

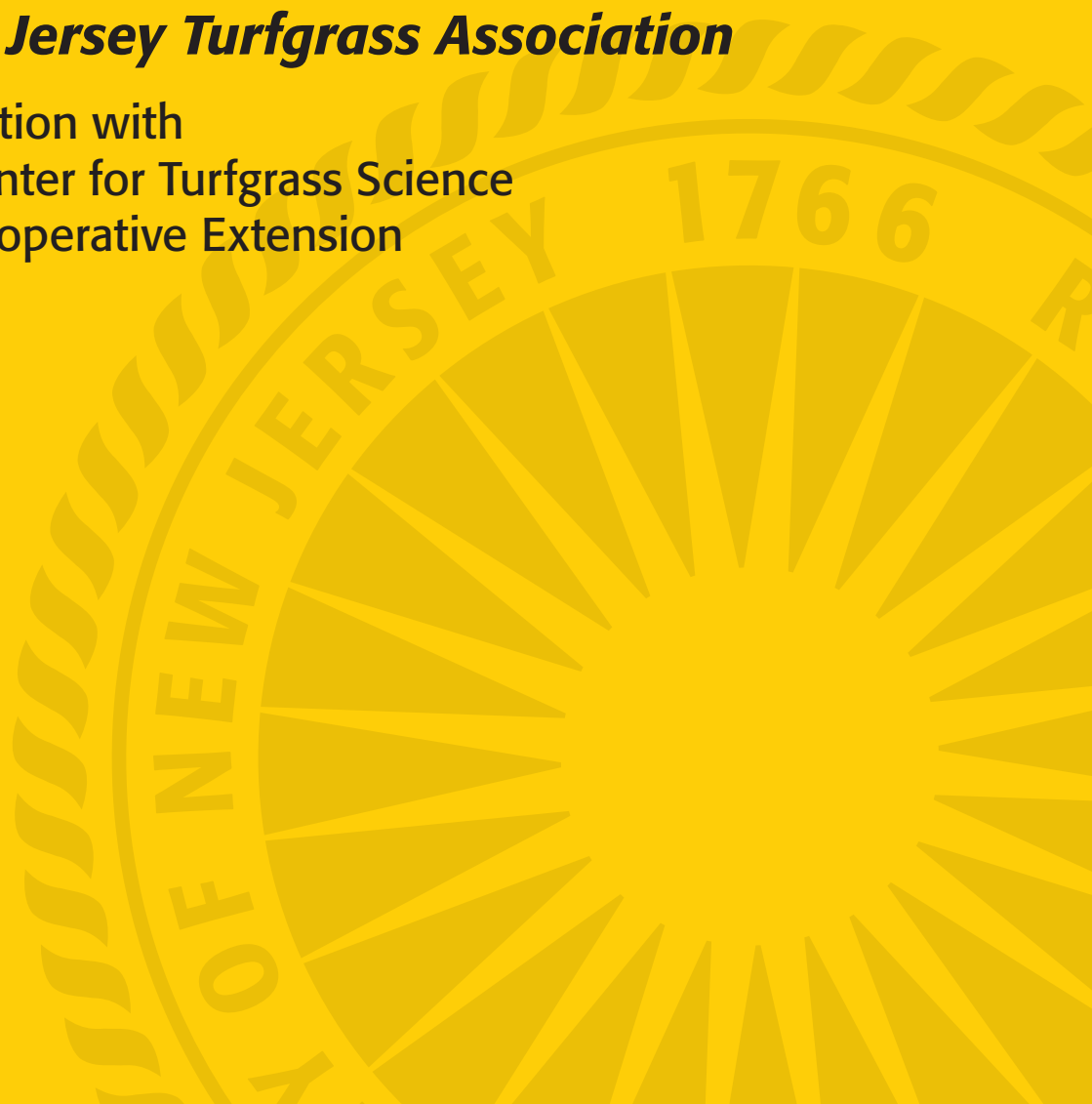
# RUTGERS

New Jersey Agricultural  
Experiment Station

## **2013 Turfgrass Proceedings**

***The New Jersey Turfgrass Association***

In Cooperation with  
Rutgers Center for Turfgrass Science  
Rutgers Cooperative Extension



# **2013 RUTGERS TURFGRASS PROCEEDINGS**

of the

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

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**Trump Taj Mahal**

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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 2013 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 TALL FESCUE CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS

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Tall fescue [*Lolium arundinacea* (Schreb.) Darbyshire], a cool season grass and native to Europe and some parts of Africa (Buckner et al., 1979), was introduced to the United States in the 1800s as a forage grass (Hoveland, 2009). 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 that time, tall fescue has become one of the major cool season turf species 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, 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 the populations.

## PROCEDURES

### Field Establishment and Maintenance

Four tall fescue trials were established at the Rutgers Plant Biology and Pathology Research and Extension Farm at Adelphia, NJ between 2010 and 2012 (Tables 1 to 4). All tests were established in September by hand sowing 0.88 oz of seed per 3 x 5 ft plot (3.7 lb per 1000 ft<sup>2</sup>). All tests were arranged in 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 (Dimen-

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sion) was applied in spring to control annual grassy weeds. In July, metalaxyl (Subdue) was applied when required to prevent Pythium blight disease. Single applications of fertilizer did not exceed 1.0 lb nitrogen (N) per 1000 ft<sup>2</sup>. The amount and timing of N applied to the turf varied to encourage disease and other stresses (Table 5). The trials established in 2012 had an application of 10-10-10 fertilizer at the rate of 1.0 lb 1000 ft<sup>2</sup> at establishment.

Field trials were mowed regularly (approximately 1 to 2 times per week) with reel 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. The 2010 test (Table 1) was managed under a low maintenance regimen beginning in 2012, which consisted of a higher mowing height of 2.5 inches as well as reduced fertilization input at 0.8 lb of nitrogen for the year (Table 5).

### 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 spring green-up, wear tolerance, density, and damage due to specific diseases were documented when significant differences were evident. All ratings were based 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. The 2010 and 2011 tests (Tables 1 and 2) are ranked by overall (multi-year) turf quality average; the 2012 tests (Tables 3 and 4) are ranked by turf quality in 2013. 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 performed well in the 2012 NTEP test were Regenerate, B23, IS-TF 285, and PPG-TF-105 (Table 4). The best performing cultivars and selections in the 2012 test were W43, Regenerate, and B23 (Table 3). In the 2011 test the best performing cultivars and selections were PPG-TF 141, B23, and PPG-TF 105 (Table 2). For the 2010 test the best performing cultivars and selections were WE2, Regenerate, RZI, and CCR2 (Table 1).

### Leaf Texture

Turfgrass texture is a rating based on the estimated leaf width (Table 4). The rating is based on a 1 to 9 scale where 1 = coarse texture and 9 = fine texture. The 2012 NTEP was rated for leaf texture and the selections with the finest texture were PPG-TF-170, RAD-TF-89, PPG-TF-139, and 204 Res. Blk 4, while the most coarse textured cultivar was Ky-31.

### Color

The 2012 NTEP test was also rated for color in October of 2013 (Table 4). The rating for color is based on a 1 to 9 scale where 1 = light green and 9 = dark green. The darkest selections for that test were IS-TF 330, RAD-TF-89, RAD-TF-83, and OR-21, while the lightest colored cultivar was Ky-31.

### Disease Resistance

Brown patch, a major disease of tall fescue, causes significant damage during humid and warm weather conditions. Improved cultivars are available but there are no cultivars that are completely resistant to this disease. In the 2012 NTEP test (Table 4), the selections W45 and LTP-TWUU were most resistant to brown patch, while Annihilator, Warhawk, and BAR Fa 121091 were most susceptible. For the 2012 test (Table 3), the most resistant cultivars and selections were W43, Regenerate, and W45, and the least resistant entries were LB07-6-11, Penn ATF 1258, Titan Rx, Greystone, and Arid 3. The most resistant cultivars for the 2011 test (Table 2) were PPG-TF

141, PPG-TF 105, TPC, PPG-TF 106, and PPG-TF 123, whereas the least resistant entries were PSG 8RSTR3 Grande 3, 3311 Bulk, Inspiration, PSG 8GF4, PSG 8GF6, Prospect, Greystone, and PSG 8GF1. For the 2010 test (Table 1), SCTF 3, Falcon V, 1-10 Fa Bulk, and Mustang 4 were most resistant, while the least resistant entry was RAD-TF75.

Net blotch is a leaf spot disease of tall fescue caused by the fungus *Drechslera dictyoides*. The symptoms occur as tiny brown spots on the leaves which expand and become oval or square and then coalesce to form a net like pattern on the leaf. The diseased turf appears thinned with a yellow or brown color. This disease occurs during cool, wet, and cloudy periods in the spring and early summer. Resistance to net blotch can vary greatly by cultivar. Both tall fescue tests that were established in 2012 were rated for net blotch disease in May of 2013. The most disease resistant cultivars and selections in the 2012 test were LB08-5-12, PS-Fa-09-7-11, and PPG-TF 145, while the least resistant entry was Greystone (Table 3). For the 2012 NTEP test, the most resistant cultivars and selections were TD1, RAMBLER II, and IS-TF 289, and the least resistant entry was Ky-31 (Table 4).

### Establishment

Improved establishment of tall fescue after seed sowing makes a sward denser and reduces soil erosion. Cultivars with improved establishment are in demand by turfgrass managers, sod growers, and consumers. Rapid establishment is an objective for turf breeders to improve germination and tillering rates. The cultivars and selections that exhibited rapid establishment in the 2012 NTEP test (Table 4) were PPG-TF-170 and Ky-3, while the poorest to establish was BAR Fa 121091. For the 2012 test (Table 3), the cultivars and selections that exhibited rapid establishment were STR 86QRH and Mustang 4, while the poorest to establish cultivar was Shenandoah Elite.

### 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 es-

tablishment, 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.

### ACKNOWLEDGMENTS

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Table 1. Performance of tall fescue cultivars and selections in a low maintenance turf trial (since 2012) established in September 2010 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----				Brown Patch <sup>2</sup> July 2013
	2011-2013 Avg.	2011 Avg.	2012 Avg.	2013 Avg.	
1 WE2	6.2	6.8	6.3	5.5	5.7
2 Regenerate	6.1	6.5	6.0	5.9	5.3
3 RZI	6.0	6.8	5.8	5.4	5.7
4 CCR2	6.0	7.1	6.1	4.9	6.0
5 Grande 3	5.9	6.9	5.1	5.7	5.0
6 RZ2	5.8	6.4	6.0	5.2	5.0
7 WE1	5.8	6.8	5.9	4.8	5.3
8 RAD-TF69	5.8	6.9	5.3	5.3	5.0
9 RAD-TF77	5.8	5.9	6.0	5.4	3.3
10 PPG-TF 106	5.7	6.2	5.6	5.4	5.7
11 RAD-TF75	5.7	6.1	5.9	5.1	2.7
12 Faith	5.6	6.4	5.7	4.8	4.7
13 PST-Syn-5T20	5.5	5.9	5.5	5.2	4.3
14 PPG-TF 102	5.5	6.3	5.3	4.8	6.0
15 PPG-TF 105	5.5	6.3	5.1	5.1	5.0
16 B23	5.5	6.2	5.4	4.8	5.3
17 TPC Comp	5.4	5.8	5.4	5.2	6.3
18 Jamboree	5.4	5.8	5.5	4.9	4.0
19 PPG-TF 116	5.4	6.3	5.1	4.9	5.0
20 13-10 FC Bulk	5.4	5.8	4.8	5.6	3.7
21 Rambler II	5.4	6.1	5.3	4.8	5.3
22 PST-Syn-5BPO	5.4	5.8	5.1	5.2	5.3
23 Greenbrooks	5.3	5.4	4.9	5.7	5.7
24 PST-Syn-5RTY	5.3	5.2	5.3	5.3	6.0
25 Wolfpack II	5.3	6.0	5.0	4.9	5.7
26 Finelawn Xpress	5.3	6.0	4.9	4.9	6.0
27 RAD-TF74	5.3	5.9	5.2	4.7	3.7
28 10-10 FC-8	5.2	5.5	5.0	5.2	4.0
29 SCTF 3	5.2	6.0	4.7	5.0	7.7
30 PPG-TF 115	5.2	5.5	5.1	5.1	5.3
31 Essential	5.2	5.8	5.4	4.5	4.3
32 FSD	5.2	5.6	5.0	5.0	4.7
33 PPG-TF 117	5.2	5.5	5.2	4.8	4.7
34 Shenandoah Elite	5.2	5.8	5.4	4.3	5.0
35 SCTF 5	5.2	5.6	5.4	4.6	6.0

(Continued)

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

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----				Brown Patch <sup>2</sup> July 2013
	2011-2013 Avg.	2011 Avg.	2012 Avg.	2013 Avg.	
36 GSD	5.2	5.5	4.8	5.3	4.3
37 SCTF 1	5.2	5.8	4.8	4.8	4.7
38 7-10 FC-5	5.1	5.6	4.8	5.0	4.0
39 RAD-TF76	5.1	5.5	5.2	4.7	4.0
40 Falcon V	5.1	6.0	4.8	4.7	6.7
41 Monet	5.1	5.1	5.2	4.9	4.3
42 9-10 FC-1	5.1	5.4	5.0	4.8	3.0
43 SCTF 4	5.1	5.8	5.1	4.4	5.3
44 Penn RK4	5.1	5.4	5.5	4.4	5.3
45 1-10 Fa Bulk	5.1	5.4	4.9	4.9	6.7
46 SCTF 6	5.1	5.3	5.1	4.7	6.0
47 PPG-TF 101	5.0	5.4	4.5	5.2	5.3
48 Van Gogh	5.0	5.5	4.9	4.7	4.3
49 Rhambler SRP	5.0	5.6	4.8	4.7	5.3
50 Mustang 4	5.0	5.7	4.7	4.6	6.7
51 SR 8650	5.0	5.3	4.9	4.8	5.3
52 7-10 FC-6	5.0	5.2	5.1	4.6	4.3
53 Fat Cat	5.0	5.6	4.9	4.4	4.0
54 Garrison	5.0	5.5	4.8	4.6	4.0
55 PST-Syn-5CAM	5.0	5.2	4.8	4.9	3.3
56 Speedway	4.9	5.2	4.8	4.8	5.0
57 10-10 FC-5	4.9	5.4	4.8	4.6	3.0
58 10-10 FC-7	4.9	5.0	4.7	5.0	4.7
59 Firenze	4.9	5.7	4.4	4.7	5.0
60 Rebel Xtreme	4.9	5.6	4.6	4.5	4.3
61 Tonto	4.9	5.4	4.7	4.5	4.3
62 Justice	4.9	5.0	4.7	5.0	5.7
63 3rd Millennium	4.9	5.5	4.4	4.8	6.0
64 10-10 Bulk	4.9	4.9	4.6	5.0	4.7
65 DaVinci	4.8	5.4	4.2	4.9	5.0
66 Traverse SRP	4.8	5.8	4.6	4.2	4.7
67 Shenandoah III	4.8	5.4	4.7	4.3	6.0
68 Dynamic II	4.8	4.9	4.5	5.0	4.0
69 Terrier	4.8	5.5	4.8	4.1	4.7
70 10-10 FC-1	4.8	5.1	4.7	4.6	4.7

(Continued)

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

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----				Brown Patch <sup>2</sup> July 2013
	2011-2013 Avg.	2011 Avg.	2012 Avg.	2013 Avg.	
71 Millennium SRP	4.8	5.8	4.2	4.4	5.0
72 Gazelle II	4.8	4.9	4.6	4.8	4.7
73 Rocket	4.8	5.2	4.7	4.5	4.7
74 Braveheart	4.8	5.3	4.5	4.5	6.3
75 7-10 FC-4	4.7	4.8	4.6	4.8	4.0
76 7-10 FC-7	4.7	4.9	4.6	4.7	3.7
77 Pedigree	4.7	5.3	4.1	4.7	5.0
78 Rebel Exeda	4.7	4.6	4.4	5.0	4.7
79 Endeavor II	4.7	4.7	4.7	4.6	5.3
80 2-10 Fa Bulk	4.7	5.0	4.6	4.3	3.0
81 Cayenne	4.6	5.2	4.1	4.6	4.7
82 10-10 FC-6	4.6	4.8	4.6	4.5	3.0
83 Inferno	4.6	4.7	4.3	4.9	4.7
84 9-10 FC-3	4.6	4.8	4.7	4.4	3.3
85 Falcon IV	4.6	4.9	4.3	4.7	5.0
86 Six Point	4.6	5.0	4.2	4.7	5.0
87 Rebel IV	4.6	4.7	4.3	4.7	4.7
88 RNP	4.6	4.8	4.4	4.6	3.3
89 PST-Syn-5SDS	4.6	4.8	4.2	4.7	4.0
90 Dynamic II	4.6	4.8	4.5	4.5	3.7
91 FCE3	4.6	5.0	4.3	4.5	5.3
92 Renegade Supreme	4.6	4.6	4.4	4.7	4.7
93 3-10 Fa Bulk	4.6	4.9	4.5	4.3	4.0
94 10-10 FC-3	4.6	5.3	4.2	4.1	4.7
95 Greystone II	4.5	4.3	4.5	4.8	6.0
96 7-10 FC-3	4.5	5.0	4.3	4.3	4.3
97 ATF 1327	4.5	4.6	4.4	4.6	6.0
98 Forte	4.5	4.7	4.2	4.7	5.3
99 Banshee	4.5	4.7	4.6	4.2	3.3
100 10-10 FC-2	4.5	4.9	4.4	4.1	4.7
101 Umbrella	4.5	5.4	3.9	4.1	5.0
102 Virtue II	4.5	4.8	4.4	4.2	5.7
103 10-10 FC-4	4.5	5.0	4.2	4.2	3.7
104 CE-1	4.5	4.8	4.3	4.2	5.3
105 Rebel Advance	4.4	4.9	3.9	4.5	4.3

(Continued)



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

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----				Brown Patch <sup>2</sup> July 2013
	2011-2013 Avg.	2011 Avg.	2012 Avg.	2013 Avg.	
106 5-10 Fa Bulk	4.4	5.0	4.1	4.2	4.3
107 Tar Heel II	4.4	4.5	4.1	4.6	5.3
108 7-10 FC Bulk	4.4	4.7	3.8	4.7	5.3
109 Cannavaro	4.4	5.0	4.2	4.0	5.0
110 Rembrandt	4.4	4.4	4.2	4.5	5.0
111 9-10 FC Bulk	4.4	4.6	4.4	4.2	4.0
112 Jaguar 4G	4.4	4.4	3.9	4.8	5.7
113 Stingray	4.4	4.5	4.1	4.5	4.7
114 ATF-1334	4.4	4.8	4.0	4.3	5.0
115 Coranado TDH	4.4	4.6	4.2	4.3	4.0
116 Dorado	4.4	4.8	4.0	4.3	4.3
117 Greenkeeper	4.3	4.4	3.9	4.6	4.7
118 Penn 1901	4.3	4.7	3.4	4.8	5.0
119 Scorpion II	4.3	4.7	3.9	4.3	5.0
120 SCTF 2	4.3	4.1	4.1	4.6	4.7
121 7-10 FC-2	4.3	5.2	3.8	3.8	5.0
122 Signia	4.3	4.4	3.9	4.5	4.0
123 PSG 8G16-43	4.3	4.2	4.2	4.3	3.0
124 9-10 FC-8	4.2	4.6	3.9	4.2	5.3
125 Picasso	4.2	4.1	4.0	4.5	4.7
126 Cezanne RZ	4.2	4.3	4.1	4.3	4.7
127 SR 8600	4.2	4.4	3.5	4.7	4.3
128 N-96	4.2	4.4	4.0	4.2	4.7
129 Shenandoah Sport	4.2	4.3	4.2	4.0	4.3
130 Greystone	4.2	4.1	4.3	4.2	4.0
131 2nd Millennium	4.1	4.1	4.0	4.3	4.0
132 Rebel Sentry	4.1	4.5	3.8	4.1	4.7
133 7-10 FC-1	4.1	4.6	3.9	3.8	3.7
134 Dakota	4.1	4.1	4.1	4.0	4.3
135 Masterpiece	4.0	4.1	3.8	4.3	4.0
136 Rebel Pro	4.0	4.1	3.9	3.9	5.0
137 Arid 3	4.0	4.2	3.7	4.0	4.0
138 Montana	4.0	4.4	3.8	3.7	4.0
139 9-10 FC-6	4.0	4.5	3.8	3.6	4.3
140 Millennium	3.9	4.0	3.8	3.9	3.7

(Continued)

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

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----				Brown Patch <sup>2</sup> July 2013
	2011-2013 Avg.	2011 Avg.	2012 Avg.	2013 Avg.	
141 Brockton	3.9	4.1	3.6	3.9	5.3
142 9-10 FC-5	3.8	4.1	3.6	3.8	6.0
143 Pixie	3.8	4.0	3.4	4.0	4.7
144 Prospect	3.8	3.8	3.6	4.0	3.7
145 K-31	1.3	1.1	1.2	1.4	4.0
146 Atlas	1.2	1.0	1.1	1.4	4.3
LSD at 5% =	0.6	0.8	0.8	1.0	1.9

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

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

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2013
		2012-2013 Avg.	2012 Avg.	2013 Avg.	
1	PPG-TF 141	6.8	7.1	6.5	6.3
2	B23	6.7	6.8	6.6	5.7
3	PPG-TF 105	6.6	6.7	6.4	6.3
4	U41	6.5	6.8	6.2	5.3
5	Falcon V	6.4	6.8	6.1	5.7
6	U44	6.4	6.8	6.0	4.3
7	PPG-TF 140	6.3	6.5	6.1	4.3
8	PPG-TF 139	6.3	6.6	6.1	4.7
9	PPG-TF 121	6.3	6.4	6.2	5.0
10	TPC	6.3	6.3	6.3	6.3
11	PPG-TF 138	6.3	6.6	5.9	4.7
12	WE1	6.2	6.7	5.7	3.7
13	WE2	6.2	6.5	6.0	4.3
14	PST-Syn-R5D0	6.2	6.4	6.1	5.7
15	PPG-TF 106	6.2	6.3	6.2	6.3
16	MET3	6.2	6.4	6.0	5.0
17	Regenerate	6.2	6.5	5.9	5.0
18	Reflection	6.2	6.7	5.7	4.0
19	MET4	6.2	6.5	5.8	4.7
20	W43	6.2	6.8	5.5	5.0
21	PPG-TF 123	6.2	6.2	6.1	6.3
22	Hot Rod	6.1	6.2	6.1	5.3
23	PPG-TF 144	6.1	6.2	6.1	5.3
24	PPG-TF 143	6.1	6.4	5.8	4.3
25	Penn RK4	6.1	6.6	5.6	4.7
26	W45	6.1	6.5	5.7	5.0
27	ZW44	6.1	6.2	5.9	5.3
28	GTO	6.1	6.3	5.9	5.3
29	PPG-TF 142	6.1	6.7	5.4	4.3
30	RZ2	6.1	6.3	5.8	5.0
31	Rambler II	6.1	6.1	6.0	5.7
32	LS 1200	6.1	6.5	5.6	5.3
33	CCR2	6.0	6.6	5.4	4.0
34	MET6	6.0	6.1	5.9	5.7
35	PPG-TF 116	6.0	6.4	5.5	4.3

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2013
		2012- 2013 Avg.	2012 Avg.	2013 Avg.	
36	ATF 1734	5.9	5.9	5.9	4.3
37	ATF 1738	5.9	5.8	6.0	4.3
38	U43	5.9	6.3	5.5	4.3
39	MET1	5.9	6.1	5.7	4.3
40	PST-5AWT-08	5.9	6.4	5.4	3.3
41	Shenandoah Elite	5.9	6.3	5.4	4.0
42	ATF 1740	5.8	6.2	5.5	4.3
43	Golconda	5.8	6.2	5.4	3.7
44	PST-Syn-5ONC	5.8	6.0	5.6	4.0
45	PPG-TF 145	5.8	6.6	5.0	3.7
46	2-11 TF PC	5.8	6.1	5.5	4.3
47	ATF-1521	5.8	6.2	5.4	3.7
48	ATF 1703	5.8	6.1	5.5	4.7
49	Spyder	5.8	6.1	5.5	4.3
50	3611 R6	5.8	6.1	5.4	4.0
51	Firecracker LS	5.8	6.3	5.2	3.7
52	3611 R2	5.7	6.3	5.2	3.3
53	Shenandoah III	5.7	6.2	5.3	3.7
54	ATF 1736	5.7	5.9	5.5	5.0
55	PST-5MCD	5.7	6.2	5.2	4.3
56	ATF 1732	5.7	5.7	5.7	5.0
57	RZ1	5.7	5.9	5.4	4.3
58	Dorado	5.7	6.1	5.3	3.3
59	ATF 1735	5.7	5.7	5.6	4.3
60	PST-Syn-5END	5.7	5.5	5.8	5.0
61	PST-Syn-5MBP	5.6	5.7	5.6	5.0
62	PST-5A4S	5.6	6.2	5.1	4.0
63	ATF 1702	5.6	5.8	5.4	5.0
64	ATF 1739	5.6	5.7	5.6	4.3
65	5911 R3	5.6	5.5	5.7	3.3
66	Mustang 4	5.6	5.7	5.6	4.0
67	ATF 1701	5.6	5.8	5.4	4.3
68	PST-5FDR	5.6	6.1	5.1	4.0
69	PPG-TF 122	5.6	5.8	5.3	5.7
70	IS-IF-154	5.6	5.7	5.4	3.7

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2013
		2012- 2013 Avg.	2012 Avg.	2013 Avg.	
71	Rebel Xtreme	5.6	6.0	5.1	4.3
72	PST-5MVD	5.6	5.7	5.4	5.3
73	PPG-TF 102	5.6	6.1	5.0	3.0
74	PSG 8SP2	5.6	6.0	5.1	3.7
75	3611 R5	5.5	5.9	5.2	4.0
76	PST-5BRK	5.5	5.4	5.6	5.3
77	Finelawn Express	5.5	6.0	5.0	3.7
78	Gazelle II	5.5	5.6	5.4	5.0
79	5911 R10	5.5	5.9	5.1	3.7
80	6011 Bulk	5.5	5.7	5.3	4.0
81	PSG 6008	5.5	5.7	5.3	3.3
82	ATF 1706	5.5	5.6	5.4	5.0
83	Fesnova	5.5	6.0	5.0	4.7
84	Grande 3	5.5	6.2	4.7	2.3
85	ATF 1737	5.5	5.6	5.3	4.7
86	Van Gogh	5.5	5.9	5.0	4.0
87	6011 R1	5.5	5.8	5.1	3.0
88	ATF-1257	5.5	5.9	5.0	4.7
89	PST-5SXR	5.5	6.1	4.8	3.0
90	5911 R8	5.4	5.6	5.2	3.0
91	ATF 1707	5.4	5.9	4.9	3.7
92	PST-Syn-5MINI	5.4	5.2	5.6	5.0
93	PST-Syn-R5HH	5.4	5.3	5.5	6.0
94	5911 R7	5.4	5.2	5.6	4.7
95	PSM-6351	5.4	5.6	5.2	3.3
96	ATF 1731	5.4	5.6	5.1	3.7
97	PSG TF 08-6	5.4	5.6	5.2	3.7
98	ATF 1705	5.4	5.5	5.2	4.7
99	ATF 1729	5.4	5.4	5.3	5.0
100	PST-5R05	5.4	5.7	5.0	3.7
101	5911 R11	5.4	5.8	4.9	4.0
102	ATF 1704	5.3	5.4	5.3	5.0
103	PST-5GRB	5.3	5.6	5.1	4.7
104	PST-5SXD	5.3	5.5	5.2	5.3
105	PPG-TF 115	5.3	5.6	5.1	4.7

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2013
		2012- 2013 Avg.	2012 Avg.	2013 Avg.	
106	PSG 8BP2	5.3	5.8	4.8	4.0
107	5911 R5	5.3	5.7	5.0	3.3
108	Rebel IV	5.3	5.6	5.0	3.3
109	MNTF-DW-11	5.3	5.9	4.8	4.3
110	5911 R13	5.3	5.7	5.0	3.7
111	3611 R3	5.3	5.8	4.8	3.0
112	Monet	5.3	5.4	5.2	4.0
113	3611 Bulk	5.3	5.5	5.1	4.3
114	Dynamic II	5.3	5.5	5.1	3.0
115	PST-Syn-5NGE	5.3	5.7	4.9	3.7
116	Crossfire 3	5.3	5.7	4.9	2.7
117	6011 R6	5.3	5.6	5.0	4.3
118	Rebel Exeda	5.3	5.4	5.1	4.7
119	3611 R1	5.3	5.6	4.9	2.7
120	Rhambler SRP	5.3	5.5	5.0	4.3
121	3611 R4	5.2	5.7	4.8	3.0
122	Tonto	5.2	5.4	5.0	4.0
123	Tulsa Time	5.2	5.5	4.9	4.7
124	FCE 3	5.2	5.8	4.6	2.7
125	WDA23	5.2	5.3	5.1	5.0
126	PSG 8TST4	5.2	5.2	5.2	4.7
127	5911 R4	5.2	5.3	5.1	4.0
128	PPG-TF 101	5.2	5.4	5.0	3.3
129	6011 R7	5.2	5.5	4.9	3.3
130	Justice	5.2	5.3	5.1	4.3
131	ATF 1733	5.2	5.4	4.9	3.7
132	PST-5DRP	5.2	5.2	5.1	4.7
133	PST-Syn-525D	5.2	5.1	5.3	4.3
134	Rebel Advance	5.2	5.5	4.8	4.3
135	6011 R3	5.2	5.6	4.7	3.0
136	ATF 1728	5.1	5.2	5.0	4.3
137	OST-Syn-5E11	5.1	5.4	4.9	4.3
138	GSD	5.1	5.4	4.8	3.7
139	ATF-1533	5.1	5.5	4.7	4.0
140	FSD	5.1	5.2	5.0	3.3

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2013
		2012- 2013 Avg.	2012 Avg.	2013 Avg.	
141	PST-5SDS	5.1	5.1	5.1	4.0
142	PST-5DKB-N	5.1	5.3	4.9	3.7
143	3-11 TF PC	5.1	5.3	4.9	3.3
144	ATF-1255	5.1	5.3	4.9	3.3
145	Cumberland	5.1	5.0	5.2	6.0
146	SR 8650	5.1	5.4	4.8	3.3
147	5911 Bulk	5.1	5.3	4.9	3.7
148	ATF 1708	5.0	5.1	4.9	3.3
149	Speedway	5.0	5.1	4.9	4.0
150	PST-Syn-5C20	5.0	4.9	5.1	3.7
151	PSG 8GF7	5.0	5.5	4.6	2.7
152	6011 R4	5.0	5.2	4.8	3.3
153	3311 R4	5.0	5.1	4.9	3.0
154	ATF 1709	5.0	5.1	4.8	3.7
155	PST-Syn-5COY	5.0	4.8	5.2	6.0
156	PST-5DVD	5.0	5.2	4.8	3.7
157	PSG 8GF8	5.0	5.3	4.7	2.7
158	Guardian 41	5.0	5.0	4.9	3.7
159	3311 R10	5.0	5.0	5.0	4.3
160	Inferno	5.0	5.3	4.6	4.0
161	Rain Dance	5.0	5.3	4.6	4.0
162	PSG 8NJMD	5.0	5.2	4.7	4.3
163	3311 R8	5.0	5.4	4.5	2.7
164	Rebel XLR	4.9	4.9	5.0	4.0
165	STR 86GRH	4.9	5.2	4.7	2.7
166	PSG 85QR	4.9	5.2	4.6	3.0
167	SR 8550	4.9	5.6	4.3	3.0
168	Titanium LS	4.9	4.9	4.9	5.0
169	Terrano	4.9	5.1	4.6	4.3
170	Shenandoah Sport	4.9	5.2	4.6	3.7
171	Renegade Supreme	4.9	5.1	4.7	4.0
172	Lexington	4.9	5.0	4.7	4.3
173	3311 R10	4.9	5.1	4.6	3.3
174	ATF-1252	4.9	4.9	4.8	4.0
175	PSG 85P1	4.8	5.1	4.6	3.7

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2013
		2012-2013 Avg.	2012 Avg.	2013 Avg.	
176	3311 R6	4.8	5.1	4.6	3.3
177	PSG 8SP1	4.8	5.2	4.5	2.7
178	PST-Syn-5FAW	4.8	4.9	4.7	4.0
179	PST-R5W3	4.8	4.7	4.9	5.3
180	Six Point	4.8	4.9	4.8	4.0
181	Tarnation GT	4.8	5.0	4.6	4.3
182	STR 8GRQR	4.8	5.4	4.2	3.0
183	9-11 TF PC	4.8	5.0	4.6	3.0
184	3311 Bulk	4.8	5.0	4.6	2.3
185	STR 86QR	4.8	5.0	4.6	3.3
186	3311 R5	4.8	4.9	4.6	3.7
187	Greystone II	4.8	4.9	4.7	4.0
188	PST-5BGR	4.8	4.9	4.7	4.0
189	PST-5V4	4.7	5.0	4.5	3.3
190	PST-5LIV	4.7	5.2	4.3	3.3
191	PSG 8GF3	4.7	4.7	4.7	2.7
192	JT-158	4.7	5.3	4.1	3.3
193	Faith	4.7	4.9	4.5	3.3
194	PSG 8308	4.7	4.8	4.6	3.0
195	PSG RNDR	4.7	5.0	4.4	3.3
196	Cezanne RZ	4.7	5.0	4.3	3.0
197	Endeavor II	4.7	4.9	4.4	4.0
198	PSG 8TTS1OW	4.6	4.8	4.5	4.3
199	PSG 8GF5	4.6	4.7	4.6	3.7
200	Inspiration	4.6	4.9	4.3	2.3
201	PSG 8G1643	4.6	4.9	4.3	3.3
202	WDA1	4.6	4.9	4.3	3.7
203	Brockton	4.6	4.9	4.2	3.7
204	Regiment II	4.6	5.0	4.1	3.3
205	Virtue II	4.6	4.7	4.4	4.3
206	PST-Syn-5EXT	4.5	4.7	4.4	6.0
207	PSG 8GF4	4.5	4.8	4.3	2.3
208	PSG 8NJMT	4.5	4.8	4.3	3.3
209	ATF 1730	4.5	4.7	4.3	3.7
210	PST-5SIS	4.5	4.6	4.4	4.0

(Continued)



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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2013
		2012- 2013 Avg.	2012 Avg.	2013 Avg.	
211	Grande II	4.5	4.8	4.1	3.3
212	3311 R2	4.5	4.7	4.3	3.0
213	Davinci	4.5	4.6	4.3	4.3
214	Crewcut II	4.5	4.4	4.5	3.3
215	Rembrandt	4.4	4.8	4.0	3.3
216	Montana	4.4	4.6	4.2	3.0
217	PST-5YA	4.4	4.0	4.8	4.3
218	PSG 8GF6	4.4	4.7	4.1	2.3
219	Scorpion II	4.4	4.6	4.2	4.0
220	Prospect	4.4	4.9	3.9	2.3
221	PST-5YMY	4.4	4.2	4.5	5.0
222	Guardian	4.4	4.5	4.2	3.7
223	Masterpiece	4.3	4.5	4.2	3.3
224	PSG 8GF2	4.3	4.6	4.1	2.7
225	Greystone	4.3	4.5	4.1	2.3
226	Jaguar 4G	4.3	4.5	4.1	3.3
227	Arid 3	4.3	4.3	4.2	4.3
228	Greenkeeper	4.3	4.4	4.2	3.7
229	PST-Syn-5NCW	4.3	4.4	4.2	5.0
230	Picasso	4.3	4.4	4.1	3.7
231	Tar Heel II	4.3	4.6	4.0	3.0
232	PSG TTST	4.3	4.5	4.0	3.0
233	Cayenn+D500e	4.3	4.7	3.8	3.7
234	PSG 8GF1	4.3	4.4	4.1	2.3
235	PSG 8GRTJ	4.2	4.5	4.0	2.7
236	Quest	4.2	4.5	3.9	3.3
237	PST-Syn-5W1	4.2	4.1	4.2	5.0
238	PSG TTRH	4.1	4.4	3.8	3.7
239	Coronado THD	4.1	4.1	4.0	3.3
240	Watchdog	3.5	3.4	3.5	3.3
241	Grande	2.7	2.8	2.6	3.3
242	PSG 8RSTR3	1.9	1.9	1.8	2.0
243	Teton	1.6	1.6	1.5	2.7
	LSD at 5% =	0.7	0.8	0.8	1.6

<sup>1</sup>9 = best turf quality<sup>2</sup>9 = least disease

Table 3. Performance of tall fescue cultivars and selections in a turf trial established in September 2012 at Adelphia, NJ.

	Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013
1	W43	7.0	5.0	6.0	7.3
2	Regenerate	6.9	5.7	6.0	7.3
3	B23	6.8	6.3	6.3	6.7
4	U43	6.5	5.7	5.3	7.0
5	PSG 07-9TF	6.5	5.0	6.7	3.3
6	U41	6.5	6.0	5.3	6.7
7	TPC	6.4	5.7	7.0	6.0
8	W45	6.4	5.0	6.3	7.3
9	ZW44	6.4	4.7	5.7	6.0
10	Cochise IV	6.3	5.0	6.0	6.0
11	Rambler II	6.3	5.3	7.3	6.3
12	YA2	6.2	7.0	6.0	6.7
13	PSG 07-05	6.2	5.3	7.3	5.0
14	PPG-TF 106	6.2	6.0	6.0	5.7
15	RAD-TF84	6.2	5.3	6.7	4.7
16	PPG-TF 116	6.2	5.3	7.0	5.0
17	LB08-1-12	6.2	4.7	6.7	4.7
18	PPG-TF 152	6.1	5.7	6.3	6.0
19	PSM-6351	6.1	6.3	6.0	5.0
20	PPG-TF 151	6.1	5.0	7.3	3.7
21	PPG-TF 156	6.1	5.3	5.7	6.7
22	Fesnova	6.0	5.7	7.0	5.7
23	MET1	6.0	6.0	4.7	6.3
24	PPG-TF 170	6.0	7.0	4.7	4.7
25	LB07-3-11	6.0	4.7	7.3	4.7
26	PPG-TF 120	6.0	4.3	5.7	5.3
27	PS-Fa-09-7-10	6.0	4.7	6.3	4.3
28	PPG-TF 172	6.0	5.0	6.7	5.0
29	Hot Rod	5.9	4.7	5.0	6.0
30	Terrano	5.9	6.0	7.3	5.7
31	PPG-TF 144	5.9	5.0	5.0	5.0
32	PSG 6008	5.9	5.3	5.7	5.3
33	MET3	5.9	4.3	4.0	6.0
34	Crossfire 3	5.8	7.0	5.3	3.7
35	PSG 709509	5.8	6.3	5.7	4.0

(Continued)

Table 3. Tall fescue turf trial, 2012 (continued).

	Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013
36	PPG-TF 141	5.8	5.3	6.7	4.0
37	PST-5T20	5.8	5.0	5.7	5.0
38	LB08-7-12	5.8	4.7	6.7	5.3
39	FSD	5.8	5.0	5.7	5.3
40	Bullseye	5.8	5.7	5.3	4.3
41	PPG-TF 140	5.8	6.0	5.3	5.3
42	PS-Fa-09-7-21	5.8	5.0	6.3	4.0
43	PPG-TF 105	5.8	4.7	6.7	6.0
44	PPG-TF 138	5.8	4.3	6.3	5.0
45	CCR2	5.7	5.0	5.0	6.3
46	PSG 5908	5.7	6.0	5.7	4.7
47	PPG-TF 143	5.7	4.3	6.3	6.0
48	PPG-TF 153	5.7	4.3	4.3	5.3
49	LB08-4-12	5.7	4.3	6.0	5.7
50	Rebel Xtreme	5.7	4.7	5.0	4.7
51	Hudson	5.7	5.3	5.7	3.3
52	LB07-1-11	5.7	5.0	6.0	4.7
53	PST-5FDR	5.6	5.0	7.3	6.3
54	PPG-TF 142	5.6	4.0	7.0	3.7
55	YA1	5.6	5.3	3.3	6.7
56	Darlington	5.6	5.7	6.7	3.3
57	PPG-TF 146	5.6	4.7	6.0	5.3
58	LB08-6-12	5.6	4.0	7.3	4.3
59	W41	5.6	4.7	7.0	5.7
60	PPG-TF 137	5.6	4.7	5.0	5.7
61	Dynamic II	5.6	6.0	3.3	3.3
62	PPG-TF 139	5.6	4.0	5.7	5.0
63	LB08-5-12	5.5	4.3	8.3	4.3
64	LB08-9-12	5.5	4.3	6.3	4.0
65	PPG-TF 150	5.5	4.7	5.3	4.7
66	PSG 39-05	5.5	5.0	6.3	5.0
67	SR 8650	5.5	5.0	6.0	4.7
68	BIZEM	5.5	4.3	6.0	5.7
69	PSG 85QR	5.5	6.3	4.7	4.7
70	PPG-TF 154	5.5	4.3	7.0	6.0

(Continued)

Table 3. Tall fescue turf trial, 2012 (continued).

	Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013
71	PPG-TF 173	5.5	5.3	5.0	4.7
72	PS-Fa-09-7-11	5.5	4.7	7.7	3.7
73	PS-Fa-10-2	5.5	5.0	5.3	5.0
74	Firebird 2	5.5	5.0	4.3	5.7
75	PPG-TF 169	5.5	6.0	3.3	5.0
76	LB07-7-11	5.5	5.0	7.3	3.7
77	LB07-4-11	5.5	4.3	6.3	4.7
78	Inferno	5.4	6.0	5.0	4.3
79	Monet	5.4	7.0	4.3	5.3
80	3rd Millennium	5.4	6.3	4.0	3.7
81	STR 86QRH	5.4	7.3	5.0	2.7
82	SRX 8BBS	5.4	5.7	5.3	4.0
83	PPG-TF 115	5.4	5.0	6.0	3.7
84	PST-Syn-5A8	5.4	4.7	6.0	5.0
85	WDA1	5.4	6.3	3.0	6.3
86	Talledaga	5.4	5.3	6.3	4.7
87	PS-Fa-09-7-23	5.3	4.7	6.3	4.7
88	LB08-8-12	5.3	4.0	7.3	4.7
89	LB08-2-12	5.3	4.0	7.3	3.3
90	PPG-TF 147	5.3	5.3	4.0	4.7
91	Persuasion	5.3	4.0	5.7	4.7
92	PPG-TF 145	5.3	3.7	7.7	4.0
93	LS 1200	5.2	4.7	3.3	3.3
94	Corona	5.2	5.0	5.3	3.7
95	LB07-5-11	5.2	4.3	6.7	4.7
96	F711	5.2	4.7	5.3	5.7
97	Penn RK4	5.2	5.7	3.7	4.3
98	Shenandoah Sport	5.1	6.3	5.0	3.7
99	Mustang 4	5.1	7.3	4.3	4.7
100	PST-5SXD	5.1	5.3	4.7	4.7
101	LB08-3-12	5.1	4.3	5.3	4.0
102	8GR841	5.1	5.3	4.7	3.0
103	PPG-TF 117	5.1	4.7	7.3	4.3
104	PS-Fa-09-7-Bulk	5.1	5.0	6.0	4.0
105	Firecracker LS	5.0	3.7	4.7	4.7

(Continued)

Table 3. Tall fescue turf trial, 2012 (continued).

	Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013
106	PST-5JUBY	5.0	4.3	5.7	4.7
107	Rendition RX	5.0	5.7	5.0	3.7
108	Falcon V	5.0	5.7	2.7	6.0
109	Falcon IV	5.0	6.0	4.0	5.3
110	PST-5WAL	5.0	4.3	7.3	5.7
111	PS-Fa-09-7-24	5.0	4.3	6.0	4.7
112	8NJMT	5.0	4.0	7.0	4.3
113	8NJMD	5.0	5.0	5.0	3.7
114	LB07-2-11	5.0	4.3	6.0	3.7
115	PPG-TF 101	4.9	4.0	6.3	4.0
116	PS-Fa-09-7-7	4.9	4.3	4.0	4.0
117	Renegade Supreme	4.9	6.3	4.7	3.0
118	Gazelle II	4.9	4.7	5.0	4.3
119	PPG-TF 125	4.8	4.7	3.0	4.3
120	LB07-6-11	4.8	4.7	5.0	2.3
121	Cumberland	4.8	5.0	4.3	4.7
122	Quest	4.8	5.3	4.0	3.3
123	Van Gogh	4.8	6.0	3.0	4.7
124	Shenandoah III	4.8	4.3	2.7	4.0
125	PST-5W03	4.7	5.0	5.3	4.3
126	Tarnation GT	4.7	6.0	5.3	3.7
127	PS-Fa-09-7-5	4.7	4.0	4.3	4.3
128	Covenant II	4.7	5.3	4.7	3.7
129	Spyder LS	4.7	4.3	6.0	3.3
130	PST-5DKB-N	4.7	4.7	4.7	3.3
131	Speedway	4.6	5.7	2.7	5.0
132	PSG 8308	4.5	6.3	3.3	3.7
133	Stingray	4.5	4.0	5.3	3.7
134	Six Point	4.5	4.0	4.7	4.3
135	Sitka	4.5	5.7	4.3	3.0
136	PS-Fa-09-7-1	4.4	4.3	5.3	4.7
137	PST-Syn-5WAZ	4.4	3.7	6.3	3.7
138	Penn ATF 1376	4.4	5.3	4.0	3.3
139	Endeavor II	4.4	6.7	4.0	3.7
140	Rebel Advance	4.3	4.7	4.0	4.0

(Continued)

Table 3. Tall fescue turf trial, 2012 (continued).

	Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013
141	STR 8GRQR	4.3	4.3	4.0	4.3
142	Rebel XLR	4.3	5.3	2.7	3.7
143	PST-5BGR	4.3	6.3	3.3	3.7
144	Rain Dance	4.2	4.7	4.3	4.0
145	Titan Ultra	4.2	6.3	4.0	4.3
146	Grande II	4.2	6.7	3.0	3.7
147	PST-Syn-5WIN	4.2	4.0	5.3	3.3
148	PST-Syn-5WAB	4.2	4.7	4.7	4.7
149	Finelawn Elite	4.1	6.0	3.0	3.3
150	Titantium LS	4.0	4.0	4.0	3.3
151	Coronado TDH	4.0	5.3	2.3	3.3
152	PST-525D	4.0	3.7	4.3	3.3
153	Cezanne RZ	4.0	6.0	2.7	2.7
154	Penn ATF 1258	4.0	6.7	3.0	2.3
155	Avenger	4.0	4.0	4.7	2.7
156	Titanium	4.0	4.7	4.0	3.7
157	PST-Syn-5MET	4.0	3.7	4.0	3.0
158	Titan Rx	3.9	5.3	4.3	2.3
159	PST-R520	3.9	5.3	3.0	4.7
160	Greystone	3.9	5.0	2.0	2.3
161	Shenandoah Elite	3.9	1.3	6.7	4.7
162	Jaguar 4G	3.8	4.3	6.7	2.7
163	PST-5SIS	3.8	4.3	2.3	4.0
164	Arid 3	3.7	5.0	3.0	2.3
165	Virtue II	3.6	3.7	3.7	3.0
166	Tar Heel II	3.6	5.3	2.3	2.7
	LSD at 5% =	0.8	1.1	1.6	1.8

<sup>1</sup>9 = best turf quality<sup>2</sup>9 = best establishment<sup>3</sup>9 = least disease

Table 4. Performance of tall fescue cultivars and selections in the National Turf Test (NTEP) established in September 2012 at Adelphia, NJ.

Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013	Leaf Texture <sup>4</sup> Oct. 2013	Color <sup>5</sup> Oct. 2013
1 Regenerate	6.6	5.0	5.3	6.3	7.7	7.3
2 B23	6.5	6.0	5.3	7.0	7.3	7.0
3 IS-TF 285	6.4	6.3	6.7	5.7	7.3	7.3
4 PPG-TF-105	6.4	6.3	6.3	6.7	7.3	7.7
5 IS-TF 291	6.3	5.7	6.3	5.3	7.7	8.0
6 TD1	6.3	6.0	7.3	5.7	6.3	8.3
7 IS-TF 269 SEL	6.2	4.7	6.7	4.3	7.7	7.7
8 U43	6.2	5.3	4.7	7.0	7.0	7.0
9 W45	6.2	5.3	6.0	7.7	7.7	7.3
10 PPG-TF-157	6.1	5.3	6.7	6.3	6.7	8.3
11 PPG-TF-152	6.1	5.7	6.3	6.3	7.3	7.7
12 Rambler II	6.1	5.7	7.0	5.7	6.0	6.0
13 RAD-TF-88	6.0	5.7	5.7	5.3	8.0	8.7
14 SRX-TPC	6.0	6.7	6.3	5.3	8.0	6.3
15 LTP-TWUU	6.0	4.7	5.3	7.3	6.7	6.0
16 IS-TF 289	6.0	6.0	7.0	5.0	6.7	7.7
17 PPG-TF-170	6.0	7.7	5.3	6.3	8.3	6.7
18 Pick-W43	5.9	6.3	5.3	5.7	7.7	5.3
19 Bullseye	5.9	6.0	6.0	4.7	7.3	7.3
20 ZW 44	5.8	5.3	5.7	7.0	7.7	6.0
21 IS-TF 310 SEL	5.8	4.7	6.0	5.7	8.0	6.7
22 CCR2	5.8	5.3	5.3	7.0	7.7	6.7
23 DB1	5.8	5.0	6.3	4.3	7.3	8.3
24 PPG-TF-150	5.8	5.3	6.3	5.7	8.0	6.7
25 MET 1	5.8	6.7	4.0	5.7	7.7	5.7
26 IS-TF 330	5.8	4.7	6.7	5.7	7.0	9.0
27 Fesnova	5.7	6.0	5.7	6.0	6.3	6.7
28 Firebird 2	5.7	5.0	6.3	6.0	7.3	6.7
29 DZ1	5.7	5.0	6.0	4.3	7.3	7.7
30 RAD-TF-89	5.7	6.3	5.3	5.7	8.3	9.0
31 K12-05	5.7	5.3	6.0	4.3	7.0	8.7
32 PPG-TF-151	5.7	5.0	5.0	5.0	7.3	6.7
33 RAD-TF-92	5.6	6.0	5.3	5.0	8.0	7.7
34 IS-TF 284 M2	5.6	3.7	6.3	4.7	7.0	8.0
35 PPG-TF-148	5.6	5.3	4.3	6.7	6.3	5.7

(Continued)

Table 4. Tall fescue turf trial, 2012, NTEP (continued).

Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013	Leaf Texture <sup>4</sup> Oct. 2013	Color <sup>5</sup> Oct. 2013
36 IS-TF 282 M2	5.5	5.7	6.0	3.3	6.7	8.3
37 Reflection	5.5	4.7	5.3	6.0	7.7	6.3
38 Faith	5.5	5.0	4.3	6.0	6.7	7.3
39 PPG-TF-156	5.5	6.0	4.7	6.3	7.3	6.7
40 PPG-TF-139	5.5	4.3	6.0	5.0	8.3	7.3
41 IS-TF 311	5.5	3.7	5.3	5.3	7.0	6.0
42 RAD-TF-83	5.5	5.3	5.3	4.7	7.7	9.0
43 Terrano	5.5	6.0	5.7	4.3	6.0	6.7
44 MET-3	5.5	5.0	5.0	6.3	7.3	7.0
45 PSG-PO1	5.4	5.0	4.3	5.7	7.0	6.3
46 ATF 1612	5.4	5.7	4.0	5.7	6.7	5.7
47 RZ2	5.4	6.0	5.3	6.7	7.3	5.3
48 Hot Rod	5.4	5.0	5.7	6.3	7.0	6.7
49 Burl TF-69	5.4	5.3	5.0	5.0	7.3	8.0
50 TF-287	5.4	5.7	5.7	5.0	7.3	7.7
51 IS-TF 276 M2	5.3	5.3	5.3	4.0	6.7	7.3
52 GTO	5.3	6.0	4.7	5.7	7.3	7.0
53 T31	5.3	6.0	4.0	5.3	6.7	5.0
54 PSG-WE1	5.3	5.0	5.7	5.0	7.7	6.7
55 PPG-TF-172	5.3	5.3	5.3	5.7	6.7	6.7
56 LTP-F5DPDR	5.3	5.3	4.3	5.7	6.0	5.7
57 PPG-TF-115	5.3	5.7	6.7	3.7	5.7	7.3
58 LTP-FSD	5.2	6.3	5.3	4.7	5.7	5.7
59 Hemi	5.2	5.7	5.0	5.7	7.7	5.7
60 PPG-TF-137	5.2	5.0	4.3	6.0	7.3	5.7
61 JS 916	5.2	4.7	5.0	5.3	7.3	7.3
62 OR-21	5.2	6.7	5.7	4.3	6.0	9.0
63 TY 10	5.2	5.7	4.7	3.7	6.3	8.7
64 JS 818	5.1	5.3	6.7	3.7	5.3	8.0
65 PST-5EV2	5.1	4.7	4.3	6.0	7.0	5.3
66 W41	5.1	5.0	5.0	5.0	7.7	7.0
67 IS-TF 305 SEL	5.1	5.0	5.7	5.0	6.0	8.0
68 PPG-TF-138	5.1	5.3	5.7	4.7	7.7	6.7
69 PST-5BRK	5.1	5.3	5.0	5.3	7.0	5.0
70 Bizem	5.1	4.3	4.3	5.3	6.7	6.0

(Continued)



Table 4. Tall fescue turf trial, 2012, NTEP (continued).

Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013	Leaf Texture <sup>4</sup> Oct. 2013	Color <sup>5</sup> Oct. 2013
71 F711	5.0	5.3	5.0	5.7	7.0	7.3
72 ATF 1754	5.0	5.0	3.7	4.7	6.7	4.7
73 Falcon V	5.0	6.0	3.3	5.7	7.7	6.3
74 IS-TF 308 SEL	5.0	3.3	5.3	4.7	7.7	7.0
75 Cochise V	5.0	5.3	4.3	5.3	7.0	6.0
76 JS 819	5.0	5.3	6.0	4.0	6.3	6.7
77 Exp TF-09	5.0	5.7	6.0	3.7	6.0	8.0
78 PST-5GRB	5.0	4.3	4.7	5.3	7.7	5.3
79 ATF 1736	4.9	5.3	3.7	4.3	7.0	5.7
80 PST-5MVD	4.9	5.0	4.0	5.3	6.3	5.3
81 MET 6 SEL	4.9	4.0	4.3	6.3	7.0	5.0
82 PPG-TF-169	4.9	6.7	3.3	5.7	6.7	6.0
83 PST-5DZP	4.9	4.3	6.0	3.3	6.3	6.7
84 GO-DFR	4.9	4.0	5.7	4.0	6.3	7.0
85 K12-MCD	4.9	6.0	6.0	4.0	6.7	5.3
86 PPG-TF-145	4.8	4.0	6.3	4.0	6.7	8.0
87 PPG-TF-142	4.8	4.0	5.7	4.7	7.3	7.3
88 Grande 3	4.8	5.7	3.0	5.0	7.3	6.0
89 ATF 1704	4.7	5.3	3.3	5.7	6.7	5.3
90 Saltillo	4.7	4.7	5.7	4.3	5.7	6.0
91 Comp. Res. SST	4.7	5.7	5.3	3.3	8.0	5.7
92 IS-TF 307 SEL	4.7	3.7	6.0	4.7	7.0	8.0
93 IS-TF 272	4.7	3.3	5.3	5.0	7.3	8.3
94 JS 809	4.7	5.3	6.0	4.0	6.7	7.0
95 PSG-GSD	4.6	5.7	4.7	4.3	7.0	4.7
96 Catalyst	4.6	6.0	2.7	5.7	7.3	4.3
97 BAR Fa 121095	4.6	4.3	5.7	4.3	6.7	7.0
98 Falcon IV	4.6	6.0	5.0	3.7	5.7	6.0
99 PST-5RO5	4.5	6.3	4.3	3.0	7.7	5.7
100 PSG-8BP2	4.5	4.0	5.3	3.3	6.0	6.7
101 K12-13	4.4	4.3	5.7	3.0	8.0	6.3
102 JS 825	4.3	5.0	5.7	3.7	4.0	7.3
103 Marauder	4.2	5.3	5.3	2.7	8.0	5.7
104 Annihilator	4.2	6.3	4.3	2.3	7.3	7.3
105 BAR Fa 121089	4.2	4.7	5.0	4.7	5.7	6.7

(Continued)

Table 4. Tall fescue turf trial, 2012, NTEP (continued).

Cultivar or Selection	Turf Quality <sup>1</sup> 2013 Avg.	Establishment <sup>2</sup> Oct. 2012	Net Blotch <sup>3</sup> May 2013	Brown Patch <sup>3</sup> Sept. 2013	Leaf Texture <sup>4</sup> Oct. 2013	Color <sup>5</sup> Oct. 2013
106 PSG-TT4	4.2	4.7	3.7	3.7	6.7	5.3
107 Inspiration	4.1	4.7	5.0	3.7	3.3	5.3
108 204 Res. Blk 4	4.1	4.7	4.0	3.0	8.3	4.3
109 Rain Dance	4.1	4.7	2.7	4.3	5.7	5.7
110 Warhawk	4.0	4.7	4.3	2.3	6.7	6.3
111 PST-5BPO	4.0	4.0	3.7	4.3	5.3	5.0
112 Aquaduct	3.8	4.0	3.0	3.0	5.0	5.3
113 PST-5EX2	3.5	5.3	3.3	5.7	6.3	3.7
114 BAR Fa 121091	3.0	3.0	4.0	2.3	2.7	8.0
115 BAR Fa 120878	2.6	7.0	3.0	2.7	2.3	3.7
116 Ky-31	1.3	7.7	1.0	3.7	1.0	1.0
LSD at 5% =	0.8	1.0	1.3	1.8	1.5	1.4

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

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

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

<sup>4</sup>9 = finest leaf texture

<sup>5</sup>9 = darkest genetic color

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

	2010		2011		2012	
	N <sup>1</sup>	Ht <sup>2</sup>	N	Ht	N	Ht
Table 1 (2010, low maintenance since 2012) .....	3.00	1.5	3.00	1.5	0.80 <sup>3</sup>	2.5 <sup>3</sup>
Table 2 (2011) .....			3.50	1.5	3.75	1.5
Table 3 (2012) .....					3.75	1.5
Table 4 (2012 NTEP) .....					3.75	1.5

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

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

<sup>3</sup>2010 test was managed under low maintenance in 2013 for the first time