

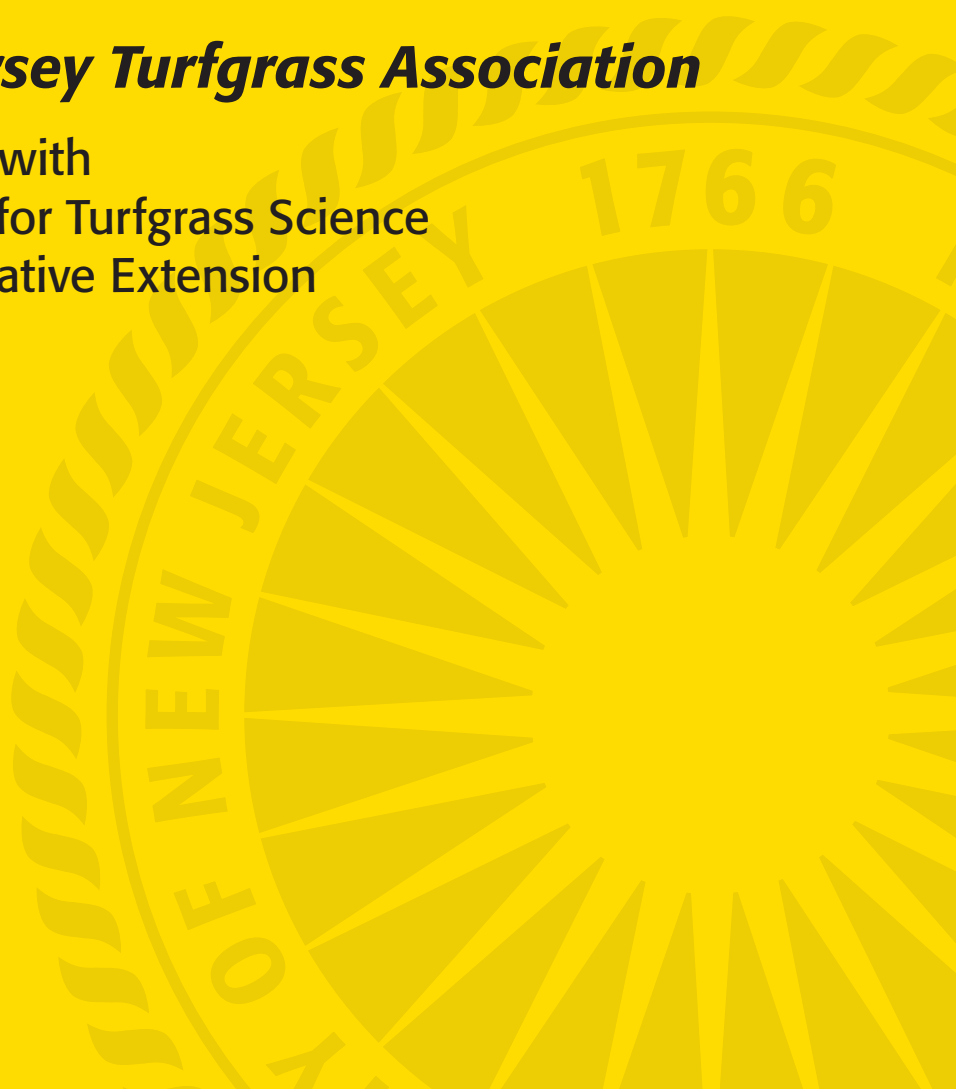
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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State 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 2010 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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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.) Darbysh.] is a cool season grass, native to Europe and some parts of Africa (Buckner et al., 1979) and was introduced into the United States in the 1800s as a forage grass (Hoveland, 2009). In the 1900s, tall fescue was used extensively after the release of the first commercial cultivar in 1940 and enhanced forage production in United States. Tall fescue is known for its winter hardiness, persistency, shade tolerance, and adaptability to a wide range of soil types.

The utility of tall fescue in the turf industry was not realized until the release of first turf type tall fescue cultivar 'Rebel' in 1979 (Funk et al., 1981). Since that time, tall fescue has become one of the most substantially utilized turf species in United States. The major breeding emphasis has included turf quality (darker leaf color, lower growth habit, finer leaf texture, and denser turf canopy) and disease resistance. Tall fescue has a deep root system which helps it to stay green longer in dry conditions and tolerate drought stress.

Tall fescue has a symbiotic relationship with endophytic fungi that live inside the stem and leaf tissues and produce alkaloids that enhance tolerance to insect feeding (Funk et al., 1993). The incorporation of endophytic fungi in tall fescue has been a major breeding objective for many years.

Tall fescue spreads primarily by erect tillers; some genotypes, however, have been found to spread through rapidly developing lateral tillers and rhizomes. Rapid lateral tillering rate and rhizome formation in tall fescue are beneficial because they help plants to spread faster and provide density, wear tolerance, compactness to the sward, and increased recovery from damage.

The Rutgers Turfgrass breeding program has continued to develop improved tall fescue cultivars. Presently, collected germplasm has undergone many cycles of selection and population improvement for higher turf quality, improved disease resistance, reduced billbug damage, increased wear and drought tolerance, and higher spreading ability through rapid lateral tillering rate and rhizome formation.

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 2006 and 2009 (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/1000 ft²). 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 (Dimension) was applied in the spring to control annual grassy weeds. In July, metalaxyl (Subdue) was applied to prevent Pythium blight.

Single applications of fertilizer did not exceed 1.0 lb nitrogen/1000 ft². The amount and timing of nitrogen applied to the turf was varied to encourage disease and other stresses. 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 rates of nitrogen applied as well as mowing height for each test are presented in Table 5. Based on soil test results, lime was applied as needed to

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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 rate of vertical growth, leaf texture, and damage due to insects and diseases). Other ratings such as spring green-up, color, 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 turf characteristics. Plots were evaluated by a number of turfgrass specialists to reduce the impact of personal bias for particular characteristics. All data were subjected to analysis of variance. Means were separated using Fisher's protected least significant difference (LSD) means separation test.

Inoculation

The 2006 to 2009 tall fescue tests (Tables 1 to 4) were screened for resistance to brown patch following field inoculation with two isolates of *Rhizoctonia solani* Kühn, the casual fungus of this disease. Inoculum was prepared by growing two isolates of *R. solani* on sterilized Kentucky bluegrass (*Poa pratensis* L.) seed following the method described by Bonos et al. (2003). The prepared inoculum was then placed in a drop spreader and applied to the field at a rate of 0.2 g/m² in the month of June. To ensure favorable disease development, irrigation was applied to the field immediately after inoculation.

RESULTS AND DISCUSSION

Results are found in Tables 1 through 4. All tests are ranked by overall (multi-year) turf quality averages. A high quality average is generally indicative of better disease resistance, a dark green color, greater turf density and uniformity, finer leaf texture, lower growth habit, improved mowing quality, and less damage due to insects.

Turf Quality

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

sod farms, lawns, and parks. Cultivars such as Co-chise IV, Jamboree, ATF-1354, LS 1200, Bonanza II, Greenbrooks, Falcon V, Faith, Shenandoah III, Mustang 4, Firenza, Wolf pack II, IS-TF-178, IS-TF-177, Cochise IV, Traverse SRP, Jamboree, Sidewinder, Rambler SRP, Garrison, Titanium LS, Essential, Cannavaro, and RK-5 Comp performed consistently well in multiple trials in 2005 to 2009. However, Falcon III, Jagaur 3, Pixie, PST-5CAN, Amalia, Rebel III, Regiment II, Tulsa II, Paraiso, Ky-31, Titan Ltd, Silverado, and Durango exhibited low turf quality.

Disease Resistance

Brown patch is one of the major diseases that affects tall fescue where it is utilized. It causes significant damage in humid and warm environments. Improved cultivars are available but there are no cultivars that are completely resistant to the disease. The data (Tables 1 to 4) illustrate significant brown patch resistance in cultivars such as Falcon V, LS1200, Penn RK4, MVS-1107, PPG-TF 104, TF 225, Rambler SRP, 3rd Millennium SRP, IS-TF 177, Fesnova, Titanium LS, PG TF 102, PST 5 AWT-08, Apache III, Shenandoah III, Shenandoah Elite, Wolf-pack, and Mustang 4. The cultivars Pixie, Rebel III, Faith, BBM, RNP, IS-TF-67, Silverado II, ATF 1326, Rebel, Exceda, Signia, SR 8500, ATF 1224, Amalia, and Grande III, however, were found to be susceptible to this disease.

Billbug Damage

Cultivars that exhibit improved billbug tolerance typically have high levels of endophyte whereas susceptible cultivars contain low levels or are not infected. Billbug damage was reported in the 2009 test (Table 4). Cultivars with significant resistance were PPG-TF 104, TF 225, Rambler SRP, Faith, PST-5GRB, Endeavor II, Shenandoah 3, Cochise IV, Dynamic II, and 3rd Millennium. The cultivars susceptible to billbug damage were PSG 8GRT-2, Silverstar, Tulsa II, and Ninja 3.

SUMMARY

At Rutgers, the turfgrass breeders are continuing to make gradual progress to improve tall fescue cultivars. Tolerance to billbug damage, resistance to brown patch disease and drought, and rapid tillering are among the primary goals in the tall fescue breeding program. The incorporation of endophytes and improved performance would enhance the utility

of tall fescue in the suitable growing regions of the United States.

ACKNOWLEDGMENTS

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Table 1. Performance of tall fescue cultivars and selections in a turf trial established in September 2006 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
1 SP2 comp	6.7	6.6	7.0	6.7	6.6	6.0
2 Faith	6.6	6.7	7.0	6.3	6.4	6.0
3 Cochise IV	6.5	6.5	7.0	6.2	6.2	6.7
4 Jamboree	6.2	5.9	6.2	6.3	6.3	6.7
5 ATF 1354	6.2	5.7	6.4	6.4	6.1	5.0
6 Cannavaro	6.1	6.2	6.4	6.2	5.7	6.0
7 SP1 comp	6.1	6.5	6.4	5.9	5.7	5.0
8 ATF 1352	6.1	5.7	6.4	6.3	6.1	5.7
9 Bonanza II	6.1	5.6	6.2	6.1	6.4	6.3
10 LS 1200	6.1	5.7	6.5	6.0	6.2	7.0
11 Falcon V	6.0	5.7	6.4	6.0	6.1	5.3
12 IS-TF-159	6.0	6.0	6.1	6.1	5.8	5.7
13 Turbo	6.0	5.4	6.3	6.0	6.1	6.7
14 RK 4	5.9	5.8	6.1	6.0	5.9	6.0
15 Rhambler SRP	5.9	5.6	6.1	6.2	5.9	5.7
16 RK 5	5.9	5.6	6.1	5.8	6.1	6.0
17 Van Gogh	5.9	5.8	6.2	5.8	5.9	5.7
18 Firecracker LS	5.9	5.7	6.2	6.0	5.8	5.3
19 Hemi	5.9	5.5	6.1	5.9	6.1	6.0
20 Monet	5.9	5.6	6.5	5.7	5.8	5.7
21 ATF 1353	5.9	5.4	6.2	6.0	5.9	6.0
22 Traverse SRP	5.9	5.4	6.0	6.0	6.1	6.0
23 Bullseye	5.9	5.3	6.2	5.8	6.2	6.0
24 Wolfpack II	5.9	5.5	6.2	5.8	5.9	6.3
25 IS-TF 137	5.8	5.9	5.7	5.9	5.7	5.0
26 Speedway	5.8	5.6	5.9	5.8	6.0	5.3
27 Essential	5.8	5.3	5.9	6.0	6.0	5.3
28 Garrison	5.8	5.5	5.7	5.8	6.1	5.3
29 Shenandoah Elite	5.8	5.7	6.1	5.8	5.5	5.0
30 PSG 75-A-06	5.8	5.9	5.8	5.7	5.6	5.3
31 Finelawn Xpress	5.7	5.8	5.6	5.7	5.8	5.3
32 Spyder LS	5.7	5.6	5.5	5.9	6.0	5.3
33 Braveheart	5.7	5.6	5.7	5.6	6.0	6.0
34 PSG 77-C-06	5.7	5.4	6.0	5.7	5.8	5.7
35 Catelyst	5.7	5.2	5.9	5.6	5.9	5.7

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007- 2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
36 PST-Syn-5DZP	5.7	5.9	5.4	5.8	5.6	5.0
37 RAD-TF28	5.7	5.5	5.4	6.1	5.7	4.7
38 Toccoa	5.7	5.6	5.7	5.6	5.8	6.0
39 PST-5SXY Bulk	5.7	5.0	5.7	5.8	6.1	5.7
40 Mustang 4	5.6	5.7	5.5	5.7	5.7	6.3
41 Sidewinder	5.6	5.5	5.6	5.8	5.6	5.7
42 Shenandoah III	5.6	5.3	6.2	5.6	5.4	5.0
43 Six Point	5.6	5.8	5.7	5.6	5.3	4.7
44 Fat Cat	5.6	5.9	5.7	5.4	5.4	4.7
45 Raptor II	5.6	5.4	5.4	5.7	5.8	5.7
46 Firenze	5.6	5.7	5.9	5.6	5.1	5.3
47 BBM	5.6	5.1	5.8	5.7	5.7	5.0
48 STR 8 Rhz 8K	5.6	5.2	5.5	5.7	5.9	5.3
49 Wolfpack II	5.6	5.3	5.6	5.6	5.8	5.7
50 PSG 55-B-06	5.6	5.9	5.2	5.5	5.7	5.0
51 CO3 comp	5.6	5.6	5.5	5.5	5.6	5.3
52 Terrier	5.6	5.7	5.3	5.6	5.7	6.0
53 IS-TF 160	5.5	5.5	5.4	5.6	5.7	5.7
54 PSG 23-06	5.5	5.5	5.5	5.3	5.7	4.7
55 Talladega	5.5	5.6	5.4	5.2	5.9	5.0
56 ATF 1346	5.5	5.5	5.3	5.6	5.6	5.7
57 CE3 comp	5.5	5.2	5.7	5.6	5.5	6.0
58 Trio	5.5	5.9	5.4	5.4	5.3	5.0
59 ATF 1329	5.5	5.4	5.5	5.6	5.4	4.3
60 PSG 55-C-06	5.5	5.6	5.4	5.5	5.3	5.7
61 PSG 21-AB-06	5.4	5.4	5.6	5.4	5.4	4.7
62 Millennium SRP	5.4	5.8	5.7	5.4	4.8	5.7
63 Greenbrooks	5.4	5.5	5.8	5.1	5.3	5.7
64 PST-Syn-56Y	5.4	5.5	5.3	5.2	5.6	5.3
65 AR4 comp	5.4	6.1	5.2	5.1	5.2	5.7
66 Pedigree	5.4	5.8	5.3	5.2	5.2	5.3
67 Dynamic II	5.4	5.0	5.4	5.4	5.7	5.3
68 Rocket	5.4	5.1	5.4	5.4	5.5	5.0
69 ATF 1284	5.4	5.7	5.3	5.2	5.3	4.3
70 PSG 67-B-06	5.4	5.4	5.4	5.5	5.1	4.0

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007- 2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
71 PST-5DVD Bulk	5.4	5.1	5.4	5.5	5.5	5.0
72 PSG 67-C-06	5.4	5.5	5.4	5.3	5.2	5.3
73 Umbrella	5.4	5.0	5.6	5.4	5.4	5.7
74 MVS 3609	5.3	5.4	5.3	5.5	5.1	5.3
75 RAD-TF33	5.3	5.6	5.4	5.0	5.4	5.3
76 AR2 comp	5.3	5.3	5.3	5.4	5.1	4.7
77 ATF 1245	5.3	5.5	5.5	5.3	4.8	4.7
78 Honkey Tonk	5.3	5.5	5.2	5.2	5.2	5.7
79 STR 86QRH	5.3	4.9	5.4	5.4	5.3	4.3
80 RAD-TF29	5.3	5.2	5.1	5.4	5.3	6.3
81 RNP	5.2	6.2	5.3	4.8	4.7	4.7
82 Tulsa Time	5.2	5.6	5.2	5.0	5.1	5.0
83 IS-TF 155	5.2	5.5	4.8	5.4	5.2	4.7
84 Justice	5.2	5.1	5.5	5.2	5.1	4.7
85 Titanium LS	5.2	5.1	5.4	5.1	5.3	6.3
86 ATF 1248	5.2	5.0	4.9	5.5	5.4	5.3
87 ATF 1324	5.2	5.3	5.5	5.0	5.0	5.0
88 PST-R5W3	5.2	4.8	5.2	5.1	5.7	5.7
89 RAD-TF31	5.2	5.0	5.4	5.3	5.2	4.7
90 AR3 comp	5.2	5.4	5.2	5.3	4.9	5.0
91 PSG-85QR	5.2	4.8	5.3	5.1	5.4	6.0
92 RAD-TF27	5.2	5.3	5.0	5.3	5.2	5.3
93 J-140	5.2	5.1	5.3	5.2	5.1	5.0
94 SR 8650	5.2	5.3	5.0	5.3	5.0	5.3
95 IS-TF 118	5.1	5.3	5.3	4.9	5.1	4.3
96 Inferno	5.1	5.8	5.0	4.9	4.9	4.3
97 DaVinci	5.1	5.2	5.2	5.0	5.1	5.7
98 ATF 1328	5.1	5.7	5.5	4.8	4.4	4.3
99 GE-1	5.1	5.1	5.2	5.2	4.9	6.0
100 MVS 1200	5.1	4.9	5.0	5.2	5.4	4.0
101 AST 9003	5.1	6.0	5.2	4.8	4.5	5.3
102 Darlington	5.1	5.6	5.2	4.8	4.8	5.7
103 PST-Syn-5WPM	5.1	4.8	5.1	5.0	5.5	5.7
104 RAD-TF32	5.1	4.9	4.9	5.2	5.4	4.7
105 ATF 1328	5.1	5.7	5.3	4.6	4.6	5.3

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007- 2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
106 BGR-TF1	5.1	5.8	5.2	4.8	4.4	4.7
107 JT-41	5.1	5.4	5.3	4.7	4.8	6.0
108 JT-45	5.1	5.8	5.1	4.6	4.7	5.0
109 ATF 1334	5.0	5.0	5.1	5.0	5.1	5.0
110 CE 4	5.0	5.5	5.1	4.9	4.7	5.0
111 Banshee	5.0	5.3	4.8	5.1	4.9	4.7
112 Ninja 3	5.0	5.3	5.2	4.9	4.7	5.3
113 RAD-TF35	5.0	4.8	5.1	5.1	5.1	6.0
114 KZ-1	5.0	5.8	5.2	4.6	4.6	5.3
115 STR-8BB5	5.0	4.9	4.9	5.3	5.0	5.3
116 ATF 1325	5.0	5.3	5.0	4.8	5.0	5.0
117 PST-5H20 Bulk	5.0	4.9	5.0	4.9	5.2	5.0
118 BGR-TF2	5.0	5.8	5.2	4.8	4.2	3.3
119 ATF 1344	5.0	5.0	5.0	4.8	5.2	5.3
120 BAR Fa 6253	5.0	4.9	5.6	4.7	4.8	5.7
121 ATF 1321	5.0	5.1	5.0	4.5	5.2	5.3
122 MVS-341	5.0	5.2	5.0	4.9	4.8	4.7
123 Compete	5.0	5.4	5.2	4.8	4.5	5.7
124 PST-5BGR-06	5.0	4.5	5.3	5.0	5.1	5.7
125 Cezanne RZ	5.0	5.0	5.2	4.9	4.6	5.7
126 Pedigree	5.0	5.0	5.1	4.9	4.8	5.0
127 RAD-TF30	5.0	4.7	5.3	5.0	4.8	5.3
128 Escalade	4.9	4.8	5.3	4.9	4.8	5.3
129 AR1 comp	4.9	4.6	5.1	5.0	5.0	5.0
130 Falcon IV	4.9	5.2	4.9	4.8	4.8	5.0
131 PSG 19-r3-06	4.9	5.1	4.9	4.9	4.9	4.7
132 PST-5JG6 Bulk	4.9	4.8	5.0	4.9	5.0	6.0
133 Rebel Advance	4.9	4.9	5.0	4.8	5.0	5.0
134 Renovate	4.9	5.8	4.8	4.6	4.5	4.3
135 Gazelle II	4.9	4.5	5.2	4.8	5.2	5.0
136 Reunion	4.9	5.2	5.5	4.6	4.3	4.3
137 CE 2	4.9	5.0	4.8	4.8	5.0	5.7
138 AST 9001	4.9	5.9	5.0	4.4	4.3	4.7
139 ATF 1112	4.9	5.0	4.9	4.8	5.0	5.3
140 CO2 comp	4.9	4.9	4.9	5.0	4.8	5.7

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007- 2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
141 SR 8600	4.9	5.4	4.7	4.6	4.8	5.3
142 ATF 1357	4.9	5.0	5.0	4.6	4.9	4.0
143 ATF 1358	4.9	5.0	4.8	4.9	4.8	5.3
144 J-130	4.9	5.2	5.3	4.4	4.6	5.3
145 PST-5V4	4.9	4.8	4.9	4.7	5.2	5.3
146 ATF 1327	4.9	5.0	4.9	4.7	4.8	4.3
147 GWTF	4.9	5.6	4.8	4.4	4.7	5.3
148 PSG-82BR	4.9	4.7	4.9	4.9	5.1	5.0
149 PST-5R56	4.9	4.6	4.8	4.9	5.2	5.3
150 Crossfire 3	4.9	5.6	4.9	4.5	4.4	5.0
151 PSG-TTRH	4.9	5.1	5.0	4.6	4.7	5.3
152 PST-5KB	4.9	5.5	5.0	4.4	4.5	5.3
153 Rebel IV	4.8	5.1	5.0	4.7	4.5	5.3
154 Prospect	4.8	5.2	4.7	4.8	4.6	4.3
155 Stetson II	4.8	5.4	4.9	4.4	4.7	4.7
156 Apache III	4.8	4.8	4.9	4.7	4.8	5.0
157 RAD-TF40	4.8	5.2	4.7	4.8	4.6	5.3
158 AST 7002	4.8	5.1	5.0	4.3	4.8	4.7
159 ATF 1107	4.8	4.8	4.4	4.7	5.3	5.3
160 Corona	4.8	5.3	4.7	4.5	4.6	4.7
161 Hounddog 6	4.8	5.3	4.6	4.6	4.7	5.3
162 PSG 62-A-06	4.8	5.0	4.9	4.7	4.6	4.3
163 PST-R5EP	4.8	4.7	4.7	4.7	5.1	4.7
164 PST-5LIV	4.8	4.8	4.9	4.8	4.7	4.7
165 Skyline	4.8	5.0	4.7	4.6	4.9	5.0
166 Innovator	4.8	5.0	4.8	4.8	4.5	5.0
167 PSG 18-A-06	4.8	5.0	4.8	4.7	4.7	4.7
168 JT-42	4.8	5.1	5.0	4.5	4.4	4.3
169 ATF 1200	4.8	4.9	4.7	4.6	4.9	5.3
170 Falcon NG	4.8	4.6	4.8	4.7	4.9	5.7
171 Finelawn Elite	4.8	5.0	4.7	4.8	4.5	4.7
172 JT-36	4.8	4.7	5.0	4.7	4.6	5.7
173 KZ-2	4.7	5.3	4.7	4.6	4.4	4.7
174 Guardian 21	4.7	5.0	4.6	4.6	4.7	4.7
175 Turbo RZ	4.7	4.6	5.0	4.5	4.8	5.3

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
176 Prestige	4.7	5.2	4.5	4.5	4.8	4.0
177 PSG 19 r4-06	4.7	5.0	4.9	4.5	4.4	3.7
178 ATF 1330	4.7	5.0	4.9	4.6	4.3	5.0
179 ATF 1331	4.7	5.1	4.7	4.7	4.4	4.7
180 Cochise III	4.7	5.2	4.6	4.5	4.6	5.3
181 Cortez II	4.7	5.2	5.1	4.4	4.1	4.0
182 STR 8GRQR	4.7	4.6	4.8	4.7	4.8	5.3
183 PSG 20 bulk-06	4.7	5.0	4.6	4.9	4.4	4.3
184 AST 7001	4.7	5.3	4.6	4.4	4.5	6.0
185 ATF 1335	4.7	4.8	4.5	4.6	4.9	5.3
186 PSG 9-A-06	4.7	4.8	4.6	4.7	4.6	4.7
187 JT-33	4.7	5.2	4.7	4.7	4.1	4.7
188 Virtue II	4.7	4.4	4.6	4.8	5.0	6.0
189 AST 1001	4.7	5.1	5.0	4.3	4.2	4.3
190 ATF 1360	4.7	5.0	4.9	4.7	4.1	4.7
191 Bingo	4.7	5.4	4.7	4.4	4.2	4.7
192 PSG 19-r8-06	4.7	5.0	4.6	4.3	4.7	4.3
193 Raptor	4.7	5.3	4.2	4.7	4.4	4.3
194 ATF 1326	4.6	5.3	4.3	4.3	4.7	3.7
195 BAR Fa 6363	4.6	5.0	4.6	4.5	4.4	5.7
196 Tahoe II	4.6	5.0	4.6	4.6	4.3	4.7
197 ATF 1338	4.6	4.8	5.0	4.3	4.4	4.0
198 Col-1	4.6	5.0	4.6	4.4	4.5	5.0
199 AST 7003	4.6	5.5	4.6	4.2	4.1	4.7
200 ATF 1336	4.6	4.7	4.6	4.7	4.4	5.0
201 Matador GT	4.6	4.8	4.6	4.7	4.4	6.0
202 Titanium	4.6	5.1	4.8	4.3	4.2	4.7
203 MVS-1107	4.6	4.5	4.6	4.7	4.6	6.3
204 ATF 1323	4.6	5.2	4.6	4.2	4.5	4.7
205 Avenger	4.6	5.1	4.7	4.5	4.1	4.7
206 PSG 19 bulk-06	4.6	4.9	4.5	4.5	4.5	4.7
207 PST-51L4	4.6	4.7	4.4	4.4	4.8	5.7
208 Scorpion II	4.6	5.0	4.6	4.2	4.5	4.0
209 Einstein	4.6	4.9	5.0	4.4	4.0	6.0
210 ATF 1283	4.6	5.0	4.4	4.3	4.6	5.0

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
211 ATF 1318	4.6	5.0	4.4	4.3	4.6	5.3
212 Blackwatch	4.6	5.1	4.7	4.3	4.2	5.7
213 CM comp	4.6	4.6	4.5	4.6	4.7	6.7
214 PSG 20-r4-06	4.6	5.1	4.7	4.2	4.3	4.3
215 ATF 1345	4.6	4.8	4.7	4.5	4.2	5.7
216 ATF 1342	4.6	4.9	4.3	4.5	4.5	5.3
217 PST-5SIS	4.5	4.2	4.6	4.6	4.8	5.3
218 Tuxedo	4.5	5.1	4.6	4.3	4.1	5.0
219 ATF 1262	4.5	4.7	4.6	4.3	4.5	5.0
220 PST-5GZ6 Bulk	4.5	4.9	4.3	4.3	4.6	5.0
221 PSG 19-r5-06	4.5	5.0	4.4	4.4	4.3	3.7
222 Tombstone	4.5	5.2	4.8	4.0	3.9	3.7
223 STR Tit QR	4.5	4.7	4.6	4.3	4.3	5.0
224 ATF 1333	4.5	4.8	4.7	4.3	4.1	5.0
225 Hudson	4.5	4.7	4.7	4.4	4.1	4.7
226 ATF 1339	4.5	5.1	4.2	4.1	4.4	5.0
227 PSG 20-r5-06	4.5	4.8	4.6	4.1	4.3	4.7
228 PSG 19-r1-06	4.5	4.5	4.5	4.5	4.3	4.0
229 06-DUST	4.5	4.4	5.0	4.3	4.2	5.3
230 PSG 19-r2-06	4.4	4.6	4.7	4.2	4.3	4.3
231 SR 8550	4.4	4.8	4.5	4.1	4.3	4.7
232 0312	4.4	5.0	4.4	4.3	4.0	5.7
233 Montana	4.4	4.8	4.3	4.2	4.5	4.3
234 ATF 1320	4.4	4.9	4.5	4.3	4.0	5.7
235 Hunter	4.4	5.7	4.5	3.9	3.5	4.0
236 Signia	4.4	4.8	4.4	4.3	4.2	5.0
237 PSG 13-AB-06	4.4	4.4	4.5	4.5	4.3	4.7
238 PSG-RNDR	4.4	4.6	4.6	4.0	4.4	5.0
239 ATF 1332	4.4	5.1	4.3	4.3	3.8	4.3
240 ATF 1343	4.4	4.9	4.3	4.1	4.2	5.3
241 Blade Runner	4.4	4.8	4.4	4.1	4.2	4.3
242 PSG 18-r4-06	4.4	4.5	4.5	4.4	4.2	4.3
243 PSG 19-r6-06	4.4	4.3	4.6	4.1	4.5	4.7
244 AST 9002	4.4	5.0	4.5	3.9	4.1	4.7
245 Rembrandt	4.4	4.3	4.6	4.4	4.2	5.0

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
246 Magellan	4.4	4.8	4.4	4.3	4.0	5.3
247 Rebel Exceda	4.4	4.9	4.9	4.1	3.6	3.7
248 ATF 1341	4.3	4.6	4.6	4.0	4.1	5.0
249 CO1 comp	4.3	4.5	4.4	4.2	4.2	4.3
250 Dakota	4.3	4.6	4.5	4.2	4.0	4.7
251 GO-1BFD	4.3	4.1	4.3	4.2	4.6	5.0
252 Silverstar	4.3	4.8	4.5	4.0	4.0	4.7
253 Forte	4.3	4.9	4.4	4.1	3.9	3.7
254 Silverado II	4.3	4.5	4.7	4.0	4.2	4.0
255 PSG 18-r3-06	4.3	4.1	4.4	4.2	4.5	4.7
256 PST-R5B4 Bulk	4.3	4.5	4.3	4.3	4.1	5.7
257 Regiment II	4.3	4.7	4.0	4.3	4.3	5.0
258 STR Reg QRD	4.3	4.8	4.3	3.9	4.1	4.3
259 Rebel Sentry	4.3	4.6	4.0	4.2	4.3	4.3
260 ATF 1337	4.3	4.4	4.2	4.2	4.2	5.3
261 ATF 1359	4.2	4.9	4.1	4.2	3.7	3.3
262 PSG 18 bulk-06	4.2	4.5	4.3	4.3	3.8	4.3
263 PSG 20-r2-06	4.2	4.4	4.4	4.0	4.2	5.0
264 Rebel Pro	4.2	4.5	4.4	4.0	4.0	3.3
265 PSG 20-r3-06	4.2	4.6	4.2	4.1	3.9	5.7
266 PSG 20-r1-06	4.2	4.3	4.3	4.2	4.0	3.3
267 Grande II	4.2	4.9	4.0	3.9	3.9	5.0
268 PST-5MTV Bulk	4.2	4.3	4.0	4.3	4.0	3.3
269 Padre	4.2	4.6	4.7	3.7	3.6	5.0
270 Greenkeeper	4.2	4.3	4.2	3.9	4.2	5.3
271 PSG 10-A-06	4.2	4.1	4.2	4.1	4.2	4.7
272 PSG 18-15-06	4.1	4.4	4.0	4.0	4.2	4.7
273 Five Point	4.1	3.7	4.1	4.3	4.4	4.0
274 ATF 1340	4.1	4.4	4.1	3.9	3.9	4.7
275 PSG 20-r1-06	4.1	4.0	4.0	4.1	4.3	5.0
276 Biltmore	4.1	4.6	4.3	3.6	3.8	4.7
277 STR 86 QRD	4.1	4.5	4.1	4.0	3.7	4.0
278 Tar Heel II	4.1	4.1	4.0	3.8	4.3	5.3
279 06-WALK	4.1	4.6	4.1	3.9	3.6	5.0
280 Constitution	4.0	4.4	4.0	3.8	3.9	5.0

(Continued)

Table 1 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----					Brown Patch ² 23 July 2010
	2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
281 Turbo	4.0	4.4	4.1	3.9	3.7	4.7
282 Greystone	4.0	3.9	4.0	4.1	4.0	4.3
283 PST-5GH4	4.0	4.3	4.1	3.7	3.9	4.7
284 Lindbergh	4.0	4.2	4.2	3.7	3.7	4.3
285 PSG 18-r6-06	3.9	4.2	4.0	3.7	3.8	4.7
286 PSG 18-r2-06	3.9	3.8	4.2	3.8	3.8	4.3
287 PSG 19-r7-06	3.9	4.2	4.1	3.5	3.8	5.0
288 Trooper	3.9	4.5	4.0	3.5	3.5	4.3
289 ATF 1350	3.9	4.0	4.0	3.8	3.8	4.7
290 Plato	3.9	4.4	3.9	3.6	3.5	5.0
291 STR TUQRD	3.8	3.9	4.2	3.6	3.6	3.7
292 Aristotle	3.8	4.3	4.1	3.4	3.2	5.3
293 AMF-107	3.7	4.2	4.3	2.9	3.4	4.0
294 Watchdog	3.7	4.1	4.1	3.1	3.3	4.7
295 PSG-TTST	3.6	4.1	3.6	3.3	3.4	5.3
296 Tulsa II	3.5	3.7	3.3	3.3	3.8	4.0
297 Titan Ltd	3.1	3.4	3.1	2.7	3.2	4.3
298 Silverado	2.9	3.3	3.1	2.4	2.9	5.0
299 Paraiso	2.9	3.4	2.9	2.4	2.9	4.0
300 Ky-31	1.6	1.2	1.0	1.1	2.8	5.0
LSD at 5% =	0.5	0.7	0.6	0.6	0.7	1.6

¹9 = best turf quality²9 = least disease

Table 2. Performance of tall fescue cultivars and selections in a turf trial established in September 2007 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² 19 July 2010
	2008-2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
1 LW Comp	6.7	6.7	7.3	6.2	4.7
2 IS-TF 153	6.4	6.3	6.5	6.5	5.3
3 IS-TF 161	6.4	6.3	6.6	6.2	5.3
4 POM Comp	6.3	6.4	6.3	6.2	5.7
5 Wolfpack II	6.2	5.7	6.5	6.4	5.3
6 MVS-3609	6.2	5.9	6.3	6.3	5.0
7 LC1 Comp	6.2	5.9	6.3	6.4	5.3
8 BIZM Comp	6.2	6.1	6.5	6.0	6.3
9 FCE3 BS	6.2	5.9	6.4	6.2	6.0
10 Falcon V	6.1	5.8	6.4	6.1	6.3
11 BC2 Comp	6.1	5.6	6.0	6.6	5.3
12 ATF-1382	6.1	5.7	6.1	6.4	4.7
13 Mustang 4	6.0	5.7	6.5	5.9	4.3
14 IS-TF 177	6.0	5.8	6.1	6.1	6.3
15 Sidewinder	6.0	6.1	5.9	6.0	5.3
16 PST-Syn-5AWT	6.0	5.6	6.1	6.3	5.3
17 IS-TF 155	6.0	5.9	5.9	6.1	6.0
18 Faith	5.9	6.1	5.8	5.9	3.3
19 IS-TF 154	5.9	5.7	5.9	6.2	5.7
20 Shenandoah III	5.9	5.6	6.3	5.9	4.0
21 Fesnova	5.9	5.7	5.7	6.3	6.7
22 Cochise IV	5.9	6.0	5.7	6.0	5.0
23 RAD-TF50	5.9	5.7	6.0	6.0	6.0
24 Rocket	5.9	5.9	5.7	6.0	5.7
25 IS-TF 175	5.9	5.5	6.2	5.9	5.3
26 PST-Syn-5A47	5.8	6.0	5.7	5.9	6.3
27 TR1 Comp	5.8	5.7	5.6	6.1	5.7
28 TR2 Comp	5.8	5.5	5.7	6.2	4.7
29 ATE	5.8	5.1	5.9	6.2	5.7
30 BIZE Comp	5.8	5.5	6.0	5.7	4.0
31 BIZL Comp	5.8	5.1	5.8	6.3	4.3
32 Spyder LS	5.8	5.9	5.8	5.6	5.0
33 Dynamic II	5.7	5.5	5.8	6.0	5.3
34 RAD-TF49	5.7	5.4	5.7	6.0	5.3
35 Matador GT	5.7	5.6	5.8	5.7	5.7

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² 19 July 2010
	2008-2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
36 14-07 Bulk	5.7	5.9	5.8	5.3	6.0
37 IS-TF 178	5.7	5.5	5.5	6.0	5.7
38 40-07 Bulk	5.7	5.6	5.7	5.6	4.3
39 Falcon IV	5.6	6.0	5.5	5.4	4.7
40 RAD-TF47	5.6	5.3	5.5	6.0	5.3
41 RAD-TF46	5.6	5.3	5.8	5.7	4.3
42 IS-TF 160	5.6	5.4	5.5	5.9	5.7
43 Finelawn Xpress	5.6	5.4	5.6	5.8	5.3
44 RAD-TF55	5.6	5.0	5.5	6.3	5.0
45 RAD-TF48	5.6	5.6	5.8	5.3	4.0
46 RAD-TF24R	5.6	5.5	5.6	5.7	5.3
47 Ampac-152	5.6	5.7	5.4	5.6	6.0
48 PST-Syn-5DKR	5.6	5.0	5.4	6.3	6.0
49 Hemi	5.6	5.2	5.5	5.9	5.7
50 Shenandoah Elite	5.6	5.1	5.7	5.8	5.3
51 RAD-TF54	5.5	5.0	5.5	6.1	6.0
52 IS-TF 179	5.5	5.4	5.4	5.7	4.7
53 GG3 Comp	5.5	5.3	5.3	5.9	5.7
54 ATF-1383	5.5	5.0	5.5	5.9	5.0
55 TR3 Comp	5.5	5.5	5.5	5.5	5.0
56 RAD-TF51	5.5	5.2	5.7	5.6	5.0
57 Inferno	5.5	5.4	5.5	5.6	4.7
58 GG2 Comp	5.5	5.4	5.3	5.7	5.7
59 BC1 Comp	5.4	5.4	5.3	5.6	4.7
60 BBM	5.4	5.5	5.4	5.4	3.3
61 41-07 Bulk	5.4	5.4	5.3	5.6	5.0
62 Gazelle II	5.4	5.2	5.3	5.7	5.7
63 ATF-1373	5.4	5.1	5.5	5.7	5.7
64 34-07 Bulk	5.4	5.8	5.3	5.1	5.3
65 38-07 R-5	5.4	5.5	5.1	5.4	4.3
66 STR 86QRH	5.4	5.0	5.5	5.6	5.0
67 ATF-1294	5.3	5.1	5.1	5.8	4.7
68 STR 8DDOR	5.3	5.5	5.3	5.2	5.3
69 5JAG	5.3	5.1	5.1	5.8	5.3
70 Apache III	5.3	5.0	5.5	5.5	6.3

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² 19 July 2010
	2008-2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
71 RAD-TF52	5.3	5.5	5.2	5.2	4.3
72 RAD-TF16	5.3	5.2	5.3	5.4	4.0
73 RAD-TF44	5.3	5.3	5.1	5.5	5.3
74 PST-5BAB	5.3	5.7	5.0	5.1	4.0
75 IS-TF 180	5.3	4.9	5.2	5.7	5.7
76 DDM QRH	5.3	5.4	5.3	5.1	6.0
77 Stonewall	5.2	5.3	4.9	5.6	5.7
78 AR7 Comp	5.2	4.6	5.6	5.5	5.7
79 SRO 85 QRV	5.2	5.2	5.1	5.4	4.3
80 38-07 R-4	5.2	5.5	5.0	5.2	3.3
81 PST-Syn-5JAE	5.2	4.9	5.1	5.6	4.3
82 ATF 1236	5.2	5.1	5.1	5.5	4.3
83 Falcon NG	5.2	4.9	5.2	5.6	5.0
84 RNP	5.2	5.2	5.0	5.4	4.0
85 CE-4	5.2	5.4	4.9	5.4	4.3
86 RAD-TF31	5.2	5.2	5.1	5.3	3.7
87 SRO 8BB5	5.2	5.2	4.6	5.8	4.7
88 38-07 R-1	5.2	5.0	5.2	5.3	4.0
89 RAD-TF31	5.2	5.0	5.1	5.4	4.0
90 Ninja 3	5.2	4.7	5.2	5.6	4.7
91 SRO GRQR	5.2	5.1	4.9	5.5	3.3
92 PST 5LIV BS	5.2	5.3	5.1	5.0	4.7
93 ATF 1301	5.1	5.3	4.8	5.2	5.0
94 AA3A4POL	5.1	5.2	4.9	5.2	5.0
95 Innovator	5.1	5.0	4.7	5.6	4.7
96 SR 8550	5.1	4.9	5.0	5.4	5.0
97 PST-Syn-5EVA	5.1	4.7	4.8	5.8	6.0
98 ATF 1334	5.1	5.3	4.9	5.1	4.7
99 35-07 Bulk	5.1	5.1	4.9	5.2	5.3
100 PST-5BGR	5.1	5.1	4.8	5.4	5.3
101 38-07 R-6	5.1	4.9	4.9	5.5	4.3
102 38-07 R-8	5.1	5.2	4.9	5.2	3.3
103 ATF 1327	5.1	5.0	4.7	5.5	4.7
104 Six Point	5.1	5.1	5.0	5.1	4.0
105 38-07 R-11	5.1	5.1	5.1	5.0	4.3

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² 19 July 2010
	2008-2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
106 PST-Syn-5SLE	5.1	5.2	4.8	5.2	4.7
107 38-07 R-2	5.0	5.1	4.9	5.1	4.3
108 Scorpion II	5.0	4.9	4.9	5.4	5.0
109 AA3R16-5	5.0	5.3	4.7	5.1	4.3
110 PST-Syn-5EW	5.0	5.0	4.8	5.3	5.7
111 Shenandoah sport	5.0	5.3	4.7	5.0	4.7
112 ATF-1381	5.0	4.8	4.7	5.5	5.0
113 RAD-TF45	5.0	4.8	5.1	5.1	5.0
114 A4 Comb	5.0	5.2	4.6	5.2	5.0
115 Guardian 21	5.0	5.1	4.6	5.2	5.3
116 Pedigree	5.0	4.8	4.5	5.6	5.0
117 ATF-1380	4.9	5.0	4.7	5.2	5.0
118 Rebel Advance	4.9	4.9	4.8	5.2	5.0
119 37-07 R-12	4.9	4.8	5.0	4.9	4.0
120 Blade Runner	4.9	5.2	4.7	4.9	4.7
121 RAD-TF32	4.9	4.9	4.7	5.2	5.0
122 Jaguar 4G	4.9	5.1	4.5	5.1	4.7
123 Endeavor II	4.9	4.8	4.8	5.1	3.7
124 AA2R25-7	4.9	4.6	4.8	5.3	5.7
125 PST-5DVD-07	4.9	4.6	4.6	5.5	4.7
126 37-07 Bulk	4.8	4.9	4.8	4.9	3.7
127 STR TitOR	4.8	4.6	4.8	5.1	5.7
128 PST-Syn-5ZT16	4.8	4.7	4.7	5.0	3.7
129 38-07 R-7	4.8	4.9	4.4	5.0	4.0
130 PST-5SIS	4.8	4.5	4.7	5.2	5.3
131 Cayenne	4.8	4.6	4.4	5.2	4.7
132 38-07 Bulk	4.7	5.1	4.6	4.5	5.3
133 Brockton	4.7	4.5	4.6	5.0	4.7
134 Justice	4.7	4.7	4.5	4.9	4.7
135 38-07 R-9	4.7	4.9	4.7	4.5	4.0
136 Fidelity	4.7	4.6	4.7	4.7	5.3
137 CIAZRH	4.7	4.6	4.7	4.8	4.3
138 ATF-1349	4.7	4.9	4.4	4.7	4.7
139 Sitka	4.7	4.9	4.3	4.8	4.0
140 22-07 Bulk	4.7	4.7	4.1	5.2	5.0

(Continued)

Table 2 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----				Brown Patch ² 19 July 2010
	2008-2010 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	
141 Grande II	4.7	4.9	4.2	4.8	5.0
142 Blackwatch	4.7	4.9	4.3	4.8	4.0
143 SRO STR THQR	4.6	4.4	4.7	4.8	4.0
144 SRO PSG TTRH	4.6	4.7	4.5	4.7	3.7
145 Virtue II	4.6	4.5	4.5	4.8	4.3
146 PST-5GH4	4.6	5.0	4.0	4.8	4.3
147 PST-Syn-5SL5-07	4.6	4.4	4.5	4.9	5.0
148 SRO PSG RNDR	4.6	4.5	4.4	4.9	4.7
149 Empress	4.6	4.5	4.1	5.1	5.0
150 Green Keeper	4.6	4.3	4.4	5.0	4.3
151 38-07 R-10	4.6	4.1	4.8	4.8	4.0
152 Turbo	4.6	4.5	4.3	4.8	4.3
153 Quest	4.5	4.4	4.3	4.8	4.3
154 SR 8600	4.5	4.6	4.3	4.6	4.3
155 Arid 3	4.5	4.2	4.5	4.6	5.0
156 Silverado II	4.4	4.3	4.1	4.8	4.0
157 PSG TTST	4.3	4.2	4.2	4.6	5.0
158 Tar Heel II	4.3	4.3	4.0	4.5	4.7
159 Bingo	4.3	4.2	4.1	4.5	4.3
160 Watchdog	4.3	4.5	3.9	4.4	4.3
161 Regiment II	4.2	4.1	4.1	4.4	4.3
162 Wolfpack	4.2	3.8	4.1	4.7	6.0
163 Endeavor	4.0	4.3	3.4	4.3	5.0
164 Titan Ltd	3.7	3.7	3.3	4.1	3.7
165 Pixie	3.6	3.8	3.2	4.0	4.3
166 Jaguar 3	3.5	3.6	3.1	3.9	5.3
167 Amalia	2.2	1.9	1.8	2.9	3.3
168 PST-5CAN	1.4	1.0	1.1	2.2	3.3
LSD at 15% =	0.6	0.7	0.7	0.7	1.8

¹9 = best turf quality²9 = least disease

Table 3. Performance of tall fescue cultivars and selections in a turf trial established in September 2008 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² 22 July 2010
	2009- 2010 Avg.	2009 Avg.	2010 Avg.	
1 PO1 Comp	7.0	6.8	7.2	6.7
2 PSM 6351 BS	6.8	6.7	6.8	6.7
3 LSD Comp	6.8	6.8	6.8	6.0
4 Cochise IV	6.7	6.7	6.7	5.3
5 B23 Comp	6.7	6.5	6.8	6.0
6 IS-TF-178	6.6	6.4	6.8	7.0
7 IS-TF-177	6.6	6.4	6.8	7.3
8 TPF Comp	6.6	6.5	6.7	6.0
9 TPC Comp	6.5	6.5	6.6	6.7
10 PST-5AWT	6.5	6.3	6.7	6.0
11 Faith	6.4	6.4	6.4	5.3
12 IS-TF-179	6.4	6.3	6.4	5.3
13 60-08-2	6.4	6.3	6.5	7.0
14 60-08-8	6.4	6.1	6.6	7.3
15 Falcon V	6.3	6.2	6.4	6.3
16 POM	6.3	6.3	6.4	5.7
17 Spyder LS	6.3	6.2	6.3	6.0
18 Shenandoah Elite	6.3	6.2	6.4	5.3
19 LW	6.3	6.7	5.8	4.3
20 IS-TF-175	6.2	6.0	6.5	5.7
21 Firecracker LS	6.2	6.3	6.2	5.3
22 60-08-9	6.2	6.0	6.4	6.3
23 Garrison	6.2	6.3	6.1	5.7
24 Side Winder	6.1	6.1	6.2	7.0
25 Jamboree	6.1	6.1	6.1	5.3
26 59-08-06	6.1	6.2	6.0	5.7
27 Mustang 4	6.1	6.1	6.0	6.0
28 GSD Comp	6.1	5.9	6.2	5.7
29 60-08-6	6.1	5.9	6.3	5.0
30 RK4	6.1	6.0	6.1	6.3
31 59-08-12	6.1	6.2	5.9	5.3
32 59-08-11	6.0	6.1	5.9	5.7
33 Speedway	6.0	5.7	6.3	6.3
34 PCO Comp	6.0	5.8	6.2	6.0
35 PO3 Comp	6.0	6.0	5.9	5.3

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² 22 July 2010
	2009- 2010 Avg.	2009 Avg.	2010 Avg.	
36 59-08-02	6.0	6.0	5.9	5.3
37 PST-5A4S	6.0	6.2	5.8	5.3
38 Rocket	6.0	5.8	6.1	6.3
39 60-08-4	6.0	5.9	6.0	6.0
40 3rd Millennium	5.9	5.8	6.0	5.3
41 NSD Comp	5.9	5.7	6.2	6.0
42 60-08 Bulk	5.9	5.7	6.1	6.0
43 60-08-5	5.9	5.9	5.8	4.7
44 Essential	5.9	5.8	6.0	6.3
45 BIZM	5.9	5.9	5.8	5.7
46 Finelawn Express	5.9	5.8	5.9	5.7
47 Trio	5.9	5.6	6.1	5.0
48 Van Gogh	5.9	5.8	5.9	5.0
49 PO2 Comp	5.8	5.8	5.9	5.7
50 FSD Comp	5.8	5.4	6.2	6.3
51 TWA Comp	5.8	5.6	6.0	5.3
52 Shenandoah III	5.8	5.8	5.8	4.7
53 SR 8650	5.8	6.1	5.5	4.0
54 Fat Cat	5.8	5.9	5.6	5.7
55 BBM	5.7	5.6	5.8	6.0
56 60-08-7	5.7	5.6	5.8	5.3
57 72-08-1	5.7	5.6	5.8	5.0
58 RAD-TF57	5.7	6.1	5.3	5.3
59 59-08 Bulk	5.7	5.7	5.7	5.3
60 72-08-3	5.7	5.8	5.6	4.3
61 59-08-08	5.7	5.6	5.7	5.7
62 60-08-3	5.7	5.4	5.9	5.0
63 59-08-01	5.6	5.7	5.5	6.0
64 84-08-2	5.6	5.4	5.9	4.7
65 Rebel Sentry	5.6	4.5	4.6	4.3
66 Stingray	5.6	5.8	5.4	5.0
67 84-08-3	5.6	5.6	5.6	4.7
68 PST-5JAG-08	5.6	5.3	5.9	5.3
69 84-08 Bulk	5.6	5.3	5.8	5.7
70 72-08 Bulk	5.5	5.6	5.4	5.0

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² 22 July 2010
	2009-2010 Avg.	2009 Avg.	2010 Avg.	
71 60-08-1	5.5	5.5	5.5	5.7
72 RAD-TF58	5.5	5.4	5.6	4.3
73 ATF-1334	5.5	5.6	5.4	6.0
74 BSD Comp	5.5	5.3	5.7	5.7
75 Monet	5.5	5.3	5.7	5.7
76 PSG 85QR	5.5	5.7	5.2	5.0
77 ATE	5.5	5.8	5.1	3.3
78 PSG 8SP1	5.4	5.4	5.5	6.7
79 Inferno	5.4	5.5	5.3	5.3
80 STR 8BBS	5.4	5.2	5.7	5.3
81 Rebel IV	5.4	5.5	5.4	5.0
82 RAD-TF60	5.4	5.7	5.1	4.7
83 Tulsa Time	5.4	5.6	5.1	5.3
84 60-08-10	5.4	5.5	5.2	4.7
85 ATF-1236	5.4	5.5	5.2	4.7
86 Titanium LS	5.4	5.3	5.4	6.0
87 STR 86QR	5.4	5.8	4.9	3.0
88 PST-5JAG	5.3	5.1	5.5	6.0
89 SR 8650	5.3	5.1	5.4	6.0
90 RAD-TF59	5.3	5.1	5.5	5.7
91 84-08-1	5.3	5.2	5.4	4.3
92 Rambler	5.3	5.7	4.9	4.0
93 Falcon IV	5.2	5.3	5.2	5.7
94 RAD-TF-31	5.2	5.1	5.3	5.0
95 72-08-2	5.2	5.2	5.2	4.7
96 59-08-05	5.2	5.6	4.8	4.0
97 RNP	5.2	5.7	4.7	3.3
98 Titanium LS	5.2	5.0	5.3	5.7
99 Pedigree	5.2	5.0	5.3	5.0
100 STR 8GRQR	5.2	5.1	5.2	6.0
101 RAD-TF56	5.2	4.9	5.4	5.3
102 Rebel Exeda	5.2	5.0	5.3	5.0
103 PST-5SXR	5.1	4.9	5.4	4.7
104 PST-5FDR	5.1	5.2	5.0	4.7
105 Signia	5.1	5.4	4.9	4.3

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² 22 July 2010
	2009- 2010 Avg.	2009 Avg.	2010 Avg.	
106 05FA-01	5.1	5.8	4.4	4.0
107 Shenandoah Sport	5.1	5.2	5.0	5.7
108 59-08-03	5.1	5.5	4.7	3.7
109 ATF-1301	5.1	5.2	4.9	5.3
110 PSG 8AZRH2	5.1	5.5	4.6	4.3
111 SR 8550	5.0	5.5	4.5	4.0
112 Da Vinci	5.0	5.0	5.0	5.3
113 Six Point	5.0	5.2	4.8	5.3
114 59-08-04	5.0	5.9	4.1	3.3
115 03FA-05	5.0	5.3	4.7	4.7
116 Forte	5.0	5.3	4.7	4.3
117 PSG DDMQR	5.0	5.5	4.4	3.3
118 PST-5R05	5.0	4.8	5.1	6.3
119 PSG TTQR	5.0	4.8	5.1	5.0
120 Rebel Advance	5.0	5.5	4.4	4.0
121 Jaguar 4G	5.0	5.1	4.8	5.0
122 ATF-1294	4.9	5.1	4.8	5.3
123 Falcon NG	4.9	5.1	4.7	5.0
124 Blackwatch	4.9	5.1	4.7	4.7
125 Cayenne	4.9	4.8	4.9	4.7
126 PST-5DVD-07	4.9	4.9	4.9	4.7
127 Ninja 3	4.9	4.8	4.9	3.7
128 IS-TF-67	4.9	5.1	4.6	3.3
129 Picasso	4.8	4.9	4.7	4.7
130 Justice	4.8	5.1	4.6	4.3
131 Guardian 21	4.8	4.9	4.6	3.7
132 59-08-10	4.8	5.5	4.1	3.0
133 Coronado TDH	4.8	5.1	4.4	5.0
134 03FA-07	4.7	5.3	4.2	3.3
135 59-08-07	4.7	5.3	4.1	3.7
136 Quest	4.7	4.8	4.5	4.0
137 ATF-1327	4.7	4.6	4.7	5.3
138 Scorpion II	4.6	4.9	4.4	4.3
139 Brockton	4.6	4.8	4.4	4.0
140 59-08-09	4.6	4.9	4.4	4.0

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² 22 July 2010
	2009- 2010 Avg.	2009 Avg.	2010 Avg.	
141 Virtue II	4.6	4.9	4.3	4.0
142 PSG RNDR	4.6	4.8	4.4	6.3
143 Crewcut II	4.6	4.8	4.4	4.0
144 Penn 1901	4.6	4.8	4.3	4.7
145 Grande II	4.6	4.5	4.6	5.3
146 PST-Syn-R5B4	4.6	4.7	4.4	4.3
147 84-08-4	4.5	4.9	4.1	4.0
148 CE4	4.5	4.9	4.1	3.3
149 Traverse SRP	4.5	4.9	4.1	3.3
150 PST-5BAB	4.5	4.6	4.4	3.7
151 PSG 8AZRH	4.5	4.9	4.1	3.7
152 Rembrandt	4.4	4.4	4.4	4.3
153 PSG TTRH	4.4	4.4	4.4	4.7
154 Masterpiece	4.3	4.1	4.6	6.0
155 PST-Syn-5T8	4.3	4.2	4.4	6.0
156 Durana	4.2	4.2	4.2	5.0
157 Turbo	4.2	4.3	4.1	3.7
158 PST-5SHZ-04	4.2	4.4	3.9	3.7
159 Rebel Pro	4.2	4.1	4.2	4.7
160 PST-5SIS	4.1	4.0	4.2	5.0
161 PSG 8GRTR	4.1	4.2	3.9	3.7
162 Arid 3	4.0	3.9	4.2	4.0
163 PSG TTST	3.9	4.0	3.9	5.0
164 Regiment II	3.9	3.9	4.0	4.7
165 Greystone	3.9	3.9	3.8	3.3
166 SR 8600	3.8	3.8	3.7	4.3
167 Grande II	3.7	3.7	3.8	4.3
168 Prospect	3.7	3.9	3.5	4.0
169 Watchdog	3.7	3.7	3.7	4.0
170 Rebel 2000	3.7	3.9	3.5	3.7
171 Regiment II	3.4	3.5	3.3	3.7
172 Tulsa II	3.3	3.2	3.3	4.0
173 Grande	3.1	3.1	3.0	4.7
174 Durango	2.7	2.8	2.6	3.7
175 Rebel III	2.7	2.7	2.7	4.0

(Continued)

Table 3 (continued).

Cultivar or Selection	-----Turf Quality ¹ -----			Brown Patch ² 22 July 2010
	2009- 2010 Avg.	2009 Avg.	2010 Avg.	
176 Jaguar 3	2.5	1.8	3.1	3.0
LSD at 5%=	0.6	0.8	0.7	1.5

¹9 = best turf quality

²9 = least disease

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2009 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2010	Brown Patch ² 2010	Billbug ³ 22 Sept. 2010
1 B31 Comp	7.0	6.3	9.0
2 F9E Comp	6.7	6.6	9.0
3 PPG-TF 103	6.5	6.1	8.0
4 LW BS	6.5	6.1	8.7
5 TF 225	6.4	6.2	8.7
6 PPG-TF 104	6.4	6.1	9.0
7 PPG-TF 102	6.4	6.3	8.7
8 PST-5AWT-08	6.3	6.4	8.3
9 37-09 Bulk	6.2	5.3	7.0
10 RK6	6.2	5.3	4.0
11 DP50-9440	6.2	5.8	6.0
12 TF 195	6.2	4.9	5.7
13 T31 Comp	6.1	5.9	8.3
14 07-5 TF Bulk	6.1	5.1	6.3
15 TF 197	6.1	5.3	8.0
16 Rambler SRP	6.1	5.9	8.0
17 TF 196	6.1	6.2	7.7
18 PPG-TF 101	6.0	5.4	7.7
19 RAD-TF48R	6.0	4.9	6.3
20 PST-5MCD	6.0	6.1	8.7
21 RAD-TF50R	6.0	5.2	8.0
22 IS-TF 153	6.0	5.7	4.3
23 PST-5SRX	5.9	4.8	7.3
24 RAD-TF64	5.9	5.2	7.3
25 DP50-9470	5.9	5.2	7.3
26 WDA3 Comp	5.8	5.1	8.7
27 Talladega	5.8	4.9	7.7
28 TF 199	5.8	5.6	6.7
29 Faith	5.8	5.4	8.0
30 TF 198	5.8	5.7	5.7
31 LS 1200	5.8	4.9	4.0
32 PST-5R05	5.8	5.7	8.0
33 07-9 Bulk	5.8	5.2	5.3
34 PST-5GRB	5.7	5.8	8.0
35 PST-Syn-5EV9	5.7	5.9	7.0

(Continued)

Table 4 (continued).

Cultivar or Selection	Turf Quality ¹ 2010	Brown Patch ² 2010	Billbug ³ 22 Sept. 2010
36 Shenandoah 3	5.7	4.4	6.3
37 FCE3	5.7	4.8	3.3
38 WDA1 Comp	5.7	5.4	8.3
39 5-09 TF Bulk	5.6	4.3	6.0
40 Wolfpack II	5.6	4.9	4.7
41 SR 8550	5.6	4.9	4.0
42 RAD-TF46R	5.6	5.0	7.0
43 Cochise IV	5.6	5.7	6.3
44 PST-5JAG-08	5.6	5.2	5.7
45 Firecracker LS	5.6	5.2	4.3
46 7-09 TF Bulk	5.6	5.3	4.3
47 Rebel Advance	5.6	4.3	3.7
48 TF 224	5.6	4.8	7.0
49 TF-2-07 Bulk	5.6	5.4	6.3
50 Essential	5.6	4.8	5.3
51 Jamboree	5.6	5.3	4.3
52 38-09 Bulk	5.5	5.7	8.7
53 TF 223	5.5	6.0	8.3
54 RAD-TF65	5.5	5.4	7.3
55 Penn RK4	5.5	4.6	6.0
56 PST-5A4S	5.5	5.3	5.7
57 SCTF2	5.5	5.1	5.3
58 ATF 1236	5.5	4.9	4.7
59 PS TF 08-1	5.5	5.6	4.3
60 Fat Cat	5.5	5.1	3.0
61 PST-Syn-5DKB	5.5	5.1	6.3
62 SCTF3	5.4	4.7	5.3
63 Terrier	5.4	5.4	5.0
64 Gazelle II	5.4	4.4	4.3
65 Trio	5.3	5.1	4.3
66 PST-5DRP	5.3	5.4	7.7
67 TF 226	5.3	5.1	7.0
68 Dynamic II	5.3	5.1	6.3
69 3rd Millennium	5.3	5.3	6.3
70 Rebel IV	5.3	5.1	5.3

(Continued)

Table 4 (continued).

Cultivar or Selection	Turf Quality ¹ 2010	Brown Patch ² 2010	Billbug ³ 22 Sept. 2010
71 Bullseye	5.3	5.2	3.7
72 Rebel Exceda	5.3	4.9	3.7
73 Sidewinder	5.3	5.3	3.7
74 Cortez II	5.3	4.4	4.0
75 Forte	5.2	4.1	4.7
76 Falcon V	5.2	4.6	4.3
77 Jaguar 4G	5.2	4.1	4.0
78 ATF 1301	5.2	4.7	3.7
79 Guardian 21	5.2	4.6	3.3
80 RNP	5.2	4.4	3.0
81 PST-5FDR	5.2	4.6	7.7
82 SCTF1	5.2	4.9	5.7
83 Six Point	5.2	4.4	4.3
84 Pedigree	5.2	4.9	4.0
85 J-140	5.2	4.8	4.0
86 RAD-TF47R	5.2	4.9	6.3
87 ATF 1224	5.2	3.3	3.3
88 DP50-9460	5.1	4.9	5.0
89 1-09 TF Bulk	5.1	5.2	4.3
90 SR 8650	5.1	4.8	4.0
91 8-09 Bulk	5.1	4.7	3.0
92 Monet	5.1	4.8	3.3
93 Banshee	5.1	4.6	3.0
94 TF 219	5.1	5.2	7.0
95 Brockton	5.1	4.0	4.3
96 RAD-TF51R	5.0	4.4	6.0
97 STR 8BB5	5.0	4.8	4.3
98 Rocket	5.0	4.7	3.7
99 Tulsa Time	5.0	4.7	3.7
100 STR 86QR	5.0	4.3	3.0
101 Apache III	5.0	4.6	4.3
102 Penn 1901	5.0	4.0	4.0
103 PSG 82 BPRH	5.0	4.7	2.7
104 Picasso	4.9	4.4	4.0
105 Speedway	4.9	5.0	3.7

(Continued)

Table 4 (continued).

	Cultivar or Selection	Turf Quality ¹ 2010	Brown Patch ² 2010	Billbug ³ 22 Sept. 2010
106	Justice	4.9	4.3	3.0
107	Mustang 4	4.9	4.6	5.3
108	Endeavor II	4.9	5.0	7.0
109	TF 217	4.9	4.2	4.0
110	PST-5DVD-07	4.8	5.2	6.3
111	PSG 8GRTR-4	4.8	4.4	5.0
112	Signia	4.8	3.4	4.3
113	Inferno	4.8	4.3	4.3
114	PSG 85QR	4.8	4.6	4.0
115	J-130	4.8	4.9	3.3
116	Spyder LS	4.8	5.0	3.0
117	PST-5YA	4.8	5.4	7.3
118	PSG 8SP1	4.8	4.6	5.3
119	PSG 8TTST1	4.8	5.4	5.0
120	Regiment II	4.8	3.7	4.3
121	Van Gogh	4.8	4.7	3.7
122	Prospect	4.8	3.7	3.3
123	Ninja 3	4.8	4.1	2.7
124	DaVinci	4.8	4.4	5.7
125	PST-5BAB	4.7	4.7	4.7
126	Arid 3	4.7	4.1	4.7
127	Coronado TDH	4.7	5.0	4.3
128	Silverstar	4.7	4.6	2.3
129	Greystone II	4.7	4.7	4.3
130	Rebel Sentry	4.7	4.2	4.0
131	PST-5V4	4.7	4.8	3.7
132	3-09 TF Bulk	4.7	4.2	3.0
133	WDA2 Comp	4.6	5.2	7.7
134	Scorpion II	4.6	4.7	5.0
135	PSG TTST 2	4.6	5.3	5.0
136	Masterpiece	4.6	4.8	4.3
137	PST-Syn-5ED	4.6	4.9	7.3
138	Rembrandt	4.6	4.7	5.7
139	4-09 TF Bulk	4.6	3.8	3.7
140	Grande II	4.6	4.2	4.0

(Continued)

Table 4 (continued).

Cultivar or Selection	Turf Quality ¹ 2010	Brown Patch ² 2010	Billbug ³ 22 Sept. 2010
141 9-09 TF Bulk	4.6	4.2	2.0
142 Crewcut II	4.5	4.1	3.3
143 ATF 1327	4.5	4.4	3.3
144 2-09 Bulk	4.5	4.0	4.3
145 PSG RNDR	4.5	4.1	4.0
146 TF 215	4.4	4.2	5.3
147 PSG 8GRTR-1	4.4	4.6	4.3
148 STR 8GRQR	4.4	4.1	3.0
149 PSG 8GRTR Bulk	4.4	4.0	3.0
150 PSG 8GTR-3	4.4	4.0	3.3
151 PSG TTST	4.3	4.7	4.0
152 PSG 8GRTR-6	4.2	3.6	4.7
153 Rebel Pro	4.2	3.9	3.0
154 PSG TTRH	4.1	4.2	3.3
155 07-4 TF Bulk	4.1	3.7	2.0
156 Greystone	4.0	4.0	4.3
157 PSG 8GRTR-5	4.0	3.8	2.7
158 PST-5YMY	4.0	5.1	6.7
159 Jaguar 3	4.0	4.2	4.7
160 Tar Heel II	4.0	4.9	3.3
161 PSG DDMOR	4.0	4.2	4.3
162 Virtue II	3.9	5.0	4.0
163 PSG 8GRTR-2	3.9	4.0	2.0
164 Pixie	3.8	3.2	3.3
165 SR 8500	3.8	3.3	3.3
166 SR 8600	3.7	4.7	3.3
167 Watchdog	3.7	3.7	3.0
168 Grande	3.5	4.3	5.0
169 Tulsa II	2.6	4.0	2.7
LSD at 5% =	1.0	1.2	1.8

¹9 = best turf quality²9 = least disease³9 = least billbug damage

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

	2006		2007		2008		2009		2010	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht	N	Ht
Table 1 (2006).....	3.5	1.5	4.0	1.5	4.0	1.5	2.25	1.5	2.25	1.5
Table 2 (2007).....			4.0	1.5	3.5	1.5	2.25	1.5	2.25	1.5
Table 3 (2008).....					3.5	1.5	2.25	1.5	2.25	1.5
Table 4 (2009).....							3.00	1.5	3.00	1.5

¹Annual N applied (lb/1000 ft²)

²Mowing height in inches