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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

RESPONSE OF KENTUCKY BLUEGRASS TO WEAR STRESS IN 2010

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Selection 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 is one option that sports field managers can employ to maximize the safety and playability of sports fields and other recreational sites subjected to intense use.

Kentucky bluegrass is frequently established on lawns, parks, cemeteries, institutional grounds, and other comparable general purpose lawn areas; its extensive rhizome development makes Kentucky bluegrass well-adapted for use on sports fields and other heavily trafficked surfaces (Beard, 1973). Puhalla et al. (1999) notes that Kentucky bluegrass is one of the most commonly used turfgrass species in sports fields grown in cool season climates.

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

Studies have been conducted to assess the tolerance of newer Kentucky bluegrass cultivars to wear and traffic (wear and compaction) stresses (Brosnan et. al., 2005; Park et. al., 2005). Recently, a study assessed the effect of time of year on the wear tolerance and recovery of cultivars representing a diverse range of Kentucky bluegrass types (Park et al., 2010b). Furthermore, Park et al. (2007, 2008, 2009, 2010a) reported on the effect of fall, summer, and spring-applied wear on cultivars and selections including those in the 2005 National Turfgrass Evaluation Program (NTEP) Kentucky Bluegrass Test.

Kentucky bluegrass cultivar recommendations are needed for sports fields that receive play at a specific time of the year (spring, summer, or fall). The objectives of this study were to assess the tolerance and recovery of Kentucky bluegrass to wear applied in May (spring) 2010.

MATERIALS AND METHODS

Evaluation Trial

Entries of the 2005 NTEP Kentucky bluegrass trial, established in September 2005, were evaluated for wear tolerance and recovery from wear applied in May (spring) 2010. Also included in the test were the following cultivars and experimental selections: Princeton 105, A00-99, Midnight II, A93-201, A99-3122, A97-1560, A96-1368, A99-2427, A99-523, A99-2377, and A03-66. Entries were arranged in a randomized complete block design and replicated three times.

Wear was previously applied to this test in October 2006 (Park et al., 2007), July 2007 (Park et al., 2008), April and November 2008 (Park et al., 2009), and July 2009 (Park et al., 2010a). The test was conducted on a well-drained Nixon loam (sand = 44%; silt = 41%; clay = 15%) at the Horticultural Research Farm II in North Brunswick, NJ. Individual plot size was 9 x 5 ft. Soil test results from 2010 indicated that the soil pH was 6.2; soil phosphorous (P) was 255 lb/acre; and soil potassium (K) was 197 lb/acre. The test was mowed 2 to 3 times per week

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with a reel mower at a height of 1.5-inch. The test was irrigated as necessary to avoid severe drought stress. Annual nitrogen (N) applications for 2010 totaled 1.6 lb/1000 ft^2 (0.6, 0.4, and 0.6 lb N/1000 ft^2 on 8 April, 23 April, and 1 June 2010, respectively).

Spring Wear Treatment

Wear was applied with a modified version of the 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.

The wear treatment in May (spring) 2010 consisted of 36 passes with the wear simulator applied on 5 (18 passes) and 6 (18 passes) May 2010 to the one-third portion of each plot that received wear in previous years. Every other pass was made in the opposing direction of the previous pass

Plot Evaluation

Before the initiation of wear, fullness of turfgrass canopy (FTC) was rated on 4 May 2010 using a 0 to 100% scale where 0% = the absence of a turfgrass canopy and 100% = a full canopy. Wear tolerance was evaluated after 36 passes of the simulator on 6 May 2010 by assessing FTC and turfgrass quality using a 1 to 9 scale (where 9 = the most dense, uniform turfgrass canopy). Recovery was assessed at 8, 22, and 49 days after wear (DAW) on 14 and 28 May 2010 and 24 June 2010, respectively. Turfgrass quality was evaluated during recovery on 24 June 2010.

The non-wear 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 and susceptibility to dollar spot (caused by *Sclerotinia homoeocarpa* F.T. Bennett) and summer patch (caused by *Magnaporthe poae* Landschoot and Jackson) were also assessed. A 1 to 9 scale was utilized for these ratings where 9 equaled the earliest spring green-up or the least disease susceptibility.

All data were subjected to analysis of variance and means were separated using the Fisher's protected least significant difference.

RESULTS AND DISCUSSION

Response of Kentucky Bluegrass to Wear During Spring 2010

Cultivars and selections with the best FTC and turfgrass quality after 36 passes of the wear simulator were Greenteam (CPP 821), BAR VV 0709, Bariris, Sombrero (CP 76-9068), BAR VV 9630, and Julia (Table 1). Additional entries with the best turfgrass quality after 36 passes were Emblem (PST-Y2K-169), CPP 822, Barrari (BAR VV 9634), Barduke (BAR VV 8536), SW AG 514, MSP 3722, Aries (A98-948), Jump Start (PST-109-752), Prosperity, A00-247, and A96-1368 (Table 1).

Entries with the lowest FTC and poorest turfgrass quality after wear were A99-3122, Rhapsody (A97-1287), Bd 03-84, Moonlight SLT (PST-101-390), 1QG-38, Aviator (NA-3259), Pinot (LTP-149), Ginney II (J-2024), Juliet (Bd 95-1930), Glenmont, A95-410, J-2502, Alexa II (J-2404), Touche (STR 23180), NuChicago (J-1466), J-1334, LS 4000 (RAD-343), Skye, BAR VV 0665, Zinfandel (LTP 2949), Hampton (Bd 03-159), Aura (A99-2559), Rhythm, Beyond, STR 2485, Solar Eclipse (J-2399), Bd 99-2103, Madison (RAD-0AN64), Dynamo, America, H98-701, Empire (A01-299), A00-1400, H94-305, and Avid (Table 1).

Cultivars and selections exhibiting the greatest FTC at 8 and 22 DAW were Greenteam (CPP 821), Bariris, A96-1368, BAR VV 0709, Julia, Sombrero (CP 76-9068), and Barrari (BAR VV 9634) (Table 1). Entries exhibiting the best FTC and turfgrass quality at 49 DAW were BAR VV 0709, CPP 822, Greenteam (CPP 821), Sombrero (CP 76-9068), RAD-762, Bariris, Julia, Barduke (BAR VV 8536), Aries (A98-948), and Barrari (BAR VV 9634) (Table 1).

Forty-four entries had the least FTC at 8 DAW, and by 22 DAW, twenty of these poorest performers at 8 DAW had exhibited recovery and were no longer in the bottom statistical grouping (Table 1). Moreover, at 49 DAW (24 June 2010) only ten entries were in the bottom category for FTC including J-1334, Solar Eclipse (J-2399), Zinfandel (LTP 2949), Rhythm, America, A00-1400, H98-701, Empire (A01-299), Bd 99-2103, and Avid (Table 1).

Overall, these data indicate that many entries exhibited very good recovery after spring wear.

Cultivar Performance Without Wear

Kentucky bluegrass cultivars and selections with the best average multiyear turfgrass quality (2006-2010) were Excursion, Impact, Nu Destiny, Midnight II, Midnight, Sudden Impact (J-2870), Everglade, Alexa II (J-2404), Everest, Granite (J-1326), Award, Solar Eclipse (J-2399), Ginney II (J-2024), and Skye (Table 2). The poorest turf quality during the test (2006-2010 average) was exhibited by Dynamo and Kenblue (Table 2).

Fifty-nine cultivars and selections exhibited the least dollar spot disease on 22 July 2010 (Table 2). Among these cultivars, the following had limited dollar spot infection (> 7.0): Bewitched, SPTR 2959, MSP 3722, Bd 99-2103, Armada (PSG 366), MSP 3723, Blue Note (A01-349), A00-247, Bd 98-2108, STR 2553, Aries (A98-948), Excursion, Alexa II (J-2404), MSP 3724, Belissimo, Hampton (Bd 03-159), 1QG-38, Argos, Juliet (Bd 95-1930), Zinfandel (LTP 2949), Empire (A01-299), and H98-701 (Table 2).

Cultivars and selections with the greatest dollar spot disease on 22 July 2010 were Rubicon (NA-3248), A00-1254, Greenteam (CPP 821), Prosperity, Sombrero (CP 76-9068), 4-Season (J-2791), Moonlight SLT (PST-101-390), and CPP 822 (Table 2). Other entries with unacceptable dollar spot infection (< 5.0) on 22 July 2010 included Pinot (LTP-149), Arrowhead (NA-3261), DP 76-9066, Avid, Baron, Reveille, Dynamo, Barduke (BAR VV 8536), Everglade, NuChicago (J-1466), NuGlade, Emblem (PST-Y2K-169), SW AG 514, Gladstone (NA-3257), STR 2485, A98-689, Beyond, Julia, Princeton 105, BAR VK 0710, and Harmonie (Table 2).

Seventy-eight cultivars and selections had the least summer patch disease on 12 August 2010 (Table 2). Among these, the following were noteworthy (> 8.0): Harmonie, Bewitched, Alexa II (J-2404), Midnight, Bluestone, Baron, Emblem (PST-Y2K-169), Greenteam (CPP 821), Granite (J-1326), A95-410, Touche (STR 23180), Barrister, Nu Destiny, DP 76-9066, Everglade, NuChicago (J-1466), Beyond, Sombrero (CP 76-9068), Excursion, Impact, Bariris, Mermaid (DP 76-9081), Ginney II (J-2024), Ravel 1 (CPP 817), Rhythm, BAR VV 0665, Everest, LS 4000 (RAD-343), and NuGlade (Table 2).

While sixty-four entries displayed the greatest summer patch incidence on 12 August 2010, the following exhibited a severe level of infection (< 5.0): A96-1368, Futurity (A99-3119), Kenblue, Shamrock, Moonlight SLT (PST-101-390), BAR VK 0710, Pinot (LTP-149), Gladstone (NA-3257), Prosperity, and A99-3122 (Table 2).

Entries with the earliest spring green-up on 1 April 2010 were BAR VV 0709, Mystere, H94-305, POPR 04594, BAR VK 0710, Volt (A98-999), SPTR 2959, A93-201, Aura (A99-2559), and Washington (Table 2). Thirty-two cultivars and selections had the slowest spring green-up on 1 April 2010 (Table 2). Several entries exhibited extremely slow spring green-up (< 2.0) such that this trait should affect cultivar blending decisions if Kentucky bluegrass is scheduled for early spring use as a recreational site or sports field. These entries included: Nu Destiny, J-1334, Barrister, NuGlade, Emblem (PST-Y2K-169), Rhythm, Bandera (SPTR 2LM95), Midnight II, Midnight, Sudden Impact (J-2870), Everest, Granite (J-1326), Award, Solar Eclipse (J-2399), Ginney II (J-2024), J-2502, Everglade, SW AG 514, NuChicago (J-1466), and Beyond (Table 2).

CONCLUSIONS

Differences in wear tolerance and recovery were observed among Kentucky bluegrass cultivars and experimental selections during 2010. Characteristics such as turfgrass quality, disease susceptibility (i.e., dollar spot and summer patch), spring green-up, wear tolerance, and recovery should be taken into consideration when selecting Kentucky bluegrass for use on sports and recreational turf.

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Table 1. Tolerance and recovery of Kentucky bluegrass cultivars and selections subjected to wear in May 2010 in a turf trial established in September 2005 at North Brunswick, NJ. (Includes all entries of the 2005 National Turfgrass Evaluation Program (NTEP) Kentucky Bluegrass Test.)

	Cultivar or Selection	Before Wear 4 May 2010	----Wear Tolerance[1]---- 6 May 2010	6 May 2010	----------Recovery---------- 8 DAW[2] 14 May 2010	22 DAW 28 May 2010	49 DAW 24 June 2010	49 DAW 24 June 2010
		---0-100% scale[3]---		1-9 scale[4]	----------0-100% scale----------			1-9 scale
1	Greenteam (CPP 821)	86.7	71.7	7.3	66.7	78.3	83.3	7.7
2	BAR VV 0709	98.3	66.7	6.7	56.7	85.0	95.0	7.3
3	Sombrero (CP 76-9068)	73.3	61.7	6.3	53.3	65.0	83.3	7.3
4	Bariris	86.7	58.3	6.7	61.7	68.3	80.0	8.3
5	BAR VV 9630	93.3	53.3	6.3	48.3	61.7	76.7	6.0
6	Julia	86.7	53.3	6.0	56.7	68.3	80.0	7.7
7	Emblem (PST-Y2K-169)	78.3	51.7	6.0	43.3	51.7	73.3	6.7
8	CPP 822	63.3	51.7	5.7	46.7	56.7	86.7	7.7
9	Barduke (BAR VV 8536)	93.3	51.7	5.3	45.0	61.7	80.0	7.0
10	Barrari (BAR VV 9634)	90.0	48.3	5.7	48.3	63.3	78.3	6.7
11	SW AG 514	65.0	45.0	5.0	45.0	48.3	76.7	6.7
12	MSP 3722	86.7	45.0	5.0	41.7	45.0	61.7	5.7
13	Wild Horse (A97-890)	95.0	45.0	4.3	41.7	61.7	68.3	6.0
14	Aries (A98-948)	85.0	43.3	5.0	41.7	56.7	80.0	7.3
15	Jump Start (PST-109-752)	83.3	43.3	5.0	41.7	51.7	76.7	7.0
16	Prosperity	63.3	43.3	5.0	36.7	36.7	61.7	5.0
17	Impact	95.0	43.3	4.7	40.0	58.3	75.0	8.0
18	SPTR 2959	90.0	43.3	4.7	38.3	56.7	75.0	6.7
19	Blue Note (A01-349)	95.0	43.3	4.7	40.0	45.0	73.3	6.7
20	BAR VK 0710	90.0	43.3	4.3	45.0	56.7	71.7	5.3

(Continued)

Table 1 (continued).

	Cultivar or Selection	Before Wear 4 May 2010	----Wear Tolerance[1]---- 6 May 2010	6 May 2010	----------Recovery---------- 8 DAW[2] 14 May 2010	22 DAW 28 May 2010	49 DAW 24 June 2010	49 DAW 24 June 2010
		---0-100% scale[3]---		1-9 scale[4]	----------0-100% scale----------			1-9 scale
21	A00-247	88.3	41.7	5.0	43.3	43.3	71.7	6.7
22	A99-523	90.0	41.7	4.7	48.3	48.3	68.3	7.0
23	Everglade	90.0	41.7	4.3	45.0	40.0	68.3	6.7
24	MSP 3723	88.3	41.7	4.3	41.7	43.3	68.3	6.3
25	A96-1368	96.7	40.0	5.0	60.0	66.7	76.7	8.0
26	4-Season (J-2791)	76.7	40.0	4.7	40.0	46.7	68.3	5.7
27	Gladstone (NA-3257)	71.7	40.0	4.3	35.0	56.7	70.0	6.7
28	MSP 3724	90.0	38.3	4.7	40.0	45.0	63.3	6.7
29	Nu Destiny	88.3	38.3	4.3	48.3	48.3	66.7	6.7
30	Rugby II	83.3	38.3	4.3	38.3	51.7	68.3	6.0
31	Bewitched	75.0	38.3	4.3	33.3	31.7	61.7	6.0
32	A97-1560	90.0	38.3	4.0	43.3	46.7	66.7	6.3
33	Excursion	91.7	38.3	3.7	43.3	50.0	76.7	8.3
34	RAD-762	86.7	38.3	3.7	40.0	51.7	81.7	7.3
35	Bluestone	86.7	38.3	3.0	31.7	35.0	68.3	5.7
36	A03-66	83.3	36.7	4.3	41.7	55.0	70.0	6.0
37	A93-201	95.0	36.7	4.0	41.7	63.3	75.0	7.0
38	AKB449	88.3	36.7	4.0	36.7	48.3	76.7	6.7
39	Princeton 105	80.0	36.7	4.0	38.3	48.3	73.3	6.7
40	Sudden Impact (J-2870)	81.7	36.7	4.0	35.0	35.0	71.7	6.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	Before Wear 4 May 2010	----Wear Tolerance[1]---- 6 May 2010	6 May 2010	----------Recovery---------- 8 DAW[2] 14 May 2010	22 DAW 28 May 2010	49 DAW 24 June 2010	49 DAW 24 June 2010
		---0-100% scale[3]---		1-9 scale[4]	----------0-100% scale----------			1-9 scale
41	Rubicon (NA-3248)	80.0	36.7	4.0	36.7	40.0	65.0	6.0
42	A99-2377	85.0	36.7	4.0	40.0	50.0	63.3	5.3
43	Yankee (NA-3271)	75.0	36.7	3.7	38.3	45.0	66.7	6.3
44	Argos	85.0	35.0	4.0	35.0	45.0	71.7	7.0
45	Midnight	90.0	35.0	3.7	38.3	46.7	66.7	6.7
46	Arrowhead (NA-3261)	91.7	35.0	3.7	43.3	48.3	66.7	6.3
47	DP 76-9066	86.7	35.0	3.7	35.0	40.0	60.0	5.7
48	STR 2553	81.7	35.0	3.3	35.0	31.7	63.3	6.0
49	Gaelic (Bd 98-1358)	80.0	35.0	3.3	33.3	48.3	65.0	5.3
50	Granite (J-1326)	80.0	33.3	4.0	40.0	48.3	71.7	6.7
51	A00-99	90.0	33.3	4.0	31.7	38.3	70.0	6.7
52	Harmonie	55.0	33.3	4.0	40.0	50.0	66.7	6.0
53	Midnight II	81.7	33.3	3.7	36.7	40.0	66.7	6.7
54	Starburst (STR 2703)	88.3	33.3	3.7	36.7	51.7	73.3	6.3
55	Award	88.3	33.3	3.7	31.7	36.7	63.3	6.3
56	Volt (A98-999)	93.3	33.3	3.7	35.0	48.3	65.0	5.7
57	Armada (PSG 366)	85.0	33.3	3.7	28.3	45.0	68.3	5.3
58	Blueberry	76.7	33.3	3.3	35.0	40.0	63.3	6.3
59	Mystere	93.3	33.3	3.3	36.7	48.3	71.7	6.0
60	Corsair (NA-3249)	80.0	33.3	3.3	35.0	46.7	61.7	6.0

(Continued)

Table 1 (continued).

	Cultivar or Selection	Before Wear 4 May 2010	----Wear Tolerance[1]---- 6 May 2010	6 May 2010	----------Recovery---------- 8 DAW[2] 14 May 2010	22 DAW 28 May 2010	49 DAW 24 June 2010	49 DAW 24 June 2010
		---0-100% scale[3]---		1-9 scale[4]	----------0-100% scale----------			1-9 scale
61	PST-1A1-899	70.0	33.3	3.3	38.3	48.3	70.0	5.7
62	Shamrock	80.0	33.3	3.3	35.0	45.0	61.7	5.7
63	PSG 711	83.3	33.3	3.3	31.7	38.3	56.7	5.3
64	Barrister	73.3	33.3	3.0	36.7	48.3	68.3	6.7
65	Ravel 1 (CPP 817)	78.3	33.3	3.0	31.7	36.7	58.3	5.3
66	A98-689	90.0	31.7	3.7	38.3	45.0	61.7	6.3
67	Futurity (A99-3119)	78.3	31.7	3.7	38.3	35.0	61.7	6.3
68	PST-101-73	78.3	31.7	3.7	31.7	31.7	70.0	6.0
69	A99-2427	88.3	31.7	3.7	36.7	46.7	63.3	5.7
70	Washington	88.3	31.7	3.3	38.3	48.3	73.3	7.0
71	Baron	80.0	31.7	3.3	31.7	48.3	70.0	7.0
72	NuGlade	80.0	31.7	3.3	36.7	43.3	63.3	6.3
73	A00-1254	83.3	31.7	3.3	33.3	40.0	58.3	5.0
74	Kenblue	86.7	31.7	3.0	36.7	51.7	66.7	6.0
75	DLF 76-9075	85.0	31.7	3.0	31.7	48.3	66.7	5.7
76	Bd 98-2108	75.0	31.7	3.0	33.3	41.7	60.0	5.7
77	J-3429	88.3	31.7	2.7	26.7	40.0	66.7	5.3
78	Reveille	81.7	30.0	3.7	36.7	41.7	68.3	6.3
79	RAD-504	88.3	30.0	3.7	35.0	46.7	68.3	6.3
80	Diva	75.0	30.0	3.7	28.3	28.3	61.7	4.7

(Continued)

Table 1 (continued).

	Cultivar or Selection	Before Wear 4 May 2010	----Wear Tolerance[1]---- 6 May 2010	6 May 2010	----------Recovery---------- 8 DAW[2] 14 May 2010	22 DAW 28 May 2010	49 DAW 24 June 2010	49 DAW 24 June 2010
		---0-100% scale[3]---		1-9 scale[4]	----------0-100% scale----------			1-9 scale
81	Mermaid (DP 76-9081)	85.0	30.0	3.0	31.7	43.3	70.0	6.7
82	POPR 04594	95.0	30.0	3.0	38.3	41.7	68.3	5.7
83	Everest	83.3	30.0	3.0	35.0	41.7	61.7	5.7
84	Bandera (SPTR 2LM95)	76.7	28.3	3.0	28.3	43.3	63.3	5.7
85	Shiraz (LTP-73)	85.0	28.3	3.0	28.3	36.7	63.3	5.3
86	Belissimo	75.0	28.3	2.7	31.7	28.3	58.3	5.3
87	A99-3122	76.7	26.7	3.3	28.3	40.0	63.3	5.7
88	Rhapsody (A97-1287)	76.7	26.7	3.3	36.7	35.0	56.7	4.7
89	Bd 03-84	71.7	26.7	3.0	28.3	45.0	66.7	6.0
90	Moonlight SLT (PST-101-390)	70.0	26.7	3.0	28.3	38.3	66.7	6.0
91	Aviator (NA-3259)	76.7	26.7	3.0	28.3	35.0	70.0	5.7
92	Pinot (LTP-149)	71.7	26.7	3.0	30.0	36.7	68.3	5.7
93	1QG-38	71.7	26.7	3.0	23.3	26.7	60.0	5.7
94	Ginney II (J-2024)	76.7	26.7	2.7	38.3	38.3	68.3	6.7
95	Juliet (Bd 95-1930)	86.7	26.7	2.7	31.7	38.3	68.3	6.0
96	Glenmont	83.3	26.7	2.3	21.7	26.7	60.0	5.3
97	A95-410	71.7	26.7	2.0	26.7	38.3	66.7	5.3
98	J-2502	83.3	25.0	3.0	26.7	31.7	56.7	4.7
99	Alexa II (J-2404)	85.0	25.0	2.7	33.3	31.7	60.0	5.3
100	Touche (STR 23180)	93.3	25.0	2.3	33.3	38.3	66.7	6.0

(Continued)

Table 1 (continued).

	Cultivar or Selection	Before Wear 4 May 2010	----Wear Tolerance[1]---- 6 May 2010	6 May 2010	----------Recovery---------- 8 DAW[2] 14 May 2010	22 DAW 28 May 2010	49 DAW 24 June 2010	49 DAW 24 June 2010
		---0-100% scale[3]---		1-9 scale[4]	----------0-100% scale----------			1-9 scale
101	NuChicago (J-1466)	75.0	25.0	2.3	31.7	35.0	56.7	5.3
102	J-1334	71.7	25.0	2.0	31.7	30.0	51.7	4.7
103	LS 4000 (RAD-343)	75.0	23.3	2.7	31.7	36.7	65.0	5.7
104	Skye	81.7	23.3	2.3	33.3	41.7	73.3	7.0
105	BAR VV 0665	81.7	23.3	2.3	28.3	51.7	76.7	5.7
106	Zinfandel (LTP 2949)	70.0	23.3	2.3	16.7	26.7	51.7	4.7
107	Hampton (Bd 03-159)	75.0	21.7	2.3	20.0	26.7	53.3	4.7
108	Aura (A99-2559)	88.3	20.0	2.3	35.0	51.7	68.3	7.7
109	Rhythm	68.3	20.0	2.3	23.3	28.3	48.3	4.3
110	Beyond	71.7	20.0	2.0	26.7	30.0	56.7	5.3
111	STR 2485	71.7	20.0	2.0	25.0	33.3	56.7	5.3
112	Solar Eclipse (J-2399)	60.0	20.0	1.3	23.3	30.0	51.7	5.0
113	Bd 99-2103	65.0	18.3	1.7	18.3	21.7	38.3	3.0
114	Madison (RAD-0AN64)	68.3	16.7	1.3	21.7	25.0	53.3	3.7
115	Dynamo	56.7	15.0	2.0	20.0	35.0	65.0	5.3
116	America	60.0	15.0	1.7	15.0	18.3	46.7	4.0
117	H98-701	56.7	15.0	1.3	15.0	18.3	45.0	3.3
118	Empire (A01-299)	66.7	13.3	2.0	16.7	21.7	41.7	3.3
119	A00-1400	70.0	13.3	1.0	16.7	21.7	45.0	3.7
120	H94-305	86.7	11.7	1.3	21.7	46.7	68.3	6.0

(Continued)

Table 1 (continued).

	Cultivar or Selection	Before Wear 4 May 2010	----Wear Tolerance[1]---- 6 May 2010	6 May 2010	----------Recovery---------- 8 DAW[2] 14 May 2010	22 DAW 28 May 2010	49 DAW 24 June 2010	49 DAW 24 June 2010
		---0-100% scale[3]---		1-9 scale[4]	----------0-100% scale----------			1-9 scale
121	Avid	48.3	8.3	1.3	13.3	13.3	35.0	2.7
	LSD at 5% =	21.6	19.0	2.5	18.8	22.2	17.9	2.4

[1]Wear tolerance rated after 36 passes of the wear simulator
[2]DAW = days after wear
[3]Fullness of turfgrass canopy using a 0 to 100% scale (0 = absence of a turfgrass canopy to 100 = full canopy)
[4]Turf quality under wear stress rated on a 1 to 9 scale where 9 = fullest turfgrass canopy and most uniform ground cover under wear

Table 2. Performance of Kentucky bluegrass cultivars and selections in a turf trial established in September 2005 at North Brunswick, NJ. (Includes all entries of the 2005 National Turfgrass Evaluation Program (NTEP) Kentucky Bluegrass Test.)

		Turf Quality[1]						Dollar Spot[2]	Summer Patch[2]	Spring Green-up[3]
	Cultivar or Selection	2006-2010 Avg.	2006 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	22 July 2010	12 Aug. 2010	1 April 2010
1	Excursion	7.6	7.6	7.7	7.3	7.6	7.7	7.0	8.0	2.7
2	Impact	7.3	7.3	7.6	7.0	7.6	7.3	6.3	8.0	2.7
3	Nu Destiny	7.3	7.4	7.9	7.3	7.3	6.7	5.3	8.3	2.0
4	Midnight II	7.2	7.7	8.1	7.4	6.8	6.3	6.8	6.3	1.7
5	Midnight	7.2	7.5	7.3	7.4	7.0	6.9	6.7	8.7	1.7
6	Sudden Impact (J-2870)	7.1	7.5	7.7	7.2	6.9	6.3	5.3	7.7	1.7
7	Everglade	7.1	7.1	7.4	7.2	7.4	6.3	4.3	8.3	1.3
8	Alexa II (J-2404)	7.0	7.1	7.0	7.3	7.0	6.7	7.0	8.7	2.3
9	Everest	7.0	7.6	7.1	7.0	7.1	6.1	5.3	8.0	1.7
10	Granite (J-1326)	7.0	7.3	7.0	6.9	6.7	7.0	6.7	8.3	1.7
11	Award	7.0	7.1	7.5	7.1	7.1	6.0	6.0	7.0	1.7
12	Solar Eclipse (J-2399)	6.9	7.2	7.4	6.7	6.6	6.4	5.3	7.7	1.7
13	Ginney II (J-2024)	6.8	7.0	7.1	7.0	6.4	6.6	6.0	8.0	1.7
14	Skye	6.8	5.8	6.9	6.8	7.2	7.4	6.7	7.7	6.7
15	A99-523	6.6	6.4	6.8	6.8	6.9	6.4	6.9	6.4	5.7
16	Bd 03-84	6.6	6.2	7.3	7.1	7.1	4.9	6.0	5.0	6.3
17	Blueberry	6.5	6.9	6.6	6.8	6.3	6.1	6.7	6.0	4.7
18	J-1334	6.5	6.7	6.8	6.4	6.7	5.8	6.0	6.7	2.0
19	NuChicago (J-1466)	6.5	7.1	7.5	7.0	5.7	5.0	4.3	8.3	1.0
20	Bluestone	6.4	6.8	6.5	6.5	6.0	6.2	5.7	8.7	3.0
21	J-2502	6.4	6.5	6.6	6.5	6.1	6.1	6.7	7.7	1.7
22	A97-1560	6.4	6.0	6.7	6.7	6.8	5.8	6.8	5.8	6.0
23	MSP 3723	6.4	6.7	6.6	6.2	6.8	5.6	7.3	5.0	5.7
24	Barrister	6.3	6.1	7.0	6.4	5.7	6.4	5.7	8.3	2.0
25	Bd 99-2103	6.3	6.2	5.9	6.3	6.5	6.5	7.7	7.3	4.3

(Continued)

Table 2 (continued).

	Cultivar or Selection	Turf Quality[1] 2006-2010 Avg.	2006 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Dollar Spot[2] 22 July 2010	Summer Patch[2] 12 Aug. 2010	Spring Green-up[3] 1 April 2010
26	Rubicon (NA-3248)	6.3	7.0	7.3	7.5	4.8	4.9	3.3	7.0	6.0
27	Blue Note (A01-349)	6.3	5.8	5.7	6.1	7.1	6.8	7.3	7.7	6.7
28	Beyond	6.2	7.3	7.4	6.2	5.2	5.2	4.0	8.3	1.0
29	MSP 3724	6.2	6.4	6.0	6.1	6.8	5.8	7.0	5.0	6.0
30	A00-247	6.2	5.8	5.2	6.4	6.3	6.9	7.3	7.3	4.0
31	NuGlade	6.2	5.9	6.8	6.7	5.7	5.6	4.3	8.0	2.0
32	Aura (A99-2559)	6.1	6.0	6.4	6.4	5.5	6.4	6.0	7.0	7.0
33	Emblem (PST-Y2K-169)	6.1	5.5	6.7	6.6	6.2	5.8	4.3	8.7	2.0
34	Bd 98-2108	6.1	6.3	6.4	6.1	5.7	5.9	7.3	6.0	4.3
35	Bewitched	6.1	6.7	5.6	5.9	5.6	6.7	8.0	8.7	2.3
36	Diva	6.1	6.2	6.6	5.8	5.6	6.2	5.6	6.2	6.3
37	A00-99	6.1	6.2	6.1	6.1	6.0	6.0	6.0	6.0	5.7
38	Rhythm	6.1	6.4	6.6	6.4	5.6	5.3	5.7	8.0	2.0
39	Belissimo	6.0	6.4	5.9	5.9	6.3	5.8	7.0	5.7	5.0
40	STR 2553	6.0	5.7	5.9	5.5	6.8	6.2	7.3	6.0	6.3
41	Starburst (STR 2703)	5.9	5.9	6.5	6.1	4.9	6.2	6.0	6.7	6.3
42	Rugby II	5.9	5.3	6.7	6.3	5.5	5.7	5.3	7.3	2.7
43	A99-2427	5.9	5.8	6.2	6.3	5.8	5.4	5.8	5.4	4.7
44	J-3429	5.9	6.5	6.5	5.9	5.2	5.2	5.0	7.3	4.3
45	Mystere	5.9	5.2	5.5	5.8	6.2	6.7	6.2	6.7	8.7
46	SPTR 2959	5.9	6.1	6.0	5.9	6.0	5.4	8.0	5.0	7.3
47	Hampton (Bd 03-159)	5.8	7.1	5.3	6.0	5.2	5.5	7.0	5.7	4.7
48	Touche (STR 23180)	5.7	5.6	6.3	6.1	4.4	6.4	6.3	8.3	5.0
49	Shiraz (LTP-73)	5.7	5.7	5.9	5.8	5.4	5.9	5.4	5.9	6.3
50	MSP 3722	5.7	5.7	5.3	5.5	6.3	5.9	8.0	7.7	4.3

(Continued)

Table 2 (continued).

	Cultivar or Selection	Turf Quality[1] 2006-2010 Avg.	2006 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Dollar Spot[2] 22 July 2010	Summer Patch[2] 12 Aug. 2010	Spring Green-up[3] 1 April 2010
51	Princeton 105	5.7	5.7	6.6	6.4	4.0	5.8	4.0	5.8	3.7
52	Rhapsody (A97-1287)	5.7	5.4	5.9	6.2	5.5	5.7	6.3	7.3	6.7
53	POPR 04594	5.7	6.3	6.5	5.9	5.0	5.0	5.0	5.0	8.0
54	A96-1368	5.7	6.3	6.0	6.3	5.2	4.8	5.2	4.8	6.3
55	A99-2377	5.7	6.1	4.9	5.9	5.2	6.3	5.2	6.3	6.0
56	A03-66	5.7	5.7	5.6	5.9	5.4	6.0	5.4	6.0	5.3
57	Yankee (NA-3271)	5.7	6.0	6.1	5.1	5.3	5.9	5.7	6.0	3.7
58	A00-1400	5.7	6.7	6.1	5.5	4.9	5.3	6.7	6.0	4.3
59	1QG-38	5.6	6.1	5.6	5.1	5.1	6.3	7.0	6.0	4.7
60	Argos	5.6	6.1	6.3	5.4	5.1	5.0	7.0	6.3	4.7
61	Prosperity	5.6	6.6	7.1	5.5	4.8	4.1	3.0	4.3	3.0
62	Washington	5.6	5.8	6.3	6.0	4.2	5.9	5.7	6.7	7.0
63	Arrowhead (NA-3261)	5.6	4.9	5.9	5.6	5.7	5.7	4.7	6.0	6.0
64	Aries (A98-948)	5.5	5.5	5.1	5.5	5.5	6.3	7.3	7.3	6.3
65	AKB449	5.5	6.1	5.3	5.2	5.2	5.7	5.2	5.7	5.0
66	A00-1254	5.5	5.4	5.5	6.0	4.9	5.7	3.3	6.3	5.3
67	A93-201	5.5	5.9	4.9	5.6	5.7	5.2	5.7	5.2	7.3
68	PSG 711	5.5	5.3	5.5	5.6	5.1	6.0	6.7	7.3	6.0
69	H94-305	5.4	5.2	6.0	5.0	5.4	5.8	5.4	5.8	8.3
70	Jump Start (PST-109-752)	5.4	5.2	6.3	5.4	4.6	5.6	5.3	7.3	5.7
71	BAR VV 0709	5.4	4.4	5.7	4.9	5.9	6.0	5.9	6.0	9.0
72	DP 76-9066	5.4	5.9	5.8	4.4	5.1	5.9	4.7	8.3	4.7
73	Ravel 1 (CPP 817)	5.4	5.5	5.2	4.9	5.6	5.8	6.0	8.0	5.0
74	SW AG 514	5.4	6.1	5.9	5.9	4.1	5.1	4.3	7.3	1.3
75	RAD-762	5.4	5.4	5.6	5.6	4.6	5.7	6.3	5.3	6.3

(Continued)

Table 2 (continued).

	Cultivar or Selection	Turf Quality[1] 2006-2010 Avg.	2006 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Dollar Spot[2] 22 July 2010	Summer Patch[2] 12 Aug. 2010	Spring Green-up[3] 1 April 2010
76	PST-1A1-899	5.4	6.0	6.6	5.7	4.2	4.3	5.3	7.7	4.7
77	Glenmont	5.3	5.6	4.9	5.2	5.8	5.2	5.7	5.7	4.7
78	Bariris	5.3	5.8	6.1	5.1	3.6	5.7	6.3	8.0	4.7
79	Juliet (Bd 95-1930)	5.3	5.8	6.1	5.1	4.2	5.3	7.0	6.3	5.7
80	Gladstone (NA-3257)	5.3	6.4	6.5	5.0	4.0	4.5	4.3	4.3	4.7
81	A95-410	5.3	6.4	5.7	5.0	3.3	6.2	6.7	8.3	4.7
82	LS 4000 (RAD-343)	5.3	6.2	5.9	5.3	3.8	5.1	5.3	8.0	5.3
83	Wild Horse (A97-890)	5.2	5.7	5.1	5.4	5.6	4.1	5.7	5.7	6.7
84	RAD-504	5.2	5.2	5.7	4.9	4.9	5.2	5.7	5.0	6.0
85	Futurity (A99-3119)	5.2	5.5	5.1	5.4	4.6	5.1	6.7	4.7	4.0
86	STR 2485	5.1	5.8	5.5	5.2	4.1	5.1	4.3	6.7	3.0
87	America	5.1	5.4	5.1	5.4	4.0	5.4	6.3	7.0	3.3
88	Sombrero (CP 76-9068)	5.1	6.7	5.2	5.0	3.7	4.9	3.0	8.3	4.0
89	Barrari (BAR VV 9634)	5.0	4.8	4.4	4.7	5.2	6.0	6.7	6.3	6.7
90	A98-689	5.0	5.6	4.9	5.0	4.5	4.9	4.3	7.3	2.7
91	Greenteam (CPP 821)	5.0	5.8	5.7	4.9	3.6	4.8	3.3	8.7	4.7
92	Shamrock	5.0	5.4	5.3	5.2	5.0	4.0	6.0	4.7	5.0
93	Gaelic (Bd 98-1358)	5.0	5.8	5.1	5.1	4.8	4.0	5.3	6.3	6.3
94	A99-3122	4.9	4.3	5.5	5.3	5.5	4.1	5.5	4.1	5.3
95	4-Season (J-2791)	4.9	5.9	6.3	4.7	4.1	3.7	2.7	5.7	3.3
96	PST-101-73	4.9	5.3	4.7	4.8	4.8	4.8	6.7	6.3	5.0
97	Julia	4.9	6.2	6.1	4.1	3.7	4.2	4.0	7.7	5.3
98	CPP 822	4.9	6.3	5.5	5.1	3.7	4.1	1.3	5.7	3.3
99	BAR VV 9630	4.9	4.5	4.0	4.9	4.8	6.0	6.7	7.3	6.7
100	Volt (A98-999)	4.8	5.3	4.5	4.6	4.6	5.2	5.7	6.0	7.7

(Continued)

Table 2 (continued).

	Cultivar or Selection	Turf Quality[1] 2006-2010 Avg.	2006 Avg.	2007 Avg.	2008 Avg.	2009 Avg.	2010 Avg.	Dollar Spot[2] 22 July 2010	Summer Patch[2] 12 Aug. 2010	Spring Green-up[3] 1 April 2010
101	Corsair (NA-3249)	4.8	4.6	4.1	4.6	5.5	5.2	6.3	6.3	4.0
102	Pinot (LTP-149)	4.8	4.9	5.0	4.9	4.8	4.4	4.8	4.4	4.3
103	BAR VV 0665	4.8	5.4	5.5	4.7	3.5	4.6	5.7	8.0	5.0
104	Avid	4.8	5.8	5.0	4.8	4.4	3.9	4.7	6.3	3.0
105	Madison (RAD-0AN64)	4.7	4.9	5.3	4.6	4.0	4.9	5.3	5.7	3.7
106	Armada (PSG 366)	4.7	4.7	4.7	4.7	4.0	5.6	7.7	6.3	4.7
107	Barduke (BAR VV 8536)	4.7	4.3	4.2	4.9	4.6	5.5	4.6	5.5	5.7
108	Zinfandel (LTP 2949)	4.7	5.3	3.6	5.0	4.2	5.2	7.0	7.3	4.7
109	Harmonie	4.6	6.1	5.1	4.3	2.7	4.5	3.7	9.0	3.0
110	Baron	4.5	4.6	4.2	4.6	3.9	5.5	4.7	8.7	4.3
111	BAR VK 0710	4.5	4.9	4.4	5.1	3.7	4.5	3.7	4.5	8.0
112	Empire (A01-299)	4.5	5.2	4.1	4.2	3.5	5.5	7.0	6.7	3.7
113	Reveille	4.5	3.2	4.5	4.9	4.9	5.1	4.7	6.7	4.7
114	Mermaid (DP 76-9081)	4.5	4.6	4.5	3.6	3.7	5.9	6.3	8.0	6.7
115	H98-701	4.5	5.1	4.5	4.5	3.6	4.7	7.0	6.7	3.3
116	Bandera (SPTR 2LM95)	4.4	4.8	5.1	4.3	3.0	5.0	5.7	7.3	2.0
117	Moonlight SLT (PST-101-390)	4.3	6.3	5.7	3.5	2.9	3.0	2.7	4.7	3.0
118	Aviator (NA-3259)	4.3	4.5	4.5	4.5	3.1	4.9	5.7	7.7	3.3
119	DLF 76-9075	4.3	3.3	3.3	4.2	4.2	6.5	6.3	7.3	5.3
120	Dynamo	4.2	4.6	5.1	4.3	2.5	4.3	4.7	7.3	3.3
121	Kenblue	3.3	3.1	3.1	3.0	3.3	3.8	6.3	4.7	6.0
	LSD at 5% =	0.9	1.0	1.1	1.1	1.9	1.7	2.2	2.8	2.1

[1]9 = best turf quality
[2]9 = least disease
[3]9 = earliest spring green-up