

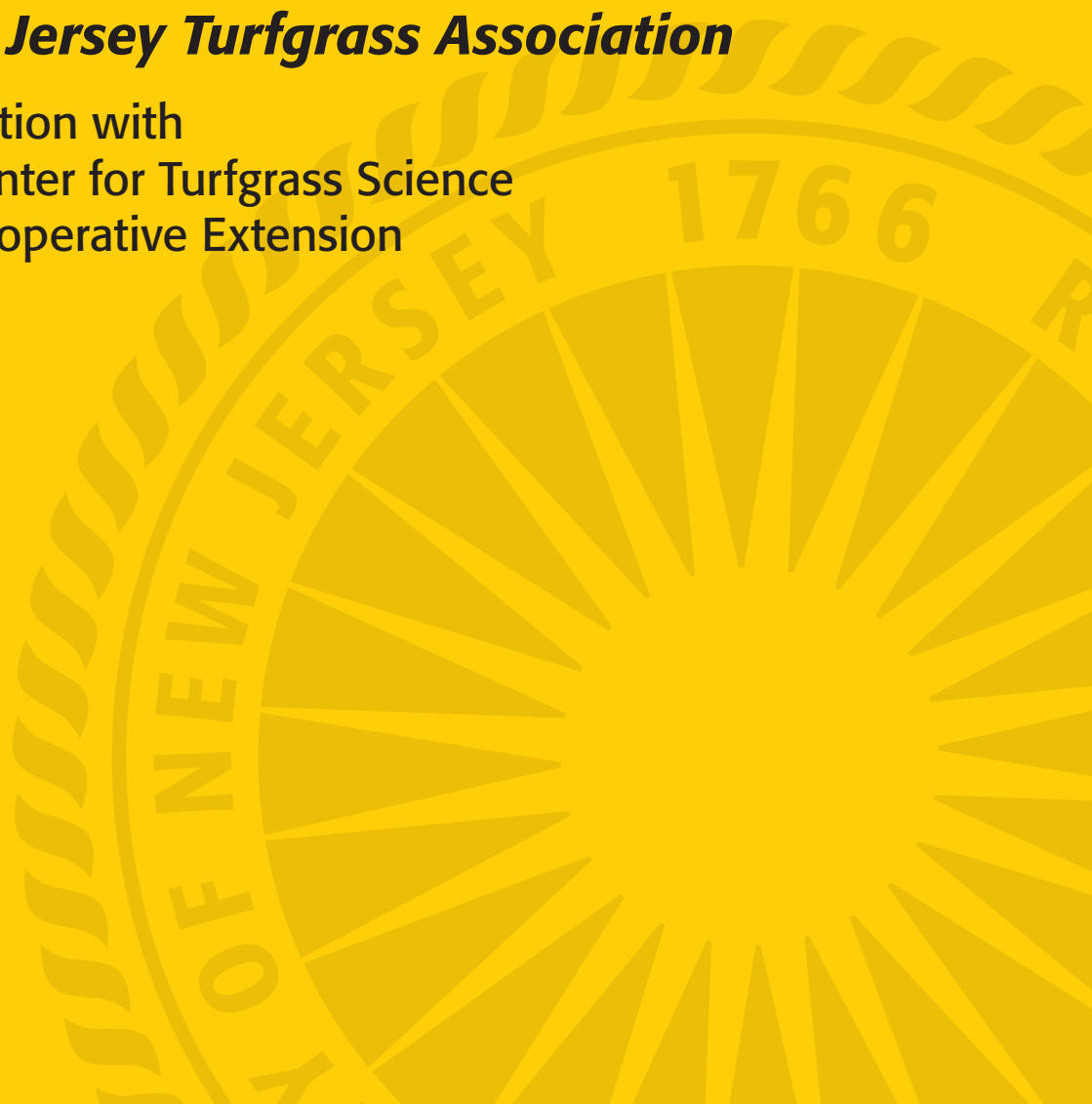
# RUTGERS

New Jersey Agricultural  
Experiment Station

## **2015 Turfgrass Proceedings**

***The New Jersey Turfgrass Association***

In Cooperation with  
Rutgers Center for Turfgrass Science  
Rutgers Cooperative Extension



# **2015 RUTGERS TURFGRASS PROCEEDINGS**

of the

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

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**Borgata Hotel**

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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 2015 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 that is 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 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

Six tall fescue trials were established at the Rutgers Plant Biology and Pathology Research and Extension Farm at Adelphia, NJ between 2012 and 2014 (Tables 1 to 6). 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 ft<sup>2</sup>), excluding the 2012 NTEP test (Table 2) which was sown at the rate of 2.29 oz of seed per 4 x 6 ft plot (5.9 lb per 1000 ft<sup>2</sup>). All tests were arranged in randomized complete block design

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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 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 7). The trials established in 2014 (Tables 5 and 6) received an application of 10-10-10 fertilizer at the rate of 1.0 lb per 1000 ft<sup>2</sup> at establishment. 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 7. 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 2013 and 2014 low maintenance tests (Tables 4 and 6, respectively) were managed under a low maintenance regimen that consisted of a higher mowing height (2.5 inches) as well as reduced nitrogen inputs (1.0 or 1.5 lb per 1000 ft<sup>2</sup> for the 2013 and 2014 tests, respectively) for the year.

### 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 6. The 2012 and 2013 tests (Tables 1 to 4)

are ranked by overall (multi-year) turf quality average; the 2014 tests (Tables 5 and 6) are ranked by turf quality in 2015. 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.

Tall fescue selections and cultivars with the highest quality ratings in the 2012 test (Table 1) were Regenerate, Rebounder, and 4th Millennium SRP, while the entries of lowest quality were Tar Heel II, Jaguar 4G, and Arid 3. In the 2012 NTEP trial (Table 2), the highest quality selections and cultivars were Regenerate, 4th Millennium SRP, Rebounder, Thor, Traverse 2 SRP, Amity, and Titanium 2LS; those of lowest quality were PST-5EX2, BAR Fa 121091, BAR Fa 120878, and Ky-31. In the 2013 test (Table 3), the highest quality cultivars were Raptor III, 305 Comp, and TMT Comp and the lowest quality cultivars were Scorpion II, 6-5-09TF, and AGRFA-190. In the 2013 low maintenance test (Table 4), the highest quality selections and cultivars were PPG-TF 180, PPG-TF 190, PPG-TF 198, PPG-TF 189, and TA2 Comp, whereas 3T3 Comp, 3T1 Comp, and 3T2 Comp were of poorer quality. In the 2014 trial (Table 5), the highest performing selections and cultivars were PPG-TF 176, NT-3, 13TFC18, and ROL Comp. The lowest quality tall fescue entries were PST-5BGR and PST-5YA. In the 2014 low maintenance test (Table 6), the highest performing selections and cultivars were RI3 Comp, Covenant II, and Faith, whereas those of lowest quality were Cochise IV, Rendition Rx, and Rambler.

### Color

The 2012 NTEP test (Table 2) was rated for color in 2015 September. This rating is based on a 1-9 scale where 1 = light green and 9 = dark green. The darkest entries in this test were Turfway, Foxhound, and Temptation, while the lightest colored selections and cultivars were Catalyst, PST-5EX2, and Ky-31.

## Spring Green-Up

The 2012 NTEP test was rated for spring green-up in April of 2015 (Table 2). This rating is based on a 1 to 9 scale where 1 = completely dormant turf and 9 = green, actively growing turf. Spring green-up is a quality that is evaluated to determine which selections and cultivars come out of winter dormancy and begin active growth the most rapidly. Tall fescue selections and cultivars that rated highest for spring green-up were Rebounder, Grande 3, PST-5EX2, and PPG-TF-169, while Dynamite LS, JS 825, JS 819, JS 818, and K12-13 were the slowest to come out of winter dormancy.

## 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 2), the selections and cultivars that were most resistant to this disease included Amity, Rebounder, and Avenger II, whereas Warhawk, 204 Res. Blk 4, and BAR Fa 120878 were least resistant. In the 2013 trial (Table 3), Avenger, Regenerate, Raptor III, TMT Comp, B23, Reflection, PPG-TF 153, PST-5WAL, and PO1 were most resistant to brown patch, while FA-10-9 BULK and FA-10-9-7 were least resistant to this disease.

The performance of the entries in the 2012 NTEP test (Table 2) includes ratings for net blotch (or Helminthosporium leaf spot) that is caused by the fungus *Drechslera dictyoides*. Symptoms of this disease begin as tiny brown spots on the leaves that expand, become oval or square, and coalesce to form a net-like pattern on the leaf. Net blotch appears in the turf stand as a yellow or brown, general thinning of the turf. Cultivars and selections most tolerant of net blotch were Foxhound, IS-TF 269 SEL, Kingdom, Diablo, Turfway, and Ares, while those that were most susceptible included GTO, Bloodhound, Catalyst, Aquaduct, and Ky-31.

## 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.

Cultivars and selections that established most rapidly in the 2014 test (Table 5) were PPG-TF169, PPG-TF 176, Michelangelo, Van Gogh, and Screamer LS. Those that established more slowly were GO-14-MNR4 and Greystone. In the 2014 low maintenance test (Table 6), the most rapidly established selections and cultivars were FFP Comp, 4th Millennium SRP, Avenger II, Titanium, Traverse, Mustang 4, and Co-chise IV. The entries RI3 Comp, Titan Rx, ROL Comp, and Rockwell established more slowly.

## 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.

## ACKNOWLEDGMENTS

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Table 1. 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> -----			
		2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.
1	Regenerate	6.4	6.9	6.6	5.9
2	Rebounder	6.4	7.0	6.0	6.2
3	4th Millennium SRP	6.4	6.5	6.2	6.3
4	B23	6.2	6.8	5.8	6.1
5	U41	6.2	6.5	6.2	5.9
6	Traverse 2 SRP	6.1	6.4	6.0	6.0
7	Raptor III	6.0	6.4	5.7	6.1
8	Avenger	6.0	6.1	6.0	6.0
9	Commander	6.0	6.2	5.8	5.8
10	Hot Rod	5.9	5.9	5.8	6.1
11	Amity	5.8	5.7	5.6	5.9
12	Slate	5.7	6.0	5.8	5.3
13	PPG-TF 150	5.7	5.5	5.5	6.1
14	W41	5.7	5.6	5.5	5.9
15	PPG-TF 137	5.7	5.6	5.6	5.8
16	Titanium 2LS	5.7	6.1	5.3	5.6
17	PPG-TF 172	5.6	6.0	5.3	5.6
18	PPG-TF 116	5.6	6.2	5.3	5.4
19	MET3	5.6	5.9	5.5	5.6
20	PPG-TF 106	5.6	6.2	5.2	5.4
21	Firecracker SLS	5.6	5.8	5.5	5.5
22	Firebird 2	5.6	5.5	5.4	5.9
23	Leonardo	5.6	5.8	5.5	5.4
24	LB08-4-12	5.5	5.7	5.5	5.5
25	PPG-TF 120	5.5	6.0	5.3	5.3
26	Cochise IV	5.5	6.3	4.9	5.2
27	PSG 07-9TF	5.5	6.5	5.4	4.6
28	PPG-TF 143	5.5	5.7	5.3	5.5
29	RAD-TF84	5.5	6.2	5.0	5.3
30	Rowdy	5.5	6.4	4.7	5.3
31	PPG-TF 144	5.5	5.9	5.1	5.4
32	PPG-TF 153	5.5	5.7	5.5	5.2
33	LB08-1-12	5.5	6.2	5.2	5.0
34	PST-Syn-5A8	5.5	5.4	5.4	5.5
35	Selkirk	5.4	5.6	5.2	5.5

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			
		2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.
36	Rhambler 2 SPR	5.4	6.3	5.2	4.8
37	PPG-TF 173	5.4	5.5	5.3	5.6
38	PPG-TF 151	5.4	6.1	5.1	5.0
39	PPG-TF 169	5.4	5.5	5.6	5.2
40	PSM-6351	5.4	6.1	5.1	5.1
41	Screamer LS	5.4	5.3	5.2	5.6
42	SR 8650	5.4	5.5	5.2	5.4
43	Sidewinder	5.4	5.8	4.8	5.5
44	WDA1	5.3	5.4	5.3	5.3
45	PS-Fa-10-2	5.3	5.5	5.1	5.4
46	PSG 709509	5.3	5.8	4.8	5.3
47	PSG 07-05	5.3	6.2	4.9	4.7
48	PPG-TF 146	5.3	5.6	5.2	5.1
49	LB08-8-12	5.3	5.3	5.4	5.1
50	Xtender	5.3	5.6	5.0	5.3
51	Terrano	5.3	5.9	5.0	4.9
52	LB08-9-12	5.3	5.5	5.3	5.0
53	Fesnova	5.3	6.0	5.0	4.7
54	Bullseye	5.3	5.8	5.0	5.0
55	Trinity	5.3	5.5	5.2	5.1
56	PSG 6008	5.2	5.9	4.8	5.1
57	PPG-TF 140	5.2	5.8	5.0	4.9
58	PPG-TF 141	5.2	5.8	5.0	4.9
59	F711	5.2	5.2	5.2	5.3
60	PST-5T20	5.2	5.8	4.5	5.3
61	PST-5JUBY	5.2	5.0	5.2	5.5
62	PPG-TF 154	5.2	5.5	5.1	5.0
63	Ares	5.2	5.6	4.9	4.9
64	LB08-7-12	5.2	5.8	4.9	4.7
65	LB07-3-11	5.1	6.0	4.9	4.6
66	Monet	5.1	5.4	4.8	5.1
67	Firecracker LS	5.1	5.0	5.0	5.3
68	PS-Fa-09-7-10	5.1	6.0	4.9	4.3
69	Mustang 4	5.0	5.1	5.1	5.0
70	LB08-6-12	5.0	5.6	4.4	5.1

(Continued)



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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			
		2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.
71	LB08-3-12	5.0	5.1	5.1	4.8
72	LB07-1-11	5.0	5.7	4.8	4.6
73	PS-Fa-09-7-21	5.0	5.8	4.7	4.6
74	STR 86QRH	5.0	5.4	4.7	4.8
75	PPG-TF 125	5.0	4.8	4.9	5.2
76	PSG 5908	4.9	5.7	4.5	4.7
77	Guardian 41	4.9	5.4	4.4	5.0
78	LS 1200	4.9	5.2	4.8	4.8
79	PST-5FDR	4.9	5.6	4.8	4.3
80	Persuasion	4.9	5.3	4.8	4.6
81	Falcon V	4.9	5.0	4.9	4.9
82	LB08-5-12	4.9	5.5	4.4	4.7
83	PSG 39-05	4.9	5.5	4.5	4.7
84	Dynamic II	4.9	5.6	4.5	4.6
85	Hudson	4.8	5.7	4.6	4.3
86	Black Tie	4.8	5.1	4.8	4.7
87	Shenandoah III	4.8	4.8	4.6	5.1
88	LB07-4-11	4.8	5.5	4.6	4.4
89	Penn RK4	4.8	5.2	4.7	4.6
90	Talledaga	4.8	5.4	4.4	4.6
91	LB08-2-12	4.8	5.3	4.6	4.5
92	LB07-7-11	4.8	5.5	4.6	4.3
93	Rebel Xtreme	4.8	5.7	4.5	4.2
94	3rd Millennium	4.8	5.4	4.3	4.6
95	PST-5WAL	4.8	5.0	4.6	4.8
96	Darlington	4.8	5.6	4.3	4.3
97	Crossfire 3	4.8	5.8	4.1	4.3
98	Inferno	4.7	5.4	4.4	4.4
99	PS-Fa-09-7-Bulk	4.7	5.1	4.5	4.6
100	Dynamite LS	4.7	5.3	4.5	4.5
101	PST-5SXD	4.7	5.1	4.4	4.7
102	LB07-5-11	4.7	5.2	4.7	4.2
103	PS-Fa-09-7-11	4.7	5.5	4.4	4.2
104	PST-Syn-5WAZ	4.7	4.4	4.7	5.0
105	PST-5W03	4.7	4.7	4.6	4.8

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			
		2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.
106	8NJMT	4.7	5.0	4.4	4.6
107	8NJMD	4.7	5.0	4.3	4.7
108	PS-Fa-09-7-23	4.6	5.3	4.4	4.2
109	PSG 85QR	4.6	5.5	4.0	4.4
110	LB07-2-11	4.6	5.0	4.6	4.3
111	Van Gogh	4.6	4.8	4.5	4.5
112	8GR841	4.6	5.1	4.2	4.5
113	Gazelle II	4.6	4.9	4.4	4.4
114	PPG-TF 115	4.6	5.4	4.1	4.2
115	PST-Syn-5WAB	4.6	4.2	4.6	4.9
116	PS-Fa-09-7-7	4.5	4.9	4.3	4.4
117	Spyder LS	4.5	4.7	4.3	4.5
118	Corona	4.5	5.2	4.1	4.1
119	Blackwatch 2	4.5	4.5	4.4	4.6
120	Cumberland	4.5	4.8	4.3	4.3
121	Speedway	4.5	4.6	4.5	4.3
122	Rendition RX	4.4	5.0	4.3	4.0
123	PS-Fa-09-7-5	4.4	4.7	4.2	4.4
124	Shenandoah Sport	4.4	5.1	4.2	4.0
125	Duration	4.4	4.7	4.1	4.5
126	Covenant II	4.4	4.7	4.2	4.2
127	PS-Fa-09-7-1	4.4	4.4	4.2	4.5
128	LB07-6-11	4.3	4.8	4.3	3.9
129	Renegade Supreme	4.3	4.9	4.1	4.0
130	PPG-TF 101	4.3	4.9	4.0	4.1
131	PST-Syn-5MET	4.3	4.0	4.5	4.5
132	Six Point	4.3	4.5	4.0	4.4
133	Falcon IV	4.3	5.0	3.8	4.1
134	PS-Fa-09-7-24	4.3	5.0	3.9	3.9
135	Endeavor II	4.3	4.4	3.9	4.6
136	STR 8GRQR	4.3	4.3	4.2	4.2
137	Rain Dance	4.2	4.2	4.2	4.2
138	Rebel XLR	4.2	4.3	4.1	4.3
139	PST-525D	4.2	4.0	4.1	4.5
140	PST-Syn-5WIN	4.2	4.2	4.2	4.2

(Continued)

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

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			
		2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.
141	Quest	4.2	4.8	3.9	3.9
142	Rebel Advance	4.1	4.3	4.0	4.1
143	PST-5BGR	4.1	4.3	4.0	4.1
144	Shenandoah Elite	4.1	3.9	4.2	4.4
145	Stingray	4.1	4.5	3.8	4.0
146	PST-5SIS	4.1	3.8	4.1	4.4
147	Grande II	4.1	4.2	4.0	4.0
148	Titantium LS	4.1	4.0	4.0	4.2
149	Tarnation GT	4.0	4.7	3.6	3.8
150	Finelawn Elite	4.0	4.1	3.8	3.9
151	Sitka	3.9	4.5	3.8	3.5
152	Titan Ultra	3.9	4.2	3.7	3.8
153	Titanium	3.9	4.0	3.7	4.0
154	Penn ATF 1376	3.9	4.4	3.5	3.8
155	Greystone	3.8	3.9	3.7	3.9
156	Cezanne RZ	3.8	4.0	3.5	4.0
157	Virtue II	3.8	3.6	3.7	4.0
158	Titan Rx	3.7	3.9	3.4	3.8
159	Penn ATF 1258	3.7	4.0	3.3	3.8
160	Coronado TDH	3.7	4.0	3.4	3.6
161	Tar Heel II	3.6	3.6	3.4	3.8
162	Jaguar 4G	3.6	3.8	3.3	3.6
163	Arid 3	3.5	3.7	3.1	3.6
	LSD at 5% =	0.5	0.8	0.6	0.6

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

Table 2. 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> -----					Spring Green-up <sup>2</sup> April 2015	Leaf Spot <sup>3</sup> May 2015	Brown Patch <sup>3</sup> July 2015	Color <sup>4</sup> Sept. 2015
	2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.				
1 Regenerate	6.7	6.6	6.5	6.9	6.0	6.0	6.3	5.3	
2 4th Millennium SRP	6.2	6.2	6.0	6.2	6.3	5.3	5.7	5.3	
3 Rebounder	6.1	5.9	6.1	6.4	7.3	5.7	6.7	5.7	
4 Thor	6.1	6.1	6.0	6.4	3.7	7.0	6.3	7.0	
5 Traverse 2 SRP	6.1	6.2	6.0	6.1	4.7	6.0	6.0	5.7	
6 Amity	6.1	5.8	6.0	6.4	6.0	5.0	7.3	6.0	
7 Titanium 2LS	6.1	6.1	6.3	5.9	4.7	5.7	6.3	5.3	
8 B23	6.0	6.5	5.4	6.1	5.3	5.3	6.3	5.3	
9 Commander	6.0	6.0	6.1	5.9	6.0	5.0	5.3	5.7	
10 Firecracker SLS	6.0	6.4	5.8	5.7	5.0	6.7	6.3	6.0	
11 Rockwell	6.0	6.0	6.0	5.8	6.3	5.3	5.7	5.7	
12 IS-TF 269 SEL	5.9	6.2	5.9	5.7	4.3	7.3	5.3	7.7	
13 Fayette	5.9	6.3	5.3	6.0	5.3	7.0	5.7	7.7	
14 Avenger II	5.9	5.5	6.3	5.8	5.7	3.7	6.7	5.7	
15 MET 1	5.8	5.8	6.0	5.6	6.3	4.3	5.0	5.3	
16 Raptor III	5.8	5.8	5.7	5.8	5.3	4.7	6.0	5.0	
17 Reflection	5.7	5.5	6.0	5.7	4.7	6.3	5.3	5.0	
18 Temple	5.7	5.7	5.7	5.6	4.7	6.3	4.7	6.3	
19 MET-3	5.7	5.4	5.8	5.8	6.3	5.3	5.3	5.3	
20 Kingdom	5.7	5.8	5.8	5.5	3.3	7.3	3.7	7.7	
21 Rowdy	5.7	6.0	5.5	5.5	4.3	6.0	5.7	5.3	
22 IS-TF 310 SEL	5.7	5.9	5.6	5.5	3.7	6.3	4.3	6.3	
23 PPG-TF-137	5.7	5.2	6.0	5.9	5.7	5.0	5.7	4.7	
24 Olympus	5.7	6.0	5.8	5.2	5.3	5.0	4.0	6.3	
25 Thunderstruck	5.7	6.3	5.5	5.2	3.3	5.7	4.3	7.7	

(Continued)

Table 2. Tall fescue National Turf Test (NTEP), 2012 (continued).

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----				Spring Green-up <sup>2</sup> April 2015	Leaf Spot <sup>3</sup> May 2015	Brown Patch <sup>3</sup> July 2015	Color <sup>4</sup> Sept. 2015
	2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.				
26 Firebird 2	5.6	5.7	5.6	5.5	5.3	6.0	4.7	5.7
27 Hot Rod	5.6	5.4	5.8	5.7	6.0	4.3	6.0	6.0
28 Firewall	5.6	5.3	5.8	5.7	5.7	5.0	5.0	5.7
29 Diablo	5.6	5.8	5.4	5.5	3.7	7.3	4.7	7.3
30 PPG-TF-172	5.6	5.3	5.8	5.6	5.0	6.0	4.0	6.0
31 Black Tail	5.6	5.8	5.5	5.4	5.3	6.7	4.7	5.3
32 Screamer LS	5.6	5.6	5.8	5.3	6.3	4.7	4.7	4.7
33 ATF 1612	5.5	5.4	5.6	5.6	6.0	4.0	5.3	5.7
34 Nightcrawler	5.5	6.3	5.2	5.0	3.7	6.0	4.3	7.7
35 PSG-PO1	5.5	5.4	5.2	5.8	6.0	5.7	5.3	5.3
36 GTO	5.5	5.3	5.8	5.3	6.3	3.3	5.0	6.0
37 Hemi	5.5	5.2	5.8	5.4	5.0	5.0	5.0	5.7
38 IS-TF 311	5.5	5.5	5.4	5.5	5.3	5.3	5.3	5.7
39 Cochise V	5.4	5.0	5.5	5.9	4.7	5.3	5.3	5.3
40 Turfway	5.4	5.6	5.6	5.2	4.7	7.3	5.0	8.7
41 Bullseye	5.4	5.9	5.2	5.0	5.7	5.7	3.7	6.0
42 Technique	5.4	5.4	5.3	5.4	5.3	4.3	6.3	4.0
43 Witchita	5.4	5.7	5.1	5.3	4.7	5.3	5.3	5.3
44 Foxhound	5.4	5.6	5.3	5.2	4.0	7.7	3.3	8.7
45 Maestro	5.3	5.3	5.4	5.3	5.3	4.3	6.7	5.3
46 IS-TF 308 SEL	5.3	5.0	5.6	5.4	4.7	6.7	5.0	6.7
47 Faith	5.3	5.5	5.3	5.2	5.7	5.7	4.7	7.0
48 F711	5.3	5.0	5.7	5.3	6.3	5.7	5.0	4.7
49 K12-05	5.3	5.7	5.3	5.0	4.0	5.7	4.0	7.7
50 RAD-TF-92	5.3	5.6	5.4	5.0	4.7	4.7	4.0	5.7

(Continued)

Table 2. Tall fescue National Turf Test (NTEP), 2012 (continued).

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----				Spring Green-up <sup>2</sup> April 2015	Leaf Spot <sup>3</sup> May 2015	Brown Patch <sup>3</sup> July 2015	Color <sup>4</sup> Sept. 2015
	2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.				
51 W41	5.3	5.1	5.8	5.0	5.0	5.0	4.3	6.3
52 RAD-TF-89	5.3	5.7	5.3	4.9	4.7	4.0	4.0	6.7
53 RAD-TF-83	5.3	5.5	5.3	5.0	4.7	6.0	4.0	7.0
54 Trinity	5.3	5.1	5.5	5.2	5.3	6.0	4.7	6.0
55 Xtender	5.3	5.5	5.3	4.9	5.0	6.0	5.7	6.0
56 Leonardo	5.2	5.2	5.5	5.0	5.0	4.3	5.0	4.3
57 Grande 3	5.2	4.8	5.7	5.2	7.3	4.0	5.7	6.3
58 Bloodhound	5.2	4.9	5.4	5.3	5.7	3.3	6.0	3.7
59 PST-5EV2	5.2	5.1	5.3	5.1	5.7	5.0	5.3	3.7
60 ATF 1754	5.2	5.0	5.2	5.3	6.0	4.3	5.0	4.0
61 Unitas	5.2	6.0	4.6	5.0	3.0	6.7	4.3	7.7
62 JS 916	5.2	5.1	5.2	5.1	5.0	5.0	5.3	5.7
63 PPG-TF-169	5.2	4.9	5.7	4.9	7.3	3.7	5.3	4.3
64 Rhambler 2 SRP	5.2	6.1	4.4	5.0	4.0	5.7	5.3	4.7
65 Michalangelo	5.1	5.3	5.0	5.0	4.7	5.0	5.3	4.3
66 Fesnova	5.1	5.7	5.0	4.6	4.3	5.3	5.0	6.3
67 Hover	5.1	5.4	5.2	4.7	5.0	4.7	4.3	6.3
68 TF-287	5.1	5.4	5.0	4.8	4.0	5.3	4.3	5.7
69 Sidewinder	5.1	5.1	5.2	4.9	5.0	4.3	5.0	5.3
70 ATF 1704	5.0	4.7	5.2	5.0	5.3	4.0	5.7	4.0
71 Falcon V	5.0	5.0	4.9	5.0	6.3	3.7	4.7	4.3
72 IS-TF 307 SEL	4.9	4.7	5.2	4.9	4.0	7.0	3.7	7.0
73 Terrano	4.9	5.5	4.6	4.7	4.7	5.7	5.0	6.0
74 K12-MCD	4.9	4.9	5.0	4.9	5.3	4.7	5.7	4.0
75 PPG-TF-115	4.9	5.3	4.8	4.6	4.0	5.7	3.7	6.7

(Continued)

Table 2. Tall fescue National Turf Test (NTEP), 2012 (continued).

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----					Spring Green-up <sup>2</sup> April 2015	Leaf Spot <sup>3</sup> May 2015	Brown Patch <sup>3</sup> July 2015	Color <sup>4</sup> Sept. 2015
	2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.				
76 Meridian	4.9	5.0	4.8	4.9	4.9	5.7	5.0	3.0	5.0
77 IS-TF 272	4.9	4.7	5.0	4.7	4.9	3.0	6.3	4.3	7.7
78 IS-TF 305 SEL	4.8	5.1	4.8	4.6	4.6	4.0	6.0	4.0	7.7
79 IS-TF 276 M2	4.8	5.3	4.6	4.5	4.5	4.0	5.3	3.7	7.7
80 JS 818	4.8	5.1	4.2	4.2	5.0	2.3	6.7	5.0	8.3
81 Comp. Res. SST	4.7	4.7	4.9	4.7	4.7	4.0	5.0	3.0	5.3
82 ATF 1736	4.7	4.9	4.6	4.7	4.7	6.3	4.7	4.7	5.0
83 PST-5BRK	4.7	5.1	4.6	4.4	4.4	4.7	4.7	5.3	4.0
84 PST-5MVD	4.7	4.9	4.8	4.4	4.4	5.0	4.7	3.7	4.3
85 BAR Fa 121095	4.7	4.6	4.6	4.6	4.8	3.7	7.0	3.7	6.0
86 Ares	4.7	4.8	4.5	4.7	4.7	3.3	7.3	3.3	7.3
87 Ceasar	4.7	5.2	4.5	4.4	4.4	4.7	6.0	4.0	7.7
88 Temptation	4.7	5.2	4.3	4.6	4.6	4.3	6.7	4.0	8.7
89 Catalyst	4.7	4.6	4.7	4.7	4.7	6.0	3.3	4.7	2.7
90 PST-5DZP	4.6	4.9	4.2	4.2	4.6	4.3	5.7	3.3	6.7
91 Memphis	4.6	4.9	4.7	4.7	4.1	3.0	5.7	3.7	7.0
92 Saitillo	4.5	4.7	4.5	4.3	4.3	4.0	5.0	4.3	4.3
93 Swagger	4.4	4.6	4.4	4.4	4.4	4.0	5.7	5.0	4.0
94 JS 819	4.4	5.0	4.2	4.1	4.1	2.7	5.3	4.0	7.3
95 Frontline	4.4	5.0	4.2	4.2	4.0	4.3	6.7	2.7	7.7
96 PST-5BPO	4.3	4.0	4.5	4.5	4.5	5.0	4.3	4.7	3.0
97 PSG-8BP2	4.3	4.5	4.0	4.5	4.5	4.0	4.7	4.0	7.0
98 Dynamite LS	4.3	4.8	4.0	4.0	4.0	2.7	7.0	4.0	7.3
99 Marauder	4.2	4.3	4.5	4.0	4.0	4.3	5.0	2.7	5.0
100 PSG-GSD	4.2	4.6	4.2	4.2	3.9	5.0	3.7	3.7	4.0

(Continued)

Table 2. Tall fescue National Turf Test (NTEP), 2012 (continued).

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----					Spring Green-up <sup>2</sup> April 2015	Leaf Spot <sup>3</sup> May 2015	Brown Patch <sup>3</sup> July 2015	Color <sup>4</sup> Sept. 2015
	2013-2015 Avg.	2013 Avg.	2014 Avg.	2015 Avg.	2015 Avg.				
101 JS 809	4.2	4.7	4.1	3.9	3.0	4.0	2.7	8.0	
102 BAR Fa 121089	4.2	4.2	4.3	4.1	4.3	5.0	3.7	6.0	
103 Annihilator	4.2	4.2	4.3	4.0	3.0	5.3	3.3	5.7	
104 PSG-TT4	4.2	4.2	4.1	4.2	4.0	5.0	3.7	5.0	
105 K12-13	4.1	4.4	4.3	3.6	2.3	4.0	3.0	7.7	
106 Rain Dance	4.1	4.1	4.0	4.1	5.7	4.3	4.3	3.7	
107 204 Res. Blk 4	4.1	4.1	4.1	4.0	5.0	5.0	2.3	4.3	
108 Falcon IV	4.0	4.6	4.0	3.6	4.3	4.7	3.7	5.3	
109 Warhawk	3.7	4.0	3.8	3.4	3.3	5.3	2.3	6.3	
110 JS 825	3.6	4.4	3.4	3.1	2.7	5.7	2.7	7.0	
111 Inspiration	3.6	4.1	3.3	3.3	4.0	4.7	3.0	4.7	
112 Aquaduct	3.6	3.9	3.5	3.4	3.7	3.3	2.7	4.7	
113 PST-5EX2	3.4	3.5	3.3	3.5	7.3	4.0	5.0	2.0	
114 BAR Fa 121091	3.4	3.0	3.4	3.7	3.3	5.0	3.7	7.7	
115 BAR Fa 120878	2.2	2.6	2.0	2.0	5.0	4.3	2.3	3.0	
116 Ky-31	1.3	1.3	1.3	1.3	7.0	3.3	3.0	1.0	
LSD at 5% =	0.6	0.8	0.7	0.7	1.1	1.5	1.7	1.5	

<sup>1</sup>9 = best turf quality  
<sup>2</sup>9 = earliest spring green-up  
<sup>3</sup>9 = least disease  
<sup>4</sup>9 = best genetic color



Table 3. Performance of tall fescue cultivars and selections in a turf trial established in September 2013 at Adelphia, NJ.

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2015
		2014- 2015 Avg.	2014 Avg.	2015 Avg.	
1	Raptor III	6.5	6.5	6.4	5.3
2	305 Comp	6.3	6.3	6.4	4.0
3	TMT Comp	6.2	6.1	6.3	5.3
4	Firewall	6.0	6.2	5.8	5.0
5	Avenger	5.9	5.8	6.0	6.0
6	Commander	5.9	5.7	6.0	5.0
7	Technique	5.8	5.8	5.9	4.3
8	GTO	5.8	5.6	5.9	5.0
9	Screamer LS	5.8	5.8	5.7	4.3
10	1-11 TF-19	5.7	5.9	5.5	3.3
11	1-11 TF-12	5.7	5.9	5.4	4.7
12	PPG-TF 177	5.7	5.6	5.7	4.3
13	8G1643-6	5.6	5.8	5.5	4.7
14	301 Comp	5.6	5.6	5.6	4.3
15	PPG-TF 180	5.6	5.5	5.7	4.3
16	B23	5.6	6.0	5.2	5.3
17	303 Comp	5.6	5.2	5.9	4.7
18	304 Comp	5.6	5.4	5.7	4.3
19	Maestro	5.5	5.5	5.6	4.7
20	PPG-TF 195	5.5	5.8	5.3	3.3
21	PST-5MINI	5.5	5.5	5.4	5.0
22	1-11 TF-2	5.5	5.2	5.7	3.0
23	Birmingham	5.5	5.6	5.3	4.7
24	Firecracker SLS	5.5	5.4	5.5	5.0
25	PPG-TF 154	5.5	5.7	5.2	4.7
26	Rowdy	5.4	5.9	5.0	4.3
27	1-11 TF-1	5.4	5.7	5.1	4.0
28	1-11 TF-13	5.4	5.6	5.2	4.3
29	Trinity	5.4	5.5	5.3	4.7
30	1-11 TF-5	5.4	5.5	5.2	4.0
31	8G1643-10	5.4	5.2	5.5	4.7
32	1-11 TF BULK	5.4	5.6	5.1	4.0
33	Reflection	5.4	5.3	5.4	5.3
34	Persuasion	5.4	5.5	5.2	5.0
35	PPG-TF 198	5.4	5.5	5.2	4.3

(Continued)

Table 3. Tall fescue turf trial, 2013 (continued).

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2015
		2014- 2015 Avg.	2014 Avg.	2015 Avg.	
36	Rebounder	5.3	5.8	4.9	4.3
37	1-11 TF-7	5.3	5.3	5.3	3.7
38	PPG-TF 182	5.3	5.6	5.1	3.7
39	Fesnova	5.3	5.6	5.0	4.7
40	Ventura	5.3	5.6	4.9	4.0
41	PPG-TF 173	5.3	5.4	5.2	4.7
42	PPG-TF 190	5.3	5.5	5.1	4.3
43	PPG-TF 203	5.3	5.5	5.1	4.3
44	Saltillo	5.3	5.2	5.3	4.3
45	1-11 TF-11	5.3	5.6	4.9	4.3
46	PST-Syn-5DAW	5.3	5.5	5.0	4.7
47	Shortstop 3	5.2	5.6	4.8	4.3
48	302 Comp	5.2	5.2	5.2	5.0
49	PPG-TF 191	5.2	5.3	5.1	5.0
50	PSM-6351	5.2	5.8	4.7	3.3
51	Ares	5.2	5.5	4.9	4.0
52	Terrano	5.2	5.7	4.7	4.0
53	3rd Millennium	5.2	5.3	5.1	5.0
54	Titanium 2LS	5.2	5.7	4.7	4.3
55	PPG-TF 172	5.2	5.3	5.1	4.3
56	PPG-TF 174	5.2	5.2	5.2	4.7
57	PPG-TF 193	5.2	5.2	5.2	3.7
58	Shenandoah III	5.2	5.3	5.1	4.3
59	Dynamite LS	5.2	5.2	5.2	4.0
60	PPG-TF 178	5.2	5.1	5.3	4.3
61	Selkirk	5.1	5.2	5.1	5.0
62	Shenandoah Elite	5.1	5.3	5.0	4.0
63	PST-5BRK	5.1	5.3	4.9	4.7
64	06-11 TF-4	5.1	5.4	4.9	3.7
65	Faith	5.1	5.3	4.9	4.7
66	PST-5DZP	5.1	5.4	4.8	4.3
67	8G1643-1	5.1	5.2	5.0	4.7
68	8G1643-5	5.1	5.5	4.7	3.7
69	PPG-TF 189	5.1	5.1	5.1	4.0
70	PST-5MCD	5.1	5.3	4.8	3.7

(Continued)

Table 3. Tall fescue turf trial, 2013 (continued).

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2015
		2014- 2015 Avg.	2014 Avg.	2015 Avg.	
71	1-11 TF-16	5.1	4.9	5.2	4.0
72	Regenerate	5.1	4.9	5.2	5.7
73	PPG-TF 153	5.1	5.3	4.8	5.3
74	Mustang 4	5.1	5.4	4.7	4.3
75	BMT	5.1	5.0	5.1	4.0
76	Meridian	5.0	5.5	4.5	3.3
77	4-11 TF-6	5.0	5.2	4.8	3.7
78	Talladega	5.0	5.0	5.0	4.7
79	Inspiration	5.0	5.3	4.7	4.3
80	PST-5EV2	5.0	5.4	4.6	3.7
81	8BP2 BULK	5.0	5.3	4.7	3.7
82	4-11 TF-3	5.0	5.4	4.6	4.3
83	PST-5WAL	5.0	5.4	4.5	5.3
84	Speedway	5.0	5.2	4.7	4.0
85	4-11 TF-7	5.0	5.3	4.6	3.7
86	Monet	5.0	5.1	4.9	4.7
87	PST-5BPO	5.0	5.2	4.7	4.3
88	06-11 TF-15	5.0	5.2	4.7	4.7
89	Falcon IV	5.0	4.9	5.0	3.3
90	PO1	4.9	5.5	4.4	5.3
91	Inferno	4.9	5.1	4.7	4.0
92	4-11 TF-5	4.9	5.2	4.6	4.3
93	PST-5SDS	4.9	5.2	4.6	4.0
94	GSD	4.9	5.3	4.5	4.3
95	1-11 TF-14	4.9	5.4	4.4	4.3
96	8BP2-4	4.9	5.0	4.7	3.7
97	Xtender	4.9	4.8	4.9	4.3
98	Gazelle II	4.9	5.3	4.4	3.7
99	Summer	4.9	4.9	4.8	3.3
100	Grande 3	4.9	5.4	4.3	4.7
101	TF-09-1-3	4.9	5.3	4.4	4.0
102	Padre	4.9	5.1	4.6	4.3
103	PST-5W03	4.8	5.0	4.7	4.3
104	8G1643 BULK	4.8	5.1	4.6	4.0
105	06-11 TF-3	4.8	5.1	4.6	4.0

(Continued)

Table 3. Tall fescue turf trial, 2013 (continued).

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2015
		2014- 2015 Avg.	2014 Avg.	2015 Avg.	
106	Cochise IV	4.8	5.4	4.2	3.7
107	Bullseye	4.8	4.9	4.8	4.7
108	Guardian 41	4.8	5.1	4.6	4.3
109	Crossfire 3	4.8	5.1	4.5	3.0
110	FA-10-9-1	4.8	5.0	4.6	3.3
111	77-08TF	4.8	4.9	4.8	4.0
112	Quest	4.8	5.1	4.5	4.0
113	8BP2-7	4.8	5.2	4.4	3.7
114	GO-MNKY	4.8	5.0	4.5	4.3
115	Spyder LS	4.8	4.8	4.7	3.7
116	Stingray	4.8	4.9	4.7	3.7
117	PST-5MVD	4.8	4.8	4.7	5.0
118	TF 11-2 15	4.8	5.2	4.4	4.0
119	TF-09-1-5	4.8	5.2	4.4	4.0
120	TF-09-1-9	4.8	4.9	4.6	4.7
121	06-11 TF BULK	4.8	4.8	4.7	4.0
122	4-11 TF-9	4.8	5.1	4.5	3.3
123	AT51	4.8	4.6	4.9	3.7
124	PST-5T20	4.8	4.7	4.8	4.3
125	PPG-TF 143	4.8	4.7	4.8	4.0
126	LS 2000	4.8	5.2	4.3	4.0
127	PST-5BGR	4.7	5.0	4.5	4.0
128	PSG 08-6	4.7	5.0	4.5	3.7
129	Renegade Supreme	4.7	4.9	4.6	4.3
130	TF-09-1-2	4.7	5.2	4.3	3.0
131	Tarnation GT	4.7	5.0	4.4	3.7
132	Hudson	4.7	5.3	4.1	4.0
133	Bladerunner 2	4.7	4.8	4.6	3.7
134	8G1643-4	4.7	5.3	4.1	4.3
135	TF-09-1-7	4.7	4.8	4.6	4.0
136	DaVinci	4.7	4.6	4.8	4.3
137	8BP2-1	4.7	4.9	4.4	4.0
138	4-11 TF-12	4.7	4.7	4.7	4.0
139	TF 09-6	4.7	4.7	4.6	4.0
140	Tar Heel II	4.7	4.9	4.4	4.3

(Continued)

Table 3. Tall fescue turf trial, 2013 (continued).

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2015
		2014- 2015 Avg.	2014 Avg.	2015 Avg.	
141	8G1643-2	4.7	4.9	4.4	3.7
142	8ST10W-6	4.7	4.7	4.6	3.0
143	Cumberland	4.6	5.2	4.1	3.7
144	8G1643-8	4.6	4.6	4.7	4.3
145	8G1643-9	4.6	5.0	4.3	4.3
146	06-11 TF-16	4.6	4.8	4.5	4.0
147	06-11 TF-14	4.6	5.0	4.3	5.0
148	8BP2-3	4.6	4.9	4.3	3.0
149	4-11 TF-4	4.6	4.7	4.6	3.7
150	TF 11-2 3	4.6	4.9	4.3	4.7
151	8BP2-6	4.6	5.0	4.3	4.3
152	Sequester	4.6	4.7	4.5	4.3
153	Justice	4.6	4.6	4.6	4.7
154	FA-10-9 BULK	4.6	4.8	4.4	2.7
155	06-11 TF-12	4.6	4.8	4.3	4.3
156	ATV 412	4.6	4.8	4.3	3.3
157	Blackwatch 2	4.6	4.5	4.6	3.7
158	Jaguar 4G	4.5	4.7	4.3	4.0
159	8BP2-8	4.5	4.8	4.3	3.0
160	PST-5EX2	4.5	4.8	4.2	4.3
161	FA-10-9-6	4.5	4.7	4.3	3.0
162	FA-10-9-12	4.5	4.8	4.2	3.0
163	8BP2-5	4.5	4.8	4.1	4.3
164	TF 11-2 BULK	4.5	4.6	4.4	3.7
165	4-11 TF BULK	4.5	4.8	4.1	4.0
166	FA-10-9-5	4.5	4.8	4.1	3.0
167	TF 11-2 10	4.4	4.7	4.2	4.0
168	8NJMT	4.4	4.8	4.0	4.3
169	Crewcut II	4.4	4.7	4.2	3.3
170	TF-09-1-8	4.4	4.8	4.0	4.0
171	Wolfpack II	4.4	4.6	4.2	4.0
172	FA-10-9-7	4.4	4.7	4.1	2.7
173	06-11 TF-18	4.4	4.8	4.0	4.3
174	Rendition Rx	4.4	4.2	4.5	3.3
175	Cezanne RZ	4.4	4.4	4.4	4.0

(Continued)

Table 3. Tall fescue turf trial, 2013 (continued).

	Cultivar or Selection	-----Turf Quality <sup>1</sup> -----			Brown Patch <sup>2</sup> July 2015
		2014-2015 Avg.	2014 Avg.	2015 Avg.	
176	Shenandoah II	4.4	4.4	4.3	3.7
177	Titan Rx	4.4	4.6	4.1	3.3
178	Covenant II	4.3	4.7	4.0	3.3
179	TF 11-2 14	4.3	4.4	4.2	3.7
180	8ST10W-8	4.3	4.2	4.4	3.0
181	ATF 1532	4.3	4.4	4.3	3.7
182	SR 8650	4.3	4.6	4.0	3.7
183	8NJMD	4.3	4.6	4.0	3.3
184	4-11 TF-1	4.3	4.3	4.3	4.3
185	Titan Ultra	4.3	4.3	4.2	3.7
186	Sungazer	4.3	4.7	3.8	3.7
187	TF 11-2 4	4.3	4.7	3.8	3.7
188	TF-09-1 BULK	4.3	4.3	4.2	3.7
189	TF-09-1-11	4.3	4.6	3.9	4.0
190	Masterpiece	4.1	4.0	4.1	3.7
191	8ST10W-1	4.1	4.1	4.0	3.0
192	Arid 3	4.0	4.2	3.8	4.3
193	Scorpion II	3.8	3.5	4.2	4.3
194	6-5-09TF	3.6	3.7	3.5	3.7
195	AGRFA-190	2.8	2.5	3.1	4.0
	LSD at 5% =	0.7	0.8	0.8	1.2

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

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

Table 4. Performance of tall fescue cultivars and selections under low maintenance management in a turf trial established in September 2013 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality <sup>1</sup> -----		
	2014-2015 Avg.	2014 Avg.	2015 Avg.
1 PPG-TF 180	6.3	6.2	6.3
2 PPG-TF 190	6.1	6.4	5.8
3 PPG-TF 198	5.9	6.1	5.7
4 PPG-TF 189	5.9	6.0	5.8
5 TA2 Comp	5.9	6.1	5.6
6 PPG-TF 191	5.8	5.9	5.7
7 PPG-TF 195	5.8	6.0	5.6
8 Titanium 2LS	5.7	5.9	5.5
9 PPG-TF 203	5.7	6.0	5.4
10 PPG-TF 182	5.7	5.9	5.4
11 PPG-TF 143	5.7	6.0	5.3
12 PPG-TF 177	5.5	5.5	5.5
13 PPG-TF 193	5.5	5.6	5.4
14 Trinity	5.5	5.7	5.3
15 PPG-TF 178	5.4	5.5	5.3
16 PPG-TF 173	5.4	5.6	5.2
17 PPG-TF 154	5.4	5.5	5.2
18 PPG-TF 172	5.4	5.6	5.2
19 TA1 Comp	5.4	5.5	5.3
20 PPG-TF 153	5.4	5.5	5.2
21 PPG-TF 174	5.3	5.4	5.1
22 TA3 Comp	5.1	5.2	4.9
23 3T3 Comp	4.7	4.6	4.8
24 3T1 Comp	4.7	4.6	4.8
25 3T2 Comp	4.5	4.3	4.8
LSD at 5%=	0.8	1.1	0.7

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

Table 5. Performance of tall fescue cultivars and selections in a turf trial established in September 2014 at Adelphia, NJ.

Cultivar or Selection	Turf Quality <sup>1</sup> 2015 Avg.	Establishment <sup>2</sup> Sept. 2015
1 PPG-TF 176	5.6	7.7
2 NT-3	5.6	6.0
3 13TFC18	5.5	5.7
4 ROL Comp	5.5	4.7
5 3N1 Comp	5.4	6.0
6 PPG-TF 173	5.4	7.0
7 PPG-TF 182	5.4	5.7
8 13TFC15	5.4	5.0
9 PPG-TF 195	5.3	6.3
10 PPG-TF 189	5.3	7.3
11 Blacktail	5.3	5.7
12 Traverse 2 SRP	5.3	6.3
13 3B3 Comp	5.2	4.7
14 PPG-TF 191	5.2	7.0
15 NT-2	5.2	6.0
16 PPG-TF 190	5.2	6.0
17 4th Millennium	5.2	6.3
18 3N2 Comp	5.1	4.7
19 LS 1200	5.1	5.7
20 Technique	5.1	6.7
21 PPG-TF 178	5.1	6.7
22 PPG-TF 210	5.1	5.0
23 Trinity	5.1	7.3
24 Rambler 2	5.1	5.7
25 PPG-TF 174	5.1	7.0
26 PPG-TF 180	5.1	6.7
27 TBT Comp	5.1	5.3
28 ROM Comp	5.1	5.7
29 Spyder LS	5.1	7.0
30 PPG-TF 177	5.1	7.3
31 CTF-2115	5.0	4.7
32 3B2 Comp	5.0	5.0
33 10-314	5.0	5.0
34 PPG-TF 203	5.0	6.0
35 ATV	5.0	5.7

(Continued)



Table 5. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	Turf Quality <sup>1</sup> 2015 Avg.	Establishment <sup>2</sup> Sept. 2015
36 Michelangelo	5.0	7.7
37 Terrano	5.0	5.7
38 3N3 Comp	5.0	5.3
39 PPG-TF 205	5.0	5.7
40 Thunderstruck	4.9	6.3
41 PST-5MCD	4.9	6.3
42 13TFC2	4.9	6.3
43 NT-1	4.9	6.3
44 PPG-TF 211	4.9	4.0
45 PPG-TF 221	4.9	5.3
46 Diablo	4.9	5.3
47 Van Gogh	4.9	7.7
48 Reflection	4.9	7.0
49 PPG-TF 198	4.9	6.0
50 Thor	4.8	6.0
51 Mustang 4	4.8	6.3
52 10-328	4.8	5.7
53 Falcon IV	4.8	7.0
54 ROE Comp	4.8	6.3
55 Essential	4.8	7.0
56 Ares	4.8	6.0
57 Leonardo	4.8	6.3
58 ATF 1521	4.8	6.3
59 MET 1	4.8	7.0
60 Fesnova	4.8	5.3
61 Blacktie	4.8	6.0
62 Selkirk	4.8	6.0
63 PST-5BRK	4.8	5.7
64 Wolfpack II	4.8	6.3
65 Rebel Xtreme	4.7	6.7
66 TO8G2-R14	4.7	5.0
67 PST-Syn-5DRU	4.7	6.3
68 PSM-6351	4.7	6.7
69 13TFC10	4.7	6.0
70 Regenerate	4.7	7.3

(Continued)

Table 5. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	Turf Quality <sup>1</sup> 2015 Avg.	Establishment <sup>2</sup> Sept. 2015
71 3B1 Comp	4.7	5.7
72 Firecracker SLS	4.7	7.3
73 10-345	4.7	4.7
74 Rockwell	4.7	6.3
75 Meridian	4.7	5.3
76 Penn ATF 1376	4.6	5.7
77 Persuasion	4.6	6.0
78 PST-5MVD	4.6	5.7
79 Swagger	4.6	7.0
80 Temple	4.6	6.0
81 10-315	4.6	5.3
82 3rd Millennium	4.6	6.7
83 PST-525D	4.6	5.7
84 PST-Syn-5NO	4.6	6.7
85 PST-Syn-5STAR	4.6	4.3
86 PST-Syn-5BYOB	4.6	5.7
87 Inferno	4.6	5.0
88 Summer	4.6	5.0
89 NA-TDDM-VC	4.6	5.7
90 13TFC16	4.6	4.7
91 Rhambler	4.6	6.3
92 PST-5W03	4.6	7.0
93 PST-5FDR	4.6	6.7
94 Talladega	4.5	5.7
95 Penn ATF 1254	4.5	6.3
96 Penn RK4	4.5	7.0
97 Raptor II	4.5	6.3
98 Selkirk	4.5	7.0
99 Padre	4.5	6.3
100 Cezanne RZ	4.5	6.0
101 PPG-TF169	4.5	8.7
102 Screamer LS	4.5	7.7
103 Traverse	4.5	6.3
104 Tribute II	4.5	6.3
105 Rebel Advance	4.4	5.0

(Continued)

Table 5. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	Turf Quality <sup>1</sup> 2015 Avg.	Establishment <sup>2</sup> Sept. 2015
106 Dynamite LS	4.4	5.7
107 TO8G2-R12	4.4	5.0
108 13TFC4	4.4	5.3
109 13TFC8	4.4	5.7
110 BMT	4.4	4.7
111 PST-5WAL	4.4	5.7
112 Titanium LS	4.4	6.3
113 PF5-18	4.4	5.3
114 Restore	4.4	7.3
115 13TFC7	4.4	5.0
116 13TFC14	4.4	6.3
117 Shenandoah Elite	4.4	5.3
118 Sungazer	4.4	5.0
119 GO-14-MNR4	4.3	3.0
120 Rebel XLR	4.3	5.3
121 Stingray	4.3	7.3
122 PST-5BPO	4.3	5.3
123 Falcon H2O	4.3	6.7
124 JT-783	4.3	6.3
125 DaVinci	4.2	6.3
126 Rembrandt	4.2	5.7
127 10-339	4.2	4.3
128 Sequester	4.2	5.0
129 ATF 1255	4.2	6.7
130 Cumberland	4.1	7.0
131 PST-5BGR	4.1	6.0
132 Jaguar 4G	4.1	6.7
133 Penn ATF 1258	4.1	7.3
134 Avenger	4.1	7.0
135 PST-5T20	4.1	6.7
136 PST-5SIS	4.1	5.3
137 Quest	4.0	5.7
138 PST-5MINI	4.0	5.0
139 PST-5SDS	4.0	6.3
140 Rain Dance	4.0	7.0

(Continued)

Table 5. Tall fescue turf trial, 2014 (continued).

Cultivar or Selection	Turf Quality <sup>1</sup> 2015 Avg.	Establishment <sup>2</sup> Sept. 2015
141 Monet	3.9	5.7
142 Renegade Supreme	3.9	6.3
143 Greystone	3.7	3.0
144 Masterpiece	3.7	7.0
145 PST-5BGR	3.6	6.3
146 PST-5YA	3.5	6.3
LSD at 5% =	0.7	1.5

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

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

Table 6. Performance of tall fescue cultivars and selections under low maintenance management in a turf trial established in September 2014 at Adelphia, NJ.

Cultivar or Selection	Turf Quality <sup>1</sup> 2015 Avg.	Establishment <sup>2</sup> Sept. 2014
1 RI3 Comp	6.0	5.0
2 Covenant II	5.6	6.0
3 Faith	5.6	6.0
4 FFP Comp	5.5	6.3
5 Titan Rx	5.5	5.0
6 4th Millennium SRP	5.5	6.3
7 ROL Comp	5.5	5.0
8 Avenger II	5.3	6.3
9 Traverse 2 SRP	5.3	5.7
10 ROE Comp	5.3	5.7
11 Titanium	5.3	6.3
12 Rockwell	5.3	5.0
14 Rhambler 2 SRP	5.2	6.0
13 Leonardo	5.2	5.3
15 Firecracker LS	5.2	5.7
16 Michel Angelo	5.2	5.7
17 RK4	5.2	5.7
18 RI2 Comp	5.1	5.7
19 Talladega	5.1	5.7
20 Traverse	5.1	6.3
21 Hudson	5.1	5.3
22 3rd Millennium	5.0	5.7
23 Mustang 4	5.0	6.3
24 Titan Ultra	4.9	6.0
25 RI1 Comp	4.9	6.0
26 Cezanne	4.9	5.7
27 Essential	4.8	6.0
28 Cochise IV	4.7	6.3
29 Rendition Rx	4.6	5.7
30 Rhambler	4.6	5.3
LSD at 5% =	0.7	0.8

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

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

Table 7. Yearly nitrogen (N) applied and mowing height (Ht) on tall fescue tests established at Adelphia, NJ.

	2012		2013		2014		2015	
	N <sup>1</sup>	Ht <sup>2</sup>	N	Ht	N	Ht	N	Ht
Table 1 (2012).....	3.75	1.5	3.75	1.5	3.65	1.5	3.75	1.5
Table 2 (2012 NTEP).....	3.75	1.5	3.75	1.5	3.65	1.5	3.75	1.5
Table 3 (2013).....					4.30	1.5	4.50	1.5
Table 4 (2013 Low Maintenance).....					1.00	2.5	1.00	2.5
Table 5 (2014).....							4.50	1.5
Table 6 (2014 Low Maintenance).....							1.50	2.5

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

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