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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

TRAFFIC TOLERANCE AND RECOVERY OF TALL FESCUE IN 2010

Bradley S. Park, James A. Murphy, Tracy J. Lawson, William K. Dickson, and Joseph B. Clark[1]

The establishment of traffic stress tolerant cultivars of Kentucky bluegrass (*Poa pratensis* L.), tall fescue (*Festuca arundinacea* Schreb.), perennial ryegrass (*Lolium perenne* L.), or mixtures of these species can help turfgrass managers create safe and playable home lawns, parks, and sports fields.

Tall fescue is well adapted to the transition zone and is well-suited for expansive recreational areas where a uniform, wear-resistant surface is needed (Juska et al., 1969). Older cultivars formed turf with very low shoot density, had coarse leaf texture, and were unable to mix well with other commonly used cool-season turfgrasses; these attributes led turfgrass managers to establish other turfgrasses in areas where a high quality turf was desired (Beard, 1973). Breeding improvements, initiated with the release of Rebel in 1979 (Funk et al., 1981), have resulted in a large selection of tall fescue cultivars with darker color, finer leaf texture, lower growth habit, denser turf canopy, and increased resistance to disease. These improved cultivars can provide a high quality tall fescue turf for lawns, parks, and sports fields (Bokmeyer et al., 2008).

Traffic, the most frequent and damaging stress to turfgrasses used as a sports turf (Minner et al., 1993), is characterized by the individual stresses of wear, soil compaction, divoting, and soil displacement (Beard, 1973). Wear injury affects aboveground plant parts and is defined as the immediate result of the crushing, tearing, and shearing actions of foot and vehicular traffic; soil compaction can produce chronic stresses associated with increased soil bulk density, loss of soil structure, and reduced aeration, water infiltration, and water storage (Beard et al., 1974; Shearman, 1988).

Research performed by Carrow (1980) showed that percent tall fescue cover declined with increasing levels of compaction and that tall fescue was more susceptible to compaction stresses compared to Kentucky bluegrass and perennial ryegrass.

There is a limited amount of information available regarding the traffic (wear and compaction) tolerance of newer tall fescue cultivars. Research performed by Park et al. (2004) in New Jersey and Bughrara (2007) in Michigan identified entries within the 2001 NTEP Tall Fescue Test that had improved traffic tolerance. More recently, Park et al. (2009a) identified wear tolerant entries within the 2005 Cooperative Turfgrass Breeder's Test Tall Fescue Trial (http://www.ctbt-us.info/) and the 2006 NTEP Tall Fescue Test. Furthermore, Park et al. (2008, 2009b, 2010) reported on seasonal traffic tolerance of tall fescue cultivars and selections in the 2006 NTEP Tall Fescue Test.

Tall fescue cultivar recommendations are needed for sports fields that receive play at a specific time of the year (spring, summer, or fall). The objective of this study was to assess the recovery of tall fescue to traffic stress applied during fall 2009 and the tolerance and recovery of tall fescue to traffic stress applied in summer 2010.

MATERIALS AND METHODS

Evaluation Trial

The 113 entries of the 2006 NTEP tall fescue trial as well as CE-2, CE-4, BBM, Titanium, and ATE were established in September 2006 as 6 x 5 ft plots on a well-drained loam (sand = 33%; silt = 41%; clay = 26%) at the Horticultural Research Farm II in North Brunswick, NJ. During April and May 2010, the trial was evaluated for recovery from traffic applied during fall 2009 (Park et al., 2010). During July

[1]Sports Turf Education and Research Coordinator, Extension Specialist in Turfgrass Management, Principal Laboratory Technician, Turfgrass Research Farm Supervisor, and Principle Laboratory Technician, respectively, New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901-8520.

through October 2010, the trial was evaluated for tolerance to and recovery from traffic applied in July (summer) 2010. Traffic had been previously applied to the plots in October (fall) 2007 (Park et al., 2008), July (summer) 2008 (Park et al., 2009b), and April (spring) and October (fall) 2009 (Park et al., 2010).

Soil test results from December 2010 indicated that the soil pH was 6.3; soil phosphorous (P) and potassium (K) were 91 and 295 lb/acre, respectively. The test was mowed 1 to 2 times a week with a rotary mower at a height of 3.0-inch. The test was irrigated as necessary to avoid severe drought stress. A total of 1.2 lb nitrogen (N)/1000 ft^2 was applied in 2010 (0.6 lb N/1000 ft^2 on 1 June and 16 September 2010).

Fungicides were applied for the preventive control of brown patch (caused by *Rhizoctonia solani*) on 25 June 2010 using flutolanil (ProStar, Bayer Environmental Science, Research Triangle Park, NJ; 3.0 dry ounces/1000 ft^2) and 8 July 2010 using azoxystrobin (Heritage, Syngenta Crop Protection, Inc, Greensboro, NC; 0.4 dry ounces/1000 ft^2). Potential turf infection caused by *Pythium* spp. was preventively controlled on 25 June 2010 using cyazofamid (Segway Fungicide, FMC Corporation, Philadelphia, PA; 0.65 fluid ounces/1000 ft^2).

Traffic Simulation

Both wear and compaction stresses (traffic) were applied to the trial. Wear was applied using a modified version of a simulator described by Bonos et al. (2001). The machine was operated at a ground speed of 2.5 miles per hour (mph) and 250 rpm for the paddles. A total of 24 passes of the wear simulator were applied to one-half of each plot over two days: 12 passes on 20 July and 12 passes on 21 July 2010. Every other pass was made in the opposing direction of the previous pass and was made on the same one-half of each plot that received traffic in 2007 through 2009.

The traffic treatment was completed with ten passes of a vibratory pavement roller (operating weight = 2586 lb; centrifugal force with vibratory function engaged = 3000 lb) on 4 August 2010 over the same portion of the plots that received wear. Similar to wear treatment, every other pass of the roller was made in the opposing direction of the previous pass.

Plot Evaluation

The non-trafficked one-half portion of each plot was 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 freedom from insect and/or disease damage). Spring green-up was rated as separate characteristic on 1 April 2010. A 1 to 9 scale was utilized for these ratings where 9 equaled the best turf characteristic.

Tall fescue recovery from traffic applied in October (fall) 2009 was assessed 190 and 206 days after compaction (DAC) on 28 April and 14 May 2010, respectively, by visually rating the fullness of turfgrass canopy (FTC). This rating used a 0 to 100% scale where 0 = absence of turfgrass canopy and 100 = full canopy.

Tall fescue tolerance to wear and compaction stresses were also assessed during summer 2010. Visual ratings of FTC were taken before wear on 19 July 2010 and after 24 passes of the wear simulator on 22 July 2010. Turfgrass quality of worn plots was assessed on 22 July 2010 using a 1 to 9 scale (9 = most dense, uniform turfgrass canopy after wear). Following compaction treatment, FTC was rated on 12 August 2010 (8 DAC) to assess tolerance to traffic.

Turfgrass quality of trafficked plots was evaluated during recovery at 29, 57, and 83 DAC using a 1 to 9 scale. FTC was also evaluated during recovery on 2 September 2010 (29 DAC) and 26 October 2010 (83 DAC).

Trafficked and non-trafficked data were analyzed separately. The experimental design was a randomized complete block design with three replications. All data were subjected to analysis of variance and means were separated using the Fisher's protected least significant difference (LSD) test at $p < 0.05$.

RESULTS AND DISCUSSION

Spring Recovery from Fall 2009 Traffic

Entries with the best FTC on 14 May 2010 (206 DAC) and that also had the best FTC immediately

after traffic on 29 October 2009 (9 DAC) were LS 1200 (SC-1), Traverse SPR (RK-1), Falcon V (ATM), RK 5, Bullseye, Garrison (IS-TF-153), Jamboree (IS-TF-128), Spyder LS (Z-2000), and Cannavaro (DP 50-9440) (Table 1). Interestingly, Magellan, MVS-341, and PSG-TTST were among entries with the greatest FTC on 14 May 2010 but were among entries with the poorest FTC on 29 October 2009 (Table 1). Thus, these entries had very good recovery despite poor traffic tolerance; these entries also had better spring green-up (> 6.0) (Table 3).

Entries with the least FTC on 14 May 2010 were Raptor II (MVS-TF-158), IS-TF-159, Umbrella (DP 50-9411), Kentucky 31, AST9003 (AST-1), Tahoe II, Terrier (IS-TF-135), Toccoa (IS-TF-151), Trio (IS-TF-152), and Sidewinder (IS-TF-138) (Table 1). Among these entries, Kentucky 31, AST9003 (AST-1), and Tahoe II had the least FTC on 29 October 2009 (Table 1).

Traffic Responses in Summer 2010

Wear tolerance. Entries with the greatest FTC and turfgrass quality after wear on 22 July 2010 were LS 1200 (SC-1), Falcon V (ATM), Catelyst (NA-BT-1), ATE, Jamboree (IS-TF-128), BBM, Cannavaro (DP 50-9440), Bullseye, Firenza, Faith (K06-WA), Firecracker LS (MVS-MST), Monet (LTP-610 CL), Traverse SPR (RK-1), Van Gogh (LTP-RK2), RK 5, Rhambler SRP (Rhambler), Garrison (IS-TF-153), Wolfpack II (PST-5WMB), Speedway (STR-8BPDX), and Essential (IS-TF-154) (Table 2). Kentucky 31 had the poorest turfgrass quality after wear and lowest FTC on 22 July 2010 (Table 2). Other entries exhibiting poor turfgrass quality (< 4.0) and low FTC (< 35.0%) after wear were MVS-341, BAR Fa 6363, Tahoe II, 06-WALK, AST 7001, AST9001 (AST-3), AST9002 (AST-2), AST 7002, Einstein, Plato, Silverado, and Aristotle (Table 2).

Compaction tolerance. Entries with the greatest FTC on 12 August 2010 (8 DAC) were Falcon V (ATM), STR-8BB5, Catelyst (NA-BT-1), Finelawn Xpress (RP 2), Falcon NG (CE 1), Van Gogh (LTP-RK2), Titanium LS (MVS-BB-1), MVS-1107, ATE, Jamboree (IS-TF-128), LS 1200 (SC-1), RK 5, Talladega (RP 3), Justice, Toccoa (IS-TF-151), PSG-85QR, Firecracker LS (MVS-MST), Traverse SPR (RK-1), Cannavaro (DP 50-9440), Shenandoah Elite (RK 6), Bullseye, IS-TF-159, BBM, Tulsa Time (Tulsa III), Pedigree (ATF-1199), Faith (K06-WA), RK 4, Cochise IV (RKCL), Wolfpack II (PST-5WMB), Cezanne Rz (LTP-CRL), Skyline, Garrison (IS-TF-153), GE-1, Col-1, Rhambler SRP (Rhambler), PSG-82BR, Rebel IV, Greenbrooks (TG 50-9460), Monet (LTP-610 CL), Speedway (STR-8BPDX), CE-2, JT-42, CE-4, Rocket (IS-TF-147), and J-130 (Table 2). Entries with the lowest FTC on 12 August 2010 were Einstein, Aristotle, and Kentucky 31 (Table 2).

Recovery from traffic. Cultivars and selections with the greatest FTC and best turfgrass quality at 29 DAC were Falcon V (ATM), Traverse SPR (RK-1), Jamboree (IS-TF-128), Falcon NG (CE 1), Falcon IV, Rebel IV, Finelawn Xpress (RP 2), MVS-1107, Pedigree (ATF-1199), Faith (K06-WA), Wolfpack II (PST-5WMB), Skyline, IS-TF-159, JT-41, RK 5, Tulsa Time (Tulsa III), Firenza, Rhambler SRP (Rhambler), Speedway (STR-8BPDX), J-140, Catelyst (NA-BT-1), Essential (IS-TF-154), ATE, Monet (LTP-610 CL), LS 1200 (SC-1), Justice, CE-2, and STR-8GRQR (Table 2). Entries with the least FTC and poorest turfgrass quality 29 DAC were Terrier (IS-TF-135), Aristotle, and Kentucky 31 (Table 2).

The four cultivars and one experimental selection that had the best turfgrass quality at 57 DAC were LS 1200 (SC-1), Falcon V (ATM), RK 4, Firecracker LS (MVS-MST), and Faith (K06-WA) (Table 2). Kentucky 31 had the poorest turfgrass quality at 57 DAC (Table 2).

Entries with the greatest FTC and best turfgrass quality 83 DAC were LS 1200 (SC-1), Falcon V (ATM), Catelyst (NA-BT-1), Essential (IS-TF-154), Firecracker LS (MVS-MST), Faith (K06-WA), RK 4, Rhambler SRP (Rhambler), and Traverse SPR (RK-1) (Table 2). Kentucky 31 had the least FTC and poorest turfgrass quality at 83 DAC (Table 2). Other entries with low FTC (< 60.0) and reduced turfgrass quality (< 4.0) at 83 DAC were Einstein, PSG-TTST, Aristotle, Silverado, PSG-RNDR, Plato, and 0312 (Table 2).

Non-trafficked Portion of Plots

Tall fescue cultivars and selections that had the greatest multi-year (2007-2010 average) turfgrass quality were Bullseye, Cochise IV (RKCL), Turbo, Catelyst (NA-BT-1), Falcon V (ATM), Wolfpack II (PST-5WMB), Cannavaro (DP 50-9440), RK 5, Mustang 4 (M4), Greenbrooks (TG 50-9460), Firecracker LS (MVS-MST), Speedway (STR-8BPDX), LS 1200 (SC-1), Finelawn Xpress (RP 2), Shenandoah Elite (RK 6), and Faith (K06-WA) (Table 3). Entries with the best average turf quality in 2010 (April-October)

included all those listed for the 2007-2010 multi-year average as well as Hemi, Spyder LS (Z-2000), Shenandoah III (SH 3), Essential (IS-TF-154), IS-TF-159, Sidewinder (IS-TF-138), Van Gogh (LTP-RK2), Jamboree (IS-TF-128), and Talladega (RP 3) (Table 3).

Kentucky 31 had the poorest average turfgrass quality during 2007-2010 (Table 3). Cultivars and selections having only fair turf quality (< 4.0) during 2007-2010 were PSG-TTST, Plato, Aristotle, and Silverado (Table 3).

Entries with the most the rapid spring green-up on 1 April 2010 were Kentucky 31, GO-1BFD, Aristotle, Falcon NG (CE 1), Rembrandt, and Silverado (Table 3). Other entries with good spring green-up (> 7.0) were Traverse SPR (RK-1), Padre, Plato, Catelyst (NA-BT-1), Falcon V (ATM), Wolfpack II (PST-5WMB), Shenandoah III (SH 3), Rhambler SRP (Rhambler), CE-2, Rebel IV, and Lindbergh (Table 3). Entries with delayed spring green-up on 1 April 2010 were Raptor II (MVS-TF-158), Trio (IS-TF-152), Crossfire 3 (Col-J), Terrier (IS-TF-135), Toccoa (IS-TF-151), and Sidewinder (IS-TF-138) (Table 3).

CONCLUSIONS

Entries that exhibited good FTC after wear tended to have good FTC after the addition of compaction. FTC after wear were positively correlated with FTC at 8 DAC (r = 0.84; n = 118). Similarly, FTC means during recovery at 83 DAC were positively correlated with FTC means at 8 DAC (r = 0.74; n = 118). Thus, cultivars and selections that maintained good density after wear also had good density after compaction and during recovery. Park et al. (2009a) concluded that wear tolerance in tall fescue was positively correlated with turfgrass density.

Entries that exhibited good turfgrass quality immediately after wear also had good multi-year average (2007-2010) turfgrass quality (r = 0.79; n = 118). Additionally, FTC means at 8 DAC were positively correlated with multi-year average (2007-2010) turfgrass quality means (r = 0.81; n = 118). These data support results reported by Park et al. (2009a) where the authors found that wear tolerance was positively correlated with turfgrass quality in tall fescue. Data from this current trial also suggests that turfgrass quality is strongly associated with traffic tolerance. Selection of tall fescue cultivars for use on sports field should consider tolerance to traffic stress and recovery as well as turfgrass quality and brown patch disease resistance.

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Table 1. Recovery of tall fescue cultivars and selections subjected to traffic stress in October 2009 in a turf trial seeded in September 2006 at North Brunswick, NJ. (Includes all entries of the 2006 National Turfgrass Evaluation Program (NTEP) Tall Fescue test.)

	Cultivar or Selection	Recovery 190 DAC[1] 28 April 2010	Recovery 206 DAC 14 May 2010	Traffic Tolerance[2] 9 DAC 29 Oct. 2009
			0 to 100% scale[3]	
1	Titanium LS (MVS-BB-1)	48.3	81.7	31.7
2	LS 1200 (SC-1)	46.7	81.7	60.0
3	PSG-85QR	35.0	81.7	30.0
4	CE-2	50.0	80.0	36.7
5	Rebel IV	55.0	78.3	38.3
6	Traverse SPR (RK-1)	46.7	78.3	53.3
7	Falcon IV	43.3	78.3	25.0
8	Firenza	38.3	78.3	38.3
9	Magellan	38.3	78.3	18.3
10	PSG-82BR	43.3	76.7	40.0
11	MVS-1107	43.3	76.7	33.3
12	ATE	41.7	76.7	45.0
13	Tulsa Time (Tulsa III)	41.7	76.7	30.0
14	Hemi	38.3	76.7	36.7
15	Escalade	36.7	76.7	35.0
16	JT-41	35.0	76.7	26.7
17	Falcon NG (CE 1)	58.3	75.0	41.7
18	GO-1BFD	51.7	75.0	26.7
19	Rembrandt	51.7	75.0	25.0
20	Wolfpack II (PST-5WMB)	46.7	75.0	46.7
21	Catelyst (NA-BT-1)	46.7	75.0	45.0
22	Pedigree (ATF-1199)	41.7	75.0	36.7
23	Justice	40.0	75.0	40.0
24	Rocket (IS-TF-147)	38.3	75.0	46.7
25	BBM	38.3	75.0	45.0
26	STR-8GRQR	38.3	75.0	26.7
27	Falcon V (ATM)	36.7	75.0	55.0
28	RK 5	36.7	75.0	50.0
29	Turbo Rz (Burl-TF8)	35.0	75.0	28.3
30	BGR-TF1	33.3	75.0	31.7
31	Reunion (LS-03)	33.3	75.0	25.0
32	BAR Fa 6253	31.7	75.0	23.3
33	MVS-341	30.0	75.0	16.7
34	Biltmore	48.3	73.3	25.0
35	PSG-TTST	45.0	73.3	18.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	Recovery 190 DAC[1] 28 April 2010	Recovery 206 DAC 14 May 2010	Traffic Tolerance[2] 9 DAC 29 Oct. 2009
			0 to 100% scale[3]	
36	06-DUST	41.7	73.3	25.0
37	RK 4	40.0	73.3	45.0
38	GE-1	40.0	73.3	33.3
39	Skyline	35.0	73.3	23.3
40	Finelawn Xpress (RP 2)	33.3	73.3	41.7
41	J-140	33.3	73.3	33.3
42	Padre	43.3	71.7	26.7
43	Bullseye	41.7	71.7	51.7
44	Shenandoah III (SH 3)	40.0	71.7	43.3
45	Rhambler SRP (Rhambler)	38.3	71.7	43.3
46	Titanium	38.3	71.7	28.3
47	PSG-TTRH	38.3	71.7	21.7
48	STR-8BB5	36.7	71.7	33.3
49	AST9002 (AST-2)	31.7	71.7	20.0
50	Speedway (STR-8BPDX)	28.3	71.7	43.3
51	Van Gogh (LTP-RK2)	45.0	70.0	43.3
52	Garrison (IS-TF-153)	41.7	70.0	51.7
53	Plato	41.7	70.0	21.7
54	Honky Tonk (RAD-TF17)	40.0	70.0	31.7
55	CE-4	40.0	70.0	30.0
56	Essential (IS-TF-154)	36.7	70.0	46.7
57	Cezanne Rz (LTP-CRL)	36.7	70.0	35.0
58	SR 8650 (STR-8LMM)	35.0	70.0	35.0
59	Ninja 3 (ATF 1247)	35.0	70.0	23.3
60	AST7003	35.0	70.0	21.7
61	AST9001 (AST-3)	30.0	70.0	21.7
62	JT-33	25.0	70.0	21.7
63	Greenbrooks (TG 50-9460)	40.0	68.3	46.7
64	JT-42	38.3	68.3	28.3
65	Cannavaro (DP 50-9440)	36.7	68.3	50.0
66	Jamboree (IS-TF-128)	35.0	68.3	56.7
67	Faith (K06-WA)	33.3	68.3	46.7
68	Spyder LS (Z-2000)	31.7	68.3	51.7
69	0312	31.7	68.3	21.7
70	Talladega (RP 3)	30.0	68.3	33.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	Recovery 190 DAC[1] 28 April 2010	Recovery 206 DAC 14 May 2010	Traffic Tolerance[2] 9 DAC 29 Oct. 2009
			0 to 100% scale[3]	
71	Fat Cat (IS-TF-161)	26.7	68.3	25.0
72	Silverado	45.0	66.7	15.0
73	Einstein	41.7	66.7	18.3
74	Hunter	36.7	66.7	23.3
75	Hudson (DKS)	31.7	66.7	21.7
76	Stetson II (NA-SS)	30.0	66.7	23.3
77	KZ-2	28.3	66.7	20.0
78	RNP	26.7	66.7	20.0
79	Lindbergh	50.0	65.0	18.3
80	Col-1	45.0	65.0	31.7
81	3rd Millennium SRP	38.3	65.0	30.0
82	Monet (LTP-610 CL)	35.0	65.0	45.0
83	Darlington (CS-TF1)	33.3	65.0	21.7
84	AST1001 (AST-4)	33.3	65.0	15.0
85	06-WALK	33.3	65.0	13.3
86	BGR-TF2	31.7	65.0	25.0
87	PSG-RNDR	31.7	65.0	20.0
88	ATF 1328	30.0	65.0	18.3
89	Compete (LS-06)	30.0	65.0	16.7
90	JT-45	28.3	65.0	33.3
91	Aristotle	41.7	63.3	15.0
92	Firecracker LS (MVS-MST)	35.0	63.3	48.3
93	Corona (Col-M)	31.7	63.3	30.0
94	J-130	30.0	63.3	25.0
95	GWTF	28.3	63.3	18.3
96	KZ-1	26.7	63.3	16.7
97	Mustang 4 (M4)	40.0	61.7	40.0
98	BAR Fa 6363	35.0	61.7	16.7
99	AST 7001	31.7	61.7	10.0
100	Renovate (LS-11)	28.3	61.7	20.0
101	Braveheart (DP 50-9407)	25.0	61.7	31.7
102	Crossfire 3 (Col-J)	35.0	60.0	28.3
103	Gazelle II (PST-5HP)	33.3	60.0	35.0
104	Cochise IV (RKCL)	31.7	60.0	53.3
105	Turbo	30.0	60.0	48.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	Recovery 190 DAC[1] 28 April 2010	Recovery 206 DAC 14 May 2010	Traffic Tolerance[2] 9 DAC 29 Oct. 2009
			0 to 100% scale[3]	
106	Shenandoah Elite (RK 6)	30.0	60.0	40.0
107	AST 7002	30.0	60.0	18.3
108	JT-36	18.3	60.0	18.3
109	Raptor II (MVS-TF-158)	26.7	58.3	30.0
110	Kentucky 31	53.3	56.7	8.3
111	Umbrella (DP 50-9411)	30.0	56.7	30.0
112	IS-TF-159	26.7	56.7	43.3
113	AST9003 (AST-1)	30.0	55.0	16.7
114	Tahoe II	28.3	55.0	16.7
115	Terrier (IS-TF-135)	21.7	51.7	21.7
116	Toccoa (IS-TF-151)	21.7	50.0	26.7
117	Trio (IS-TF-152)	21.7	48.3	33.3
118	Sidewinder (IS-TF-138)	21.7	45.0	36.7
	LSD at 5% =	11.8	13.4	11.3

[1]DAC = days after compaction
[2]Traffic tolerance rated 9 DAC
[3]Fullness of turfgrass canopy using a 0 to 100% scale (0 = absence of a turfgrass canopy to 100 = full canopy)

Table 2. Traffic tolerance and recovery of tall fescue cultivars and selections during summer 2010. The turf trial was seeded in September 2006 at North Brunswick, NJ. (Includes all entries of the 2006 National Turfgrass Evaluation Program (NTEP) Tall Fescue Test.)

	Cultivar or Selection	Before Wear 19 July 2010	Traffic Tolerance[1] 8 DAC[2] 12 Aug. 2010	---Wear Tolerance[3]--- 22 July 2010	22 July 2010	----------Recovery---------- 29 DAC 2 Sept. 2010	57 DAC 30 Sept. 2010	83 DAC 26 Oct. 2010	29 DAC 2 Sept. 2010	83 DAC 26 Oct. 2010
		---------0 to 100% scale[4]---------			---------- 1 to 9 scale[5]----------				---0 to 100% scale---	
1	Falcon V (ATM)	85.0	65.0	70.0	7.7	7.7	8.0	7.7	63.3	86.7
2	STR-8BB5	93.3	63.3	56.7	6.0	6.0	4.7	6.3	48.3	71.7
3	Catelyst (NA-BT-1)	93.3	61.7	66.7	7.3	7.0	6.7	7.7	53.3	85.0
4	Van Gogh (LTP-RK2)	86.7	61.7	61.7	6.3	5.7	6.0	6.7	53.3	70.0
5	Falcon NG (CE 1)	85.0	61.7	56.7	5.7	8.3	6.0	5.7	60.0	75.0
6	Finelawn Xpress (RP 2)	86.7	61.7	55.0	6.0	7.3	6.0	6.3	58.3	80.0
7	Titanium LS (MVS-BB-1)	91.7	60.0	56.7	6.3	6.0	6.0	6.7	56.7	73.3
8	MVS-1107	88.3	60.0	55.0	6.0	7.3	6.0	6.3	58.3	73.3
9	ATE	81.7	58.3	66.7	7.3	6.7	6.7	7.3	53.3	78.3
10	Jamboree (IS-TF-128)	91.7	58.3	66.7	6.7	6.7	6.0	6.7	61.7	75.0
11	LS 1200 (SC-1)	91.7	56.7	70.0	7.7	6.3	8.3	8.7	53.3	91.7
12	RK 5	90.0	56.7	61.7	6.3	6.3	6.7	7.3	56.7	76.7
13	Justice	80.0	56.7	55.0	6.0	6.3	5.3	5.0	53.3	73.3
14	Talladega (RP 3)	86.7	56.7	53.3	5.7	6.0	6.0	6.7	51.7	75.0
15	Toccoa (IS-TF-151)	85.0	56.7	53.3	5.7	4.7	5.7	6.0	43.3	71.7
16	PSG-85QR	86.7	56.7	51.7	5.7	6.0	5.0	5.7	48.3	70.0
17	Cannavaro (DP 50-9440)	90.0	55.0	65.0	7.0	5.0	6.0	7.7	48.3	78.3
18	BBM	81.7	55.0	65.0	7.3	6.0	5.0	6.3	53.3	71.7
19	Bullseye	83.3	55.0	63.3	7.0	5.7	6.3	7.3	50.0	75.0
20	Firecracker LS (MVS-MST)	93.3	55.0	61.7	7.0	6.0	7.3	8.0	56.7	81.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	Before Wear 19 July 2010	Traffic Tolerance[1] 8 DAC[2] 12 Aug. 2010	---Wear Tolerance[3]--- 22 July 2010	22 July 2010	Recovery 29 DAC 2 Sept. 2010	57 DAC 30 Sept. 2010	83 DAC 26 Oct. 2010	29 DAC 2 Sept. 2010	83 DAC 26 Oct. 2010
		---------0 to 100% scale[4]---------			---------- 1 to 9 scale[5]----------				---0 to 100% scale---	
21	Traverse SPR (RK-1)	83.3	55.0	61.7	6.7	7.7	6.3	7.3	61.7	80.0
22	IS-TF-159	85.0	55.0	56.7	7.0	7.0	6.0	6.7	56.7	75.0
23	Pedigree (ATF-1199)	83.3	55.0	55.0	6.3	6.7	5.0	4.7	58.3	65.0
24	Shenandoah Elite (RK 6)	91.7	55.0	53.3	6.0	5.7	5.7	7.3	48.3	78.3
25	Tulsa Time (Tulsa III)	93.3	55.0	50.0	5.3	6.7	5.7	5.3	55.0	70.0
26	Faith (K06-WA)	90.0	53.3	61.7	7.3	6.7	7.0	8.3	58.3	80.0
27	Wolfpack II (PST-5WMB)	86.7	53.3	60.0	6.3	6.7	6.7	6.3	58.3	75.0
28	Garrison (IS-TF-153)	90.0	53.3	60.0	6.7	5.0	6.0	6.7	46.7	70.0
29	RK 4	90.0	53.3	56.7	6.0	6.0	7.7	7.7	48.3	80.0
30	Cochise IV (RKCL)	83.3	53.3	56.7	5.7	5.7	6.7	8.0	51.7	78.3
31	Cezanne Rz (LTP-CRL)	76.7	53.3	51.7	5.0	5.7	5.3	5.3	56.7	71.7
32	GE-1	80.0	53.3	51.7	5.3	5.3	5.7	5.3	56.7	66.7
33	Skyline	80.0	53.3	50.0	5.3	6.3	5.7	4.7	58.3	71.7
34	Col-1	83.3	53.3	46.7	5.0	4.0	4.3	4.7	41.7	65.0
35	Rhambler SRP (Rhambler)	85.0	51.7	61.7	6.3	6.3	6.3	7.7	55.0	80.0
36	Monet (LTP-610 CL)	88.3	51.7	61.7	6.7	6.7	6.3	6.7	53.3	71.7
37	Speedway (STR-8BPDX)	85.0	51.7	58.3	6.7	6.3	6.0	6.7	55.0	71.7
38	Greenbrooks (TG 50-9460)	80.0	51.7	55.0	5.7	5.3	6.3	7.3	50.0	71.7
39	PSG-82BR	91.7	51.7	53.3	5.7	6.0	5.7	7.0	63.3	75.0
40	CE-2	81.7	51.7	53.3	5.7	6.3	5.3	6.3	53.3	68.3

(Continued)

Table 2 (continued).

	Cultivar or Selection	Before Wear 19 July 2010	Traffic Tolerance[1] 8 DAC[2] 12 Aug. 2010	---Wear Tolerance[3]--- 22 July 2010	22 July 2010	Recovery 29 DAC 2 Sept. 2010	57 DAC 30 Sept. 2010	83 DAC 26 Oct. 2010	29 DAC 2 Sept. 2010	83 DAC 26 Oct. 2010
		---------0 to 100% scale[4]---------			---------- 1 to 9 scale[5]----------				---0 to 100% scale---	
41	CE-4	80.0	51.7	53.3	5.0	6.0	5.3	4.7	56.7	66.7
42	JT-42	78.3	51.7	53.3	6.0	6.0	5.0	5.3	48.3	66.7
43	Rocket (IS-TF-147)	80.0	51.7	53.3	5.3	5.3	5.0	6.0	53.3	65.0
44	Rebel IV	80.0	51.7	50.0	5.7	7.0	5.7	5.7	60.0	73.3
45	J-130	80.0	51.7	46.7	5.0	4.3	4.3	4.7	43.3	65.0
46	Essential (IS-TF-154)	90.0	50.0	58.3	6.3	7.0	6.7	7.3	53.3	83.3
47	Shenandoah III (SH 3)	86.7	50.0	58.3	5.7	6.0	6.7	8.0	53.3	70.0
48	SR 8650 (STR-8LMM)	83.3	50.0	51.7	5.7	5.3	5.0	6.0	45.0	66.7
49	Spyder LS (Z-2000)	81.7	50.0	51.7	6.0	5.7	5.7	6.0	55.0	65.0
50	Escalade	80.0	50.0	48.3	5.7	6.0	5.3	6.0	55.0	65.0
51	Rembrandt	73.3	50.0	48.3	5.7	5.7	5.0	4.3	51.7	61.7
52	Falcon IV	81.7	50.0	46.7	5.7	7.3	5.7	6.3	60.0	71.7
53	STR-8GRQR	78.3	50.0	46.7	5.0	6.3	5.0	5.7	51.7	68.3
54	Hunter	78.3	50.0	46.7	5.3	4.7	4.3	3.7	45.0	60.0
55	06-DUST	78.3	50.0	43.3	4.7	5.3	4.0	4.3	41.7	61.7
56	JT-41	83.3	50.0	40.0	4.3	7.0	5.3	5.3	56.7	70.0
57	Firenza	90.0	48.3	63.3	6.7	6.7	5.7	6.7	55.0	78.3
58	Mustang 4 (M4)	81.7	48.3	53.3	5.7	5.7	5.3	5.7	51.7	70.0
59	Raptor II (MVS-TF-158)	81.7	48.3	45.0	5.3	5.3	5.0	6.3	55.0	75.0
60	JT-45	80.0	48.3	45.0	5.3	5.7	5.3	5.3	50.0	61.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	Before Wear 19 July 2010	Traffic Tolerance[1] 8 DAC[2] 12 Aug. 2010	---Wear Tolerance[3]--- 22 July 2010	22 July 2010	Recovery 29 DAC 2 Sept. 2010	57 DAC 30 Sept. 2010	83 DAC 26 Oct. 2010	29 DAC 2 Sept. 2010	83 DAC 26 Oct. 2010
		---------0 to 100% scale[4]---------			---------- 1 to 9 scale[5]----------				---0 to 100% scale---	
61	Crossfire 3 (Col-J)	76.7	48.3	45.0	4.3	3.7	4.3	4.7	43.3	60.0
62	GO-1BFD	75.0	46.7	45.0	5.0	5.0	5.0	5.3	43.3	61.7
63	Hemi	85.0	46.7	43.3	4.7	6.0	5.3	7.3	48.3	73.3
64	Padre	80.0	46.7	43.3	5.0	5.7	4.3	4.3	46.7	60.0
65	BGR-TF2	76.7	46.7	40.0	4.7	5.0	5.0	5.0	53.3	66.7
66	Tahoe II	75.0	46.7	35.0	3.7	4.0	4.7	4.7	45.0	63.3
67	Trio (IS-TF-152)	78.3	45.0	53.3	5.0	5.0	5.0	6.0	45.0	68.3
68	Gazelle II (PST-5HP)	83.3	45.0	50.0	5.7	5.7	5.3	6.3	48.3	66.7
69	KZ-2	76.7	45.0	48.3	5.7	5.3	4.7	5.0	46.7	70.0
70	BAR Fa 6253	80.0	45.0	46.7	5.0	4.3	5.3	4.3	43.3	68.3
71	Compete (LS-06)	83.3	45.0	46.7	5.0	5.7	6.0	5.3	46.7	65.0
72	Magellan	73.3	45.0	41.7	4.3	3.7	4.7	4.7	38.3	68.3
73	JT-33	75.0	45.0	41.7	5.0	5.3	4.7	4.7	46.7	61.7
74	Darlington (CS-TF1)	76.7	45.0	41.7	5.3	3.7	3.0	4.0	38.3	56.7
75	Sidewinder (IS-TF-138)	78.3	43.3	55.0	5.7	5.7	5.7	6.3	50.0	71.7
76	J-140	85.0	43.3	50.0	5.0	6.3	5.7	7.0	55.0	80.0
77	GWTF	81.7	43.3	50.0	5.3	5.7	5.0	4.7	43.3	65.0
78	BGR-TF1	78.3	43.3	48.3	5.7	5.3	5.3	5.0	46.7	65.0
79	Turbo Rz (Burl-TF8)	76.7	43.3	48.3	5.0	5.3	5.3	5.7	43.3	65.0
80	3rd Millennium SRP	80.0	43.3	46.7	5.7	6.0	5.7	5.7	46.7	66.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	Before Wear 19 July 2010	Traffic Tolerance[1] 8 DAC[2] 12 Aug. 2010	---Wear Tolerance[3]--- 22 July 2010	22 July 2010	Recovery 29 DAC 2 Sept. 2010	57 DAC 30 Sept. 2010	83 DAC 26 Oct. 2010	29 DAC 2 Sept. 2010	83 DAC 26 Oct. 2010
		---------0 to 100% scale[4]---------			---------- 1 to 9 scale[5]----------				---0 to 100% scale---	
81	Biltmore	78.3	43.3	46.7	5.0	5.3	4.7	4.7	43.3	61.7
82	PSG-TTST	71.7	43.3	43.3	4.7	5.0	3.3	3.7	41.7	53.3
83	PSG-RNDR	80.0	43.3	41.7	4.7	4.7	4.0	3.0	38.3	53.3
84	Honky Tonk (RAD-TF17)	78.3	41.7	48.3	5.3	4.7	4.7	4.3	45.0	60.0
85	AST1001 (AST-4)	80.0	41.7	45.0	4.7	4.7	4.3	5.3	45.0	58.3
86	Corona (Col-M)	83.3	41.7	41.7	4.7	4.7	4.3	4.3	43.3	63.3
87	RNP	78.3	41.7	40.0	4.7	5.3	4.3	4.0	50.0	55.0
88	PSG-TTRH	81.7	41.7	38.3	4.0	3.3	3.3	4.3	38.3	60.0
89	Umbrella (DP 50-9411)	68.3	40.0	43.3	4.3	5.0	5.7	6.0	43.3	66.7
90	AST7003	78.3	40.0	41.7	4.7	5.0	4.7	5.0	46.7	60.0
91	Lindbergh	76.7	40.0	40.0	4.0	4.0	3.3	4.0	43.3	55.0
92	Ninja 3 (ATF 1247)	78.3	40.0	38.3	3.7	5.0	5.0	5.3	45.0	60.0
93	JT-36	78.3	40.0	36.7	3.7	5.0	5.3	4.3	48.3	66.7
94	AST9001 (AST-3)	75.0	40.0	35.0	3.7	4.3	5.0	5.7	41.7	63.3
95	Turbo	85.0	38.3	55.0	6.0	6.0	6.3	6.3	48.3	66.7
96	Titanium	78.3	38.3	50.0	5.0	5.0	4.7	4.0	45.0	66.7
97	Renovate (LS-11)	76.7	38.3	46.7	5.0	4.3	4.7	5.3	43.3	66.7
98	AST9003 (AST-1)	78.3	38.3	46.7	5.0	4.0	4.3	5.3	43.3	58.3
99	Hudson (DKS)	80.0	38.3	41.7	4.3	5.3	4.7	4.3	43.3	60.0
100	Fat Cat (IS-TF-161)	80.0	38.3	40.0	4.7	5.0	4.3	5.7	45.0	66.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	Before Wear 19 July 2010	Traffic Tolerance[1] 8 DAC[2] 12 Aug. 2010	---Wear Tolerance[3]--- 22 July 2010	22 July 2010	Recovery 29 DAC 2 Sept. 2010	57 DAC 30 Sept. 2010	83 DAC 26 Oct. 2010	29 DAC 2 Sept. 2010	83 DAC 26 Oct. 2010
		---------0 to 100% scale[4]---------			---------- 1 to 9 scale[5]----------				---0 to 100% scale---	
101	KZ-1	75.0	38.3	36.7	4.0	4.7	3.7	4.7	38.3	61.7
102	0312	70.0	38.3	36.7	3.7	3.7	3.7	3.0	40.0	53.3
103	06-WALK	76.7	38.3	35.0	3.7	4.0	3.7	4.3	41.7	56.7
104	BAR Fa 6363	70.0	38.3	33.3	4.0	5.0	3.3	4.0	40.0	55.0
105	Braveheart (DP 50-9407)	81.7	36.7	50.0	5.3	5.0	4.7	6.0	43.3	66.7
106	Terrier (IS-TF-135)	81.7	36.7	36.7	3.7	3.0	4.3	4.0	33.3	58.3
107	MVS-341	76.7	36.7	35.0	4.0	4.0	4.7	5.0	40.0	68.3
108	Reunion (LS-03)	80.0	35.0	40.0	4.3	4.7	4.3	4.3	45.0	55.0
109	ATF 1328	73.3	35.0	38.3	3.7	4.0	4.7	5.0	41.7	63.3
110	Stetson II (NA-SS)	75.0	35.0	38.3	4.3	4.3	4.0	5.0	33.3	61.7
111	AST 7002	71.7	35.0	35.0	3.3	4.7	4.3	5.0	38.3	66.7
112	AST 7001	78.3	35.0	35.0	3.7	4.3	4.3	5.3	40.0	65.0
113	Plato	70.0	35.0	35.0	3.0	4.0	3.7	3.0	41.7	53.3
114	AST9002 (AST-2)	76.7	33.3	33.3	3.7	4.3	4.7	5.0	36.7	70.0
115	Silverado	68.3	33.3	31.7	3.0	3.3	2.7	3.3	38.3	45.0
116	Einstein	71.7	30.0	33.3	3.3	4.7	4.0	3.7	41.7	56.7
117	Aristotle	63.3	26.7	23.3	2.7	2.0	2.7	3.3	30.0	50.0
118	Kentucky 31	53.3	18.3	10.0	1.0	1.3	1.0	1.0	21.7	33.3

(Continued)

Table 2 (continued).

Cultivar or Selection	Before Wear 19 July 2010	Traffic Tolerance[1] 8 DAC[2] 12 Aug. 2010	---Wear Tolerance[3]--- 22 July 2010	22 July 2010	Recovery 29 DAC 2 Sept. 2010	57 DAC 30 Sept. 2010	83 DAC 26 Oct. 2010	29 DAC 2 Sept. 2010	83 DAC 26 Oct. 2010
	---------0 to 100% scale[4]---------			---------- 1 to 9 scale[5]----------				---0 to 100% scale---	
LSD at 5% =	10.1	14.7	12.2	1.6	2.2	1.5	1.4	13.8	11.8

[1] Traffic tolerance rated after 10 compaction passes
[2] DAC = days after compaction
[3] Wear tolerance rated after 24 passes of the wear simulator
[4] Fullness of turfgrass canopy using a 0 to 100% scale (0 = absence of a turfgrass canopy to 100 = full canopy)
[5] Turf quality under wear and traffic stresses rated on a 1 to 9 scale where 9 = fullest turfgrass canopy and most uniform ground cover after wear and traffic stresses

Table 3. Performance of tall fescue cultivars and selections without traffic stress in a turf trial seeded in September 2006 at North Brunswick, NJ. (Includes all entries of the 2006 National Turfgrass Evaluation Program (NTEP) Tall Fescue Test.)

	Cultivar or Selection	Turfgrass Quality[1] 2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Spring Green-up[2] 1 April 2010
1	Bullseye	8.2	7.9	8.4	8.2	8.1	5.3
2	Cochise IV (RKCL)	8.0	7.3	8.1	8.2	8.4	6.3
3	Turbo	7.8	7.1	8.0	7.9	8.2	6.3
4	Catelyst (NA-BT-1)	7.8	7.2	8.0	7.9	8.0	7.0
5	Falcon V (ATM)	7.7	7.4	7.7	8.0	7.8	7.0
6	Wolfpack II (PST-5WMB)	7.7	7.1	7.9	8.2	7.6	7.0
7	RK 5	7.7	7.3	7.8	7.8	7.7	6.0
8	Cannavaro (DP 50-9440)	7.7	7.2	8.0	7.2	8.2	4.3
9	Mustang 4 (M4)	7.5	6.7	7.7	8.2	7.6	5.0
10	Greenbrooks (TG 50-9460)	7.5	7.3	7.7	7.4	7.5	6.3
11	Firecracker LS (MVS-MST)	7.5	7.4	7.8	7.4	7.5	5.3
12	Speedway (STR-8BPDX)	7.4	7.0	7.5	7.5	7.7	6.7
13	LS 1200 (SC-1)	7.4	7.4	7.0	7.6	7.6	6.7
14	Finelawn Xpress (RP 2)	7.4	6.6	7.3	7.6	8.2	6.3
15	Faith (K06-WA)	7.4	6.5	7.6	7.8	7.8	6.0
16	Shenandoah Elite (RK 6)	7.4	6.8	7.7	7.5	7.6	6.0
17	Monet (LTP-610 CL)	7.3	7.5	7.5	7.3	7.2	6.0
18	Hemi	7.3	7.1	7.4	7.1	7.6	5.0
19	Spyder LS (Z-2000)	7.3	7.4	6.7	7.6	7.6	5.0
20	Shenandoah III (SH 3)	7.3	6.8	7.0	7.7	7.5	7.0
21	Essential (IS-TF-154)	7.3	7.3	7.1	7.3	7.4	5.7
22	RK 4	7.3	6.8	7.0	7.9	7.3	6.0
23	IS-TF-159	7.3	6.5	7.7	7.2	7.6	4.7
24	Van Gogh (LTP-RK2)	7.2	6.2	6.9	8.0	8.0	6.7
25	Firenza	7.1	6.6	7.4	7.2	7.3	6.3

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turfgrass Quality[1] 2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Spring Green-up[2] 1 April 2010
26	Jamboree (IS-TF-128)	7.1	6.7	7.0	7.1	7.5	5.0
27	Rhambler SRP (Rhambler)	7.0	7.0	7.4	6.7	6.9	7.0
28	Talladega (RP 3)	7.0	6.9	6.7	7.1	7.4	6.3
29	3rd Millennium SRP	7.0	6.7	7.2	7.0	7.0	5.3
30	Garrison (IS-TF-153)	7.0	6.2	7.1	7.6	7.3	4.7
31	ATE	6.8	7.0	6.7	6.6	6.9	6.0
32	Traverse SPR (RK-1)	6.8	6.2	6.6	7.1	7.1	7.3
33	Rocket (IS-TF-147)	6.8	6.0	6.8	7.0	7.2	4.3
34	Raptor II (MVS-TF-158)	6.8	6.7	6.8	6.6	7.0	3.3
35	J-140	6.7	6.4	6.5	6.8	7.2	6.3
36	Braveheart (DP 50-9407)	6.7	6.5	7.3	6.6	6.6	6.0
37	STR-8BB5	6.7	6.4	6.7	6.7	7.2	5.7
38	Sidewinder (IS-TF-138)	6.6	6.3	6.0	6.7	7.6	2.0
39	BBM	6.6	6.3	6.5	6.5	7.3	4.7
40	SR 8650 (STR-8LMM)	6.5	6.3	6.4	6.9	6.5	5.0
41	PSG-82BR	6.4	5.9	6.2	6.8	6.9	6.3
42	Gazelle II (PST-5HP)	6.3	5.8	6.5	6.3	6.5	4.7
43	Escalade	6.2	6.6	6.5	6.2	5.7	5.7
44	Corona (Col-M)	6.2	5.7	5.8	6.5	6.9	4.7
45	Reunion (LS-03)	6.2	6.0	5.9	6.2	6.6	5.3
46	Titanium LS (MVS-BB-1)	6.1	5.9	6.0	6.3	6.4	6.3
47	Trio (IS-TF-152)	6.1	5.9	6.1	5.7	6.7	3.3
48	Falcon NG (CE 1)	6.0	6.0	6.3	6.1	5.6	7.7
49	Cezanne Rz (LTP-CRL)	6.0	5.6	6.0	6.4	6.2	6.3
50	BGR-TF1	6.0	6.0	6.3	6.3	5.6	4.7

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turfgrass Quality[1] 2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Spring Green-up[2] 1 April 2010
51	JT-45	6.0	5.5	6.2	5.8	6.6	4.3
52	CE-2	6.0	6.2	6.4	5.6	5.8	7.0
53	J-130	6.0	5.7	5.9	6.2	6.1	5.0
54	Umbrella (DP 50-9411)	6.0	5.8	5.7	6.0	6.3	4.7
55	Compete (LS-06)	6.0	5.6	6.6	5.7	6.0	4.7
56	Terrier (IS-TF-135)	6.0	5.8	6.0	5.7	6.3	3.0
57	BAR Fa 6253	5.9	5.5	6.7	5.1	6.2	5.7
58	RNP	5.9	6.2	5.9	5.5	5.9	5.0
59	PSG-85QR	5.9	5.3	6.1	5.8	6.4	5.3
60	GE-1	5.8	5.8	5.5	6.1	6.0	6.0
61	JT-41	5.8	6.1	5.3	5.9	6.0	4.3
62	Rebel IV	5.8	6.1	5.5	5.4	6.1	7.0
63	CE-4	5.7	6.2	5.8	5.2	5.9	6.7
64	Tulsa Time (Tulsa III)	5.7	5.4	5.4	5.8	6.3	5.0
65	KZ-1	5.7	5.7	5.7	5.5	6.0	4.7
66	Hudson (DKS)	5.7	6.2	5.7	5.1	5.9	4.7
67	Padre	5.7	5.7	5.8	5.5	5.8	7.3
68	AST9001 (AST-3)	5.7	5.9	5.8	5.6	5.5	4.3
69	Renovate (LS-11)	5.7	5.3	5.8	6.1	5.5	4.0
70	Justice	5.7	5.2	5.2	5.8	6.3	6.7
71	Fat Cat (IS-TF-161)	5.7	5.7	6.0	5.2	5.7	4.3
72	AST7003	5.6	5.8	5.0	5.6	6.1	3.7
73	Skyline	5.6	5.2	5.6	5.7	5.9	5.0
74	Pedigree (ATF-1199)	5.6	5.0	5.8	5.8	5.8	5.0
75	JT-42	5.6	5.6	5.7	5.2	5.8	4.0

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turfgrass Quality[1] 2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Spring Green-up[2] 1 April 2010
76	AST9003 (AST-1)	5.6	5.1	6.2	5.6	5.6	3.7
77	AST1001 (AST-4)	5.6	5.9	5.7	5.2	5.3	4.3
78	Toccoa (IS-TF-151)	5.6	5.6	6.0	5.1	5.5	2.3
79	Col-1	5.5	5.1	5.6	5.4	5.9	5.7
80	Crossfire 3 (Col-J)	5.5	5.7	5.3	5.4	5.6	3.3
81	Falcon IV	5.5	5.8	4.8	5.5	5.8	6.3
82	Ninja 3 (ATF 1247)	5.5	5.1	5.9	5.4	5.5	5.7
83	Honky Tonk (RAD-TF17)	5.5	5.5	5.4	5.4	5.5	5.3
84	KZ-2	5.5	5.5	5.2	5.5	5.6	4.3
85	MVS-1107	5.4	4.8	5.9	5.4	5.7	6.3
86	JT-36	5.4	5.5	5.5	4.9	5.8	4.0
87	Titanium	5.4	5.2	5.7	5.3	5.3	6.0
88	06-DUST	5.4	5.1	5.6	5.5	5.3	6.0
89	ATF 1328	5.3	5.5	4.8	5.4	5.7	5.0
90	AST9002 (AST-2)	5.3	6.0	5.2	4.9	5.4	4.0
91	Turbo Rz (Burl-TF8)	5.3	5.3	5.3	5.2	5.5	6.7
92	GWTF	5.3	5.3	5.3	5.2	5.2	4.7
93	Darlington (CS-TF1)	5.2	5.7	6.0	4.1	5.1	4.3
94	Stetson II (NA-SS)	5.2	5.1	5.3	5.0	5.4	5.3
95	AST 7002	5.2	5.1	5.6	5.0	5.1	5.3
96	Tahoe II	5.2	5.7	5.4	4.6	5.0	5.0
97	BGR-TF2	5.2	5.3	4.7	5.2	5.4	3.7
98	MVS-341	5.1	5.6	5.1	4.7	5.2	6.0
99	JT-33	5.1	5.6	5.2	4.6	5.1	3.7
100	0312	5.1	5.3	4.5	5.0	5.7	4.3

(Continued)

Table 3 (continued).

	Cultivar or Selection	Turfgrass Quality[1] 2007-2010 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Spring Green-up[2] 1 April 2010
101	Biltmore	5.0	4.9	4.6	5.0	5.3	6.0
102	Hunter	4.9	5.0	4.6	4.8	5.1	6.0
103	Rembrandt	4.8	5.4	4.8	5.0	4.3	7.7
104	PSG-TTRH	4.8	4.9	5.0	4.3	5.0	4.7
105	AST 7001	4.8	5.0	5.1	4.1	4.9	5.0
106	06-WALK	4.7	5.1	5.0	4.3	4.3	6.0
107	STR-8GRQR	4.7	4.6	4.9	4.1	5.1	5.3
108	Einstein	4.5	5.2	4.2	4.5	4.2	6.7
109	Magellan	4.5	4.8	4.4	3.9	4.7	6.3
110	BAR Fa 6363	4.5	4.5	4.6	4.3	4.5	4.7
111	PSG-RNDR	4.4	4.1	4.0	4.5	4.8	3.7
112	GO-1BFD	4.2	4.2	4.5	4.3	3.8	8.0
113	Lindbergh	4.0	4.3	4.4	3.7	3.7	7.0
114	PSG-TTST	3.9	4.2	3.9	3.4	3.9	6.7
115	Plato	3.7	4.3	4.0	3.1	3.3	7.3
116	Aristotle	3.4	3.9	4.0	2.8	2.9	8.0
117	Silverado	3.0	3.5	3.4	2.7	2.5	7.7
118	Kentucky 31	1.1	1.1	1.1	1.0	1.0	9.0
	LSD at 5% =	0.8	1.0	1.2	1.2	1.0	1.5

[1]9 = best turfgrass quality
[2]9 = earliest spring green-up