9	4.8	3.7
69 Spyder LS	4.7	5.1	4.7	4.5	3.7
70 PPG-TF169	4.7	4.5	4.5	5.2	5.0

(Continued)

Table 2. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² July 2017
	2015-2017 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	
71 Fesnova	4.7	4.8	4.6	4.8	5.3
72 Penn ATF 1254	4.7	4.5	4.8	4.8	4.7
73 3B1 Comp	4.7	4.7	4.4	5.0	4.3
74 3rd Millennium	4.7	4.6	4.6	4.9	5.7
75 PST-5MVD	4.7	4.6	4.9	4.6	5.7
76 10-328	4.7	4.8	4.8	4.3	3.3
77 Wolfpack II	4.7	4.8	4.6	4.6	3.7
78 Falcon IV	4.7	4.8	4.7	4.5	5.3
79 13TFC7	4.6	4.4	4.7	4.8	5.7
80 PST-5BPO	4.6	4.3	4.5	5.1	5.3
81 Firecracker SLS	4.6	4.7	4.6	4.6	5.7
82 Rebel XLR	4.6	4.3	4.6	4.8	4.7
83 PST-5MINI	4.6	4.0	4.6	5.1	5.3
84 Screamer LS	4.6	4.5	4.5	4.8	5.0
85 Talladega	4.6	4.5	4.7	4.5	5.0
86 PST-5MCD	4.6	4.9	4.7	4.1	5.0
87 Thunderstruck	4.6	4.9	5.0	3.7	4.0
88 Ares	4.6	4.8	4.8	4.1	3.7
89 PSM-6351	4.6	4.7	4.5	4.5	5.7
90 Traverse	4.5	4.5	4.4	4.7	5.3
91 Rebel Xtreme	4.5	4.7	4.4	4.5	5.3
92 Mustang 4	4.5	4.8	4.5	4.3	4.7
93 Titanium LS	4.5	4.4	4.5	4.7	5.0
94 Swagger	4.5	4.6	4.6	4.4	4.0
95 Penn ATF 1376	4.5	4.6	4.3	4.6	4.0
96 Rebel Advance	4.5	4.4	4.4	4.6	4.3
97 Restore	4.5	4.4	4.6	4.4	4.3
98 Blacktie	4.4	4.8	4.3	4.2	3.3
99 TO8G2-R14	4.4	4.7	4.6	3.9	4.0
100 Temple	4.4	4.6	4.1	4.5	5.0
101 Terrano	4.4	5.0	4.2	4.0	4.3
102 PST-5T20	4.4	4.1	4.5	4.6	4.3
103 Falcon H2O	4.4	4.3	4.4	4.5	7.3
104 PST-5FDR	4.4	4.6	4.5	4.1	3.7
105 PST-5W03	4.4	4.6	4.0	4.6	5.7

(Continued)

Table 2. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² July 2017
	2015-2017 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	
106 Summer	4.4	4.6	4.0	4.5	4.3
107 Padre	4.4	4.5	4.3	4.3	5.0
108 Cezanne RZ	4.3	4.5	4.2	4.4	4.7
109 10-315	4.3	4.6	4.3	4.1	5.0
110 DaVinci	4.3	4.2	4.5	4.3	5.7
111 Dynamite LS	4.3	4.4	4.3	4.2	4.7
112 NA-TDDM-VC	4.3	4.6	4.2	4.2	2.3
113 Inferno	4.3	4.6	4.3	4.1	4.3
114 BMT	4.3	4.4	4.6	3.9	3.0
115 Shenandoah Elite	4.3	4.4	4.2	4.3	4.3
116 10-339	4.3	4.2	4.4	4.2	4.7
117 PST-5BGR	4.3	4.1	4.0	4.7	4.7
118 Rain Saver	4.3	4.0	4.3	4.5	4.3
119 Raptor II	4.3	4.5	4.1	4.2	3.7
120 TO8G2-R12	4.3	4.4	4.5	3.8	3.0
121 PST-5WAL	4.2	4.4	4.4	3.9	5.3
122 PST-5SIS	4.2	4.1	4.3	4.4	5.0
123 Tribute II	4.2	4.5	4.1	3.9	5.0
124 10-345	4.2	4.7	4.5	3.3	3.0
125 ATV	4.2	5.0	4.0	3.4	6.0
126 Penn ATF 1258	4.1	4.1	4.2	4.2	3.0
127 Cumberland	4.1	4.1	4.3	4.0	2.7
128 Monet	4.1	3.9	4.2	4.2	5.3
129 Stingray	4.1	4.3	4.1	4.0	3.7
130 Rembrandt	4.1	4.2	4.1	4.0	3.7
131 Rain Dance	4.1	4.0	4.2	4.1	3.0
132 Masterpiece	4.1	3.7	4.3	4.3	5.0
133 Sungazer	4.1	4.4	4.1	3.7	3.3
134 PST-5YA	4.1	3.5	4.4	4.3	5.3
135 Avenger	4.1	4.1	4.0	4.1	3.3
136 JT-783	4.1	4.3	4.0	3.9	4.3
137 PF5-18	4.0	4.4	4.2	3.5	2.7
138 Renegade Supreme	4.0	3.9	4.1	4.1	3.7
139 Quest	4.0	4.0	4.0	4.0	4.0
140 GO-14-MNR4	4.0	4.3	3.9	3.7	3.3

(Continued)

Table 2. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² July 2017
	2015-2017 Avg.	2015 Avg.	2016 Avg.	2017 Avg.	
141 Greystone	4.0	3.7	4.1	4.2	4.7
142 Jaguar 4G	3.9	4.1	4.0	3.8	4.0
143 Sequester	3.9	4.2	3.8	3.8	2.7
144 ATF 1255	3.9	4.2	3.6	3.8	3.0
145 PST-5BGR	3.6	3.6	3.8	3.5	5.3
LSD at 5% =	0.7	0.7	0.8	0.9	2.4

¹ 9 = best turf quality

² 9 = least disease

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

	Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² July 2017
		2016-2017 Avg.	2016 Avg.	2017 Avg.	
1	WN1 Comp	6.6	6.5	6.7	6.3
2	WN2 Comp	6.6	6.8	6.4	5.7
3	RS3 Comp	6.6	6.9	6.3	4.7
4	RS4	6.6	6.8	6.3	6.0
5	SCR2 Comp	6.6	6.9	6.2	6.7
6	NAI-15-3N2	6.6	6.5	6.6	6.3
7	HFBC1 Comp	6.5	6.5	6.5	6.3
8	PPG-TF-232	6.5	6.7	6.3	5.3
9	WB2 Comp	6.5	6.7	6.3	6.0
10	HFBC2 Comp	6.5	6.7	6.3	6.7
11	NT-3 Comp	6.4	6.6	6.2	6.3
12	PPG-TF-231	6.4	6.6	6.1	6.0
13	PPG-TF-239	6.4	6.8	5.9	5.3
14	RS2 Comp	6.3	6.4	6.2	4.7
15	SCR3 Comp	6.3	6.5	6.1	4.7
16	Amity	6.3	6.7	5.9	5.7
17	HFBC3 Comp	6.3	6.2	6.4	4.7
18	PPG-TF-235	6.3	6.6	6.0	6.7
19	NAI-15-CTR	6.3	6.3	6.2	5.0
20	LRT Comp	6.3	6.6	6.0	4.3
21	PPG-TF-242	6.3	6.5	6.0	5.0
22	Raptor III	6.3	6.4	6.1	6.0
23	NAI-15-3N1	6.2	6.2	6.3	5.3
24	BPS Comp	6.2	6.3	6.1	5.7
25	PPG-TF-238	6.2	6.4	6.0	5.7
26	PRT Comp	6.2	6.0	6.4	5.3
27	URT Comp	6.2	6.4	5.9	5.0
28	SCR1 Comp	6.2	6.5	5.8	5.0
29	Avenger II	6.1	6.1	6.2	5.7
30	PPG-TF-236	6.1	6.3	6.0	6.7
31	Reflection	6.1	6.4	5.8	6.0
32	Corbett	6.1	6.2	6.0	4.3
33	RAD-TF-98	6.1	6.6	5.6	4.3
34	Supersonic	6.1	6.4	5.8	5.7
35	RS5 Comp	6.1	6.1	6.1	5.7

(Continued)

Table 3. Tall fescue turf trial, 2015 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² July 2017
		2016- 2017 Avg.	2016 Avg.	2017 Avg.	
36	NAI-15-PAD2	6.1	6.1	6.1	6.0
37	NT-1 Comp	6.0	6.2	5.9	5.3
38	PPG-TF-176	6.0	6.2	5.8	5.0
39	PPG-TF-234	6.0	6.4	5.5	5.3
40	RAD-TF-104	6.0	6.3	5.7	4.7
41	RS6 Comp	6.0	5.8	6.1	5.3
42	PPG-TF-229	6.0	6.0	5.9	5.7
43	PPG-TF-240	6.0	6.1	5.8	5.7
44	RAD-TF-99	6.0	6.4	5.5	4.7
45	WB3 Comp	5.9	6.0	5.7	5.3
46	RAD-TF-103	5.9	6.1	5.6	4.3
47	RAD-TF-105	5.9	6.2	5.5	4.0
48	NAI-15-3B2	5.9	5.9	5.8	5.7
49	Thor	5.9	6.1	5.6	4.3
50	Xtender	5.9	6.5	5.2	4.7
51	WB1 Comp	5.8	6.1	5.6	5.3
52	RS1 Comp	5.8	5.9	5.7	4.7
53	Temple	5.8	5.9	5.6	4.0
54	JT-388	5.8	6.1	5.4	3.0
55	Ares	5.7	6.3	5.1	3.0
56	Faith	5.7	6.1	5.4	4.0
57	PPG-TF-172	5.7	6.1	5.2	4.7
58	PPG-TF-230	5.7	5.8	5.5	5.0
59	Firecracker LS	5.6	5.9	5.3	4.3
60	Firecracker SLS	5.6	5.9	5.3	5.0
61	PPG-TF-241	5.6	6.0	5.2	5.0
62	PST-5MIN4	5.6	6.1	5.1	4.7
63	Titanium 2LS	5.6	5.9	5.3	4.0
64	Black Tail	5.6	5.7	5.5	4.7
65	Maestro	5.6	5.7	5.4	5.0
66	ATF 1521	5.6	6.0	5.2	3.0
67	Screamer LS	5.6	5.7	5.4	5.3
68	PST-5DAW-15	5.5	6.0	5.1	5.3
69	NT-2 Comp	5.5	5.5	5.5	5.0
70	RAD-TF-96	5.5	6.1	4.9	4.3

(Continued)

Table 3. Tall fescue turf trial, 2015 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² July 2017
		2016- 2017 Avg.	2016 Avg.	2017 Avg.	
71	Cochise IV	5.5	5.9	5.2	3.3
72	PST-5DZP	5.5	5.8	5.2	3.7
73	Dynamite LS	5.5	6.0	5.0	3.3
74	Firaces	5.5	5.7	5.3	4.3
75	Meridian	5.5	5.7	5.2	4.7
76	RAD-TF-102	5.5	5.9	5.1	3.3
77	PST-5MCD	5.4	5.9	5.0	3.3
78	Spyder LS	5.4	6.0	4.8	3.3
79	Diablo	5.4	6.1	4.6	3.7
80	Hemi	5.3	5.7	4.9	5.0
81	PST-5MINI-14	5.3	5.6	5.0	4.7
82	Shenandoah Elite	5.3	5.7	4.9	4.0
83	Raptor II	5.3	5.5	5.1	3.3
84	Rowdy	5.3	5.7	4.9	4.0
85	BMT-13	5.3	5.7	4.9	4.3
86	PST-5NOR	5.3	5.6	4.9	4.7
87	Shenandoah III	5.3	5.8	4.7	4.7
88	PST-53D2	5.2	5.7	4.8	4.0
89	Thunderstruck	5.2	5.6	4.8	3.7
90	Falcon IV	5.2	5.5	4.8	3.0
91	PST-5T24	5.2	5.8	4.5	3.3
92	PST-Syn-5MIZ	5.1	5.5	4.7	3.7
93	Persuasion	5.1	5.4	4.8	4.3
94	GO-MNKY-RF	5.1	5.6	4.5	5.0
95	Regenerate	5.1	5.4	4.8	4.7
96	Terrano	5.1	5.7	4.4	3.7
97	Falcon V	5.1	5.2	4.9	4.3
98	Gazelle II	5.0	5.6	4.5	3.3
99	Wolfpack II	5.0	5.6	4.4	4.0
100	Dallas	5.0	5.6	4.4	3.0
101	Rain Saver	5.0	5.2	4.8	2.7
102	FCE3	5.0	5.2	4.8	3.3
103	PST-5STAR	5.0	5.4	4.5	3.7
104	PST-5BRK	4.9	5.3	4.5	3.3
105	PST-5LYM	4.9	5.0	4.8	5.3

(Continued)

Table 3. Tall fescue turf trial, 2015 (continued).

	Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² July 2017
		2016- 2017 Avg.	2016 Avg.	2017 Avg.	
106	PST-5BPO	4.9	5.2	4.5	3.3
107	Sundial	4.9	5.5	4.2	3.0
108	Saltillo	4.8	5.4	4.2	4.3
109	GO-AO	4.8	5.5	4.1	3.0
110	Titanium	4.8	5.3	4.3	3.7
111	NAI-15-RXR	4.8	5.2	4.5	3.3
112	Inferno	4.8	5.5	4.1	3.7
113	JT-107	4.8	5.3	4.3	3.0
114	ATF 1255	4.8	5.3	4.3	3.7
115	Tribute II	4.8	5.5	4.0	2.0
116	Covenant II	4.7	5.4	4.0	4.0
117	GO-MNKY	4.7	5.1	4.4	3.0
118	PST-5DR-15	4.7	5.2	4.2	5.0
119	NAI-15-TXR	4.7	4.9	4.5	2.3
120	Sequester	4.7	5.4	3.9	2.3
121	Avenger	4.6	5.1	4.1	3.3
122	Stingray	4.6	5.4	3.8	2.7
123	Hudson	4.6	5.1	4.0	3.3
124	Titanium LS	4.5	5.0	4.0	3.3
125	Summer	4.5	5.2	3.8	3.3
126	ATV	4.5	5.2	3.8	3.7
127	GO-MINI	4.5	5.0	3.9	3.0
128	PPG-TF-237	4.4	5.0	3.9	3.3
129	Sungazer	4.4	5.1	3.6	2.7
130	Jaguar 4G	4.4	5.1	3.7	3.0
131	Scorpion II	4.3	4.8	3.9	3.0
132	Picabu	4.3	4.7	3.9	3.3
133	Merida	4.3	4.7	3.9	3.3
134	GO-MNKY-H	4.3	4.8	3.8	2.3
135	Rain Dance	4.2	4.7	3.6	3.0
136	NoNet	4.0	4.9	3.1	2.7
137	Titan Rx	3.9	4.3	3.4	2.7
138	Titan Ultra	3.9	4.5	3.2	3.0
139	Rendition RX	3.7	4.4	3.0	2.7

(Continued)

Table 3. Tall fescue turf trial, 2015 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² July 2017
	2016-2017 Avg.	2016 Avg.	2017 Avg.	
LSD at 5% =	0.5	0.6	0.7	1.5

¹9 = best turf quality

²9 = least disease

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

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Brown Patch ² July 2017
1 RHF Comp	6.8	7.7
2 PPG-TF 268	6.7	6.3
3 PPG-TF 255	6.7	7.3
4 PPG-TF 267	6.6	6.7
5 PPG-TF 262	6.6	7.7
6 PPG-TF 276	6.6	6.7
7 PPG-TF 257	6.5	6.3
8 PPG-TF 265	6.5	7.7
9 PPG-TF 266	6.5	6.0
10 RH3 Comp	6.5	8.3
11 RHL2 Comp	6.5	7.3
12 PPG-TF 203	6.5	6.0
13 PPG-TF 232	6.5	6.3
14 RH4 Comp	6.5	7.0
15 PPG-TF 233	6.4	7.3
16 RH2 Comp	6.4	6.3
17 Regenerate	6.4	5.7
18 PPG-TF 231	6.4	8.0
19 PPG-TF 275	6.4	6.0
20 TSM Comp	6.4	8.0
21 PPG-TF 264	6.4	6.3
22 Amity	6.3	6.7
23 PPG-TF 263	6.3	6.3
24 PPG-TF 269	6.3	5.7
25 STL Comp	6.3	7.3
26 PPG-TF 256	6.2	6.3
27 PPG-TF 277	6.2	5.3
28 RH1 Comp	6.2	6.7
29 TSE Comp	6.2	7.7
30 PPG-TF 271	6.2	5.7
31 3B3	6.1	6.3
32 STE BS	6.1	7.7
33 Reflection	6.1	6.3
34 PPG-TF 260	6.1	7.3
35 PST-5DZP	6.1	5.0

(Continued)

Table 4. Tall fescue turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Brown Patch ² July 2017
36 PPG-TF 274	6.1	5.3
37 Raptor III	6.1	7.0
38 PPG-TF 252	6.0	6.0
39 PPG-TF 254	6.0	6.7
40 PPG-TF 273	6.0	6.7
41 PPG-TF 278	6.0	6.0
42 PPG-TF 245	6.0	6.7
43 WDS Comp	6.0	6.0
44 LLT-251	5.9	4.7
45 RHL1 Comp	5.9	7.7
46 PST-SYN-5DWL	5.9	6.3
47 PPG-TF 270	5.8	6.0
48 PPG-TF 279	5.8	6.0
49 Avenger II	5.8	6.7
50 ROE	5.8	5.7
51 Titanium 2LS	5.8	6.7
52 RS4	5.8	5.7
53 PST-5DART	5.8	6.7
54 Screamer LS	5.7	6.7
55 Annapolis	5.7	4.7
56 PPG-TF 230	5.7	5.3
57 Shenandoah Elite	5.7	4.7
58 PPG-TF 272	5.6	5.3
59 PST-5NOR	5.6	6.3
60 Dynamite LS	5.6	6.3
61 PST-MINK	5.6	4.3
62 PST-5DAW-15	5.5	6.0
63 PST-5MCD	5.5	4.7
64 Diablo	5.5	6.0
65 Black Tail	5.5	5.7
66 Maestro	5.5	5.0
67 PPG-TF 261	5.4	6.7
68 Terrano	5.4	5.3
69 Embrace	5.4	6.0
70 Xtender	5.4	4.3

(Continued)

Table 4. Tall fescue turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Brown Patch ² July 2017
71 Rowdy	5.4	6.0
72 Temple	5.4	6.0
73 PST-53D2	5.4	6.3
74 PST-BBYOB	5.3	6.0
75 Dynamic II	5.3	3.7
76 Firecracker SLS	5.3	6.3
77 PST-5BRK	5.3	6.0
78 Meridian	5.3	4.0
79 LS 1200	5.3	5.3
80 Thor	5.3	5.0
81 Faith	5.2	5.0
82 Finelawn H2O	5.2	3.7
83 Renegade DT	5.2	4.7
84 Thunderstruck	5.2	4.0
85 PST-5SQB-BS	5.2	4.7
86 PST-525D	5.2	5.7
87 LLT-630	5.1	5.3
88 EGC Comp	5.1	6.7
89 PST-5ZIP	5.1	4.0
90 LLT-338	5.1	4.3
91 PPG-TF 248	5.1	6.7
92 Duration	5.0	5.3
93 Swagger	5.0	4.7
94 Firaces	5.0	4.3
95 Falcon H2O	5.0	5.7
96 Ares	4.9	5.7
97 PST-5LYM	4.9	6.7
98 PST-5MINI-14	4.9	5.0
99 GO-ATO	4.9	4.0
100 PST-5SDS	4.9	5.3
101 PST-5T20	4.8	4.0
102 Saltillo	4.8	5.0
103 Falcon IV	4.8	5.0
104 Renegade H2O	4.8	3.7
105 PST-5BPO	4.8	6.0

(Continued)

Table 4. Tall fescue turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Brown Patch ² July 2017
106 Trinity	4.8	5.3
107 Endeavor II	4.7	5.7
108 Persuasion	4.7	5.3
109 Fesnova	4.7	5.0
110 Greenkeeper	4.7	6.0
111 PST-5DR-15	4.7	6.7
112 GO-AO	4.7	4.3
113 Tar Heel II	4.6	4.7
114 Shenandoah III	4.6	4.0
115 PST-5STAR	4.6	4.7
116 ATV	4.6	4.7
117 Stingray	4.6	3.7
118 LLT-809	4.5	3.0
119 Tribute II	4.5	3.3
120 RainDance	4.5	4.3
121 PST-5BGR	4.5	5.7
122 LLT-816	4.4	4.0
123 LLT-404	4.4	4.0
124 LLT-652	4.3	4.7
125 LLT-825	4.3	4.7
126 Sequester	4.3	5.0
127 LLT-810	4.2	4.3
128 Sungazer	4.2	3.7
129 LLT-621	4.2	3.3
130 PST-5SIS	4.1	5.3
131 LLT-993	4.0	2.7
132 GO-FKYT	3.7	2.3
133 Scorpion II	3.5	3.7
134 GO-FNKY	3.4	3.3
LSD at 5% =	0.8	1.9

¹9 = best turf quality

²9 = least disease

Table 5. Yearly nitrogen (N) applied and mowing height (Ht) on tall fescue tests established at Adelphia, NJ.

	2012		2013		2014		2015		2016		2017	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht	N	Ht	N	Ht
Table 1 (2012 NTEP).....	3.75	1.5	3.75	1.5	3.65	1.5	3.75	1.5	3.40	1.5	1.50	1.5
Table 2 (2014).....							4.50	1.5	3.40	1.5	2.25	1.5
Table 3 (2015).....									2.90	1.5	3.75	1.5
Table 4 (2016).....											3.50	1.5

¹Annual N applied (lb/1000 ft²)

²Mowing height in inches