

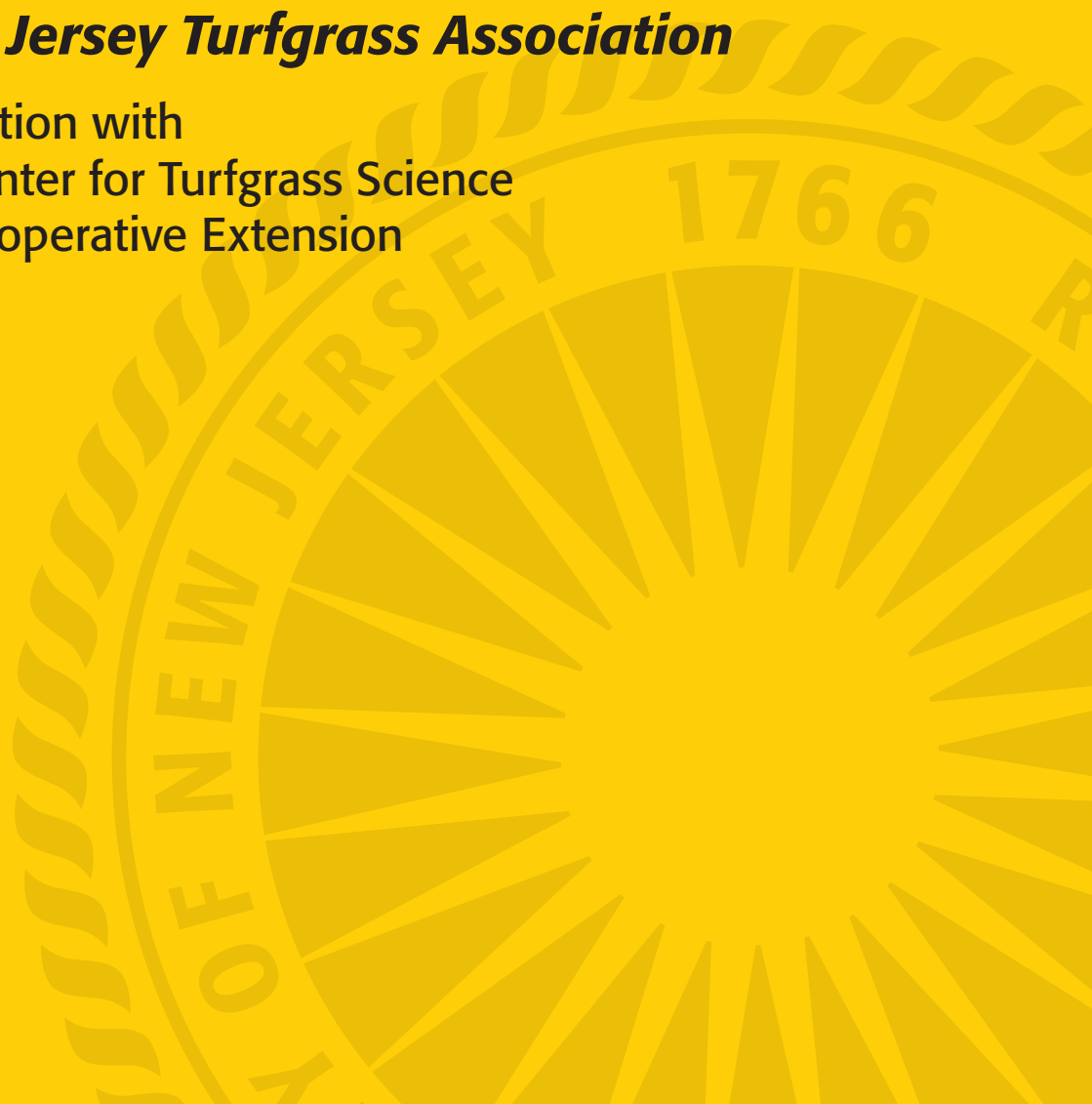
RUTGERS

New Jersey Agricultural
Experiment Station

2017 Turfgrass Proceedings

The New Jersey Turfgrass Association

In Cooperation with
Rutgers Center for Turfgrass Science
Rutgers Cooperative Extension



2017 RUTGERS TURFGRASS PROCEEDINGS

of the

GREEN EXPO Turf and Landscape Conference

December 5-7, 2017

Borgata Hotel

Atlantic City, New Jersey

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 2017 GREEN EXPO Turf and Landscape Conference. Publication of these lectures provides a readily available source of information

covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

This proceedings also includes research papers that contain original research findings and reviews of selected subjects in turfgrass science. These papers are presented primarily to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

Special thanks are given to those who have submitted papers for this proceedings, to the New Jersey Turfgrass Association for financial assistance, and to Barbara Fitzgerald and Anne Diglio for administrative and secretarial support.

Dr. Ann Brooks Gould, Editor
Dr. Bruce B. Clarke, Coordinator

PERFORMANCE OF KENTUCKY BLUEGRASS CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS, 2017

Ryan M. Daddio, Ronald F. Bara, Austin L. Grimshaw, Trent M. Tate, Dirk A. Smith,
Eric N. Weibel, Joseph B. Clark, James A. Murphy, Stacy A. Bonos, and William A. Meyer¹

Kentucky bluegrass (*Poa pratensis* L.) is a cool season turfgrass that is widely used throughout the northern United States and Canada. Its unique apomictic mode of reproduction and its ability to form rhizomes are key traits that warrant Kentucky bluegrasses popularity. These characteristics distinguish this grass from other cool season turfgrass species. Although Kentucky bluegrass was once considered the premier lawn grass in the United States, drawbacks include slow germination, poor shade tolerance, disease susceptibility, and high water and fertility requirements (Turgeon, 2008). These traits, in addition to interest in reducing inputs, has somewhat decreased the popularity of Kentucky bluegrass for home lawns. Kentucky bluegrass can, however, maintain excellent quality when managed properly and is the grass of choice for many professional and high-end sports fields.

The extensive rhizome system of Kentucky bluegrass is an important trait for use as a turfgrass. Formation of these underground stems allow for rapid spread and colonization after establishment. These rhizomes can improve the recovery of Kentucky bluegrass stands from stress or damage, increasing its popularity in sports field settings.

Kentucky bluegrass reproduces asexually through seed, known as apomixis. This process is facultative in the species; some sexual reproduction occurs, but this trait is selected against in breeding programs. Only highly apomictic Kentucky bluegrasses are desirable for turfgrass use. This contributes to most of the uniformity seen in cultivars of this species and also allows hybrid vigor to be fixed indefinitely. While there are many advantages to apomixis in the species, it does pose some chal-

lenges to breeders, including obtaining hybrids and retaining high levels of apomixis in the new hybrids.

Texas bluegrass (*Poa arachnifera* Torr.), a species native to the American Southwest, is dioecious (male and female flowers on different plants) and is much more tolerant of heat and drought stress than Kentucky bluegrass. Crosses between Texas bluegrass female plants and Kentucky bluegrass have been made to improve the heat and drought tolerance of Kentucky bluegrass to increase its adapted range into the warmer climates.

Collections are made around the world to obtain new germplasm and increase the diversity in the gene pool of Kentucky bluegrass at the New Jersey Agricultural Experiment Station. This is important to broaden the genetic basis of these *Poa* species. These collections are utilized by breeders to enhance resistance to diseases, pests, and abiotic stresses in the development of new cultivars. This germplasm should also prove valuable as breeders develop cultivars for changing climatic conditions.

PROCEDURES

Three Kentucky bluegrass trials were seeded from 2015 to 2016. These trials were located at the Rutgers Plant Biology and Pathology Research and Extension Farm in Adelphia (Tables 1 and 2) and the Rutgers Horticultural Farm II in North Brunswick (Table 3), NJ.

These trials were planted by sowing a maximum of 0.53 oz of seed in 3 x 5 ft plots. This maximum rate is equivalent to 2.2 lb of seed per 1000 ft². All

¹Graduate Assistant, Laboratory Researcher II, Laboratory Researcher IV, Field Researcher IV, Principle Laboratory Technician, Field Researcher III, Research Farm Supervisor, Extension Specialist in Turfgrass Management, Research Professor, and Research Professor, respectively, New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ 08901-8520.

trials were arranged in a randomized complete block design with three replications. Mesotrione was applied at the time of seeding and four weeks after emergence at 5 oz per 1000 ft² for control of annual bluegrass and other weeds. Annual nitrogen (20-0-6) rates as well as the mowing heights for each trial are presented in Table 4. Nitrogen rates varied to prevent disease, foster recovery from various stresses, and to conduct a low maintenance trial (Table 3). Nitrogen application rates never exceeded 0.75 lb per 1000 ft². Mowing heights were maintained by using rotary mowers.

After establishment, annual weeds were controlled using spring applications of Dimension, and broadleaf weeds were controlled with fall and/or spring applications of 2,4-D, dicamba, and MCPP. Acelepryn was applied in July to control grubs on all tests. Depending on soil test results, soil pH was maintained between 6.0 and 6.5 with granular dolomitic limestone. Tests were irrigated during establishment, and tests mowed at 1.5 inches were also irrigated when needed to avoid severe drought stress.

Monthly ratings of all trials were conducted throughout the growing season for overall quality. Overall turf quality ratings are visual assessments that take into account color, brightness, leaf texture, density, uniformity, damage due to disease and insects, and overall attractiveness of the plot. Data for all trials were statistically analyzed using analysis of variance, and means were separated using Fisher's protected least significant difference (LSD) means separation test. Results in Table 1 are presented with selections ranked according to the best overall turf performance (multiple-year quality average); entries in Tables 2 and 3 are ranked by turf quality in 2017. In addition to overall quality ratings, supplementary ratings were taken when differences became evident within the trials. These additional ratings include spring green-up (Table 1), establishment (Tables 2 and 3), and height, mesotrione damage, leaf spot, and stem rust (Table 3). Mowing height and fertilizer inputs of all tests are shown in Table 4.

RESULTS

Spring Green-up

This trait indicates the wide range of genetic diversity within Kentucky bluegrass. Due to an increase in leaf elongation that occurs in response to increases

in temperature and photoperiod (Parsons and Robson, 1980), selections adapted to this region are more sensitive to these conditions and may green up earlier in the spring. Selections that are adapted to higher latitudes need more dramatic changes in temperature and photoperiod before spring green-up will begin. Entries in the Midnight type such as Bluebank, Rugby II, Midnight, Midnight II, and selections KB11OT-31, J-1136, J-1853, PST-K15-171, and others were very slow to green, while PST-21P5135, A15-11, and Action are very quick to green-up in the spring (Table 1).

Establishment

Green cover after establishment is an important characteristic to consumers, sod-growers, and many other turf managers. Kentucky bluegrass is one of the slowest cool-season grasses to form a mature turfgrass stand. Establishment can be influenced by a variety of factors such as genetics, seed quality, environment, management practices, and after-ripening dormancy. Other characteristics that affect establishment and seedling vigor include age of the seed, storage conditions, and environmental conditions at the time of seeding. Establishment ratings were taken on a 1 to 9 scale where 9 represents a plot that has filled in completely. Selections such as NAI-14-178, A04TB-258, and KB15OT-21 were very slow or failed to establish, while selections such as A13-347, A11-770, A13-679, and Aries established more quickly (Tables 2 and 3).

Mesotrione Damage

Mesotrione provides pre- and post-emergence control of many weedy grasses and broadleaves. It provides superior control of annual bluegrass when applied at the time of seeding as well as four weeks after emergence. There is some sensitivity, although not as severe as fine fescues, resulting in stunted growth and bleaching. Damage ratings on a 1 to 9 scale measure the amount of bleaching observed in each selection. Some selections exhibited severe bleaching (KB15OT-22, A16-17, A12-267, and P-105) while others were almost unaffected (A11-770, Arrowhead, Prosperity, Bluecoat, and A12-30) (Table 3).

Leaf Spot

Leaf spot occurs throughout the growing season in cool season turfgrass, caused by the fungal pathogen *Dreschlera poae* in the cooler seasons and by *Dreschlera bipolaris* in the warmer months of summer. Often referred to as "melting out," leaf spot

can coalesce into large patches of infected tissue that look water soaked and die back. Ratings on a 1 to 9 scale show that some selections such as A16-20, NAI-13-118, A13-347, and A11-778 with low ratings were very susceptible, while selections such as A10-280, A16-14, and A06-33 appear more tolerant, as indicated by higher ratings (Table 3).

Stem Rust

Stem rust, caused by the fungus *Puccinia graminis*, can be a potentially devastating disease on Kentucky bluegrass. Light yellowing of the turf gives way to brick red pustules that colonize the individual leaves. The pustules create a reddish appearance in the turf when allowed to persist. The red spores are released when disturbed and can discolor materials that touch them, including shoes, bags, and pants, making this disease even more problematic. There were quite a few cultivars and selections exhibiting severe susceptibility to stem rust in the trial; these included Prosperity, A14-246, KB15OT-35, KB15OT-24, A13-342, A11-770, A13-313, and A13-347, while some of the most resistant selections included NAI-13-79, A16-16, A06-11, A13-1, and A05TB-258 (Table 3).

Low Maintenance

Low maintenance turfgrass has become increasingly important with the impending restrictions on water and fertilizer use in both home lawns and professionally maintained turf. Performance in low input management regimes will become more valuable as these restrictions become more prevalent. Low maintenance turf trials are cut at a higher mowing height and receive less fertilizer with no additional water inputs outside of establishment. Selections that performed well under low maintenance conditions include Glade, A16-231, A16-253, and NAI-13-79, while those that performed poorly include NAI-13-188, KB15OT-35, A16-5, and KB15OT-25 (Table 3).

Height

The height rating represents the vigor of vertical growth during establishment. Selections and cultivars with higher ratings were taller at the time of rating. Lower ratings represent less vertical growth during establishment but do not represent the horizontal coverage of the turf. Depending on the application of the selection or cultivar, vertical vigor during es-

tablishment can be viewed as a positive where rapid green cover is desirable, or a negative where minimal mowing frequency is preferred. Selections with the most vertical growth at the time of the rating include: A07-782, A06-8, A14-229, and NAI-13-14. Selections with the lowest growth at the time of the rating include: A13-679, A07-385, Volt, and Bolt (Table 3)

SUMMARY

Kentucky bluegrass is grown for many uses in a wide range of soil, environmental, and management conditions. As a result, there is a demand for cultivars that produce a durable, high quality turf for an assortment of uses and under a broad assortment of conditions. Due to its extensive rhizome system, Kentucky bluegrass has the potential to recover from very stressful conditions, but work is needed to prevent the initial damage to the turfgrass. Due to its diverse use in the turfgrass industry, improved resistance to important diseases, pests, and abiotic stresses is needed if cultivars are expected to perform well across diverse environments.

ACKNOWLEDGMENTS

New Jersey Agricultural Experiment Station Publication No. E 12194-03-18. This work was conducted as part of NJAES Project No. 12180, supported by the New Jersey Agricultural Experiment Station, State, and Hatch Act Funds, the Rutgers Center for Turfgrass Science, other grants, and gifts. Additional support was received from the United States Golf Association, the National Turfgrass Evaluation Program, and the New Jersey Turfgrass Association.

REFERENCES

- Parsons, A.J., and M.J. Robson. 1980. Seasonal changes in physiology of S24 perennial ryegrass (*Lolium perenne* L.). 1. Responses of leaf extension to temperature during transition from vegetative to reproductive growth. *Ann. Bot.* 46:435-444.
- Turgeon, A.J. 2008. *Turfgrass Management*, 8th ed. Prentice Hall, Upper Saddle River, NJ., p. 118.

Table 1. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2015 at Adelphia, NJ.

	Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017
		2016-2017 Avg.	2016 Avg.	2017 Avg.	
1	Right	6.0	6.2	5.7	4.0
2	Legend	5.9	6.4	5.4	4.7
3	Blue Note	5.8	6.0	5.7	6.3
4	A15-17	5.8	5.8	5.8	6.7
5	KB11OT-31	5.8	6.5	5.0	1.0
6	A15-18	5.7	6.0	5.4	5.0
7	KB13OT-4	5.6	5.6	5.6	7.7
8	A12-38	5.6	5.7	5.5	3.7
9	Bluebank	5.5	6.1	4.9	1.0
10	NAI-13-6	5.5	5.5	5.5	5.0
11	NuDestiny	5.5	5.9	5.0	1.3
12	Midnight II	5.5	6.2	4.8	1.0
13	PST-K13-137	5.4	5.9	4.9	4.3
14	KB11OT-4	5.4	6.1	4.7	1.7
15	A14-5	5.4	5.4	5.3	5.7
16	A04-67	5.4	5.7	5.1	7.7
17	Everest	5.4	5.8	4.9	1.7
18	PST-K13-143	5.4	5.5	5.2	4.3
19	J-1136	5.3	6.1	4.6	1.0
20	Prafin	5.3	5.6	5.0	1.3
21	Hampton	5.3	5.7	4.9	5.0
22	PST-T13-45	5.3	5.3	5.3	6.7
23	Liberator	5.3	6.0	4.6	1.3
24	Rugby II	5.3	6.0	4.6	1.0
25	A07-385	5.3	5.6	5.0	3.0
26	Blue Coat	5.3	5.5	5.1	4.0
27	NAI-14-128	5.3	5.3	5.2	4.0
28	A15-14	5.2	5.4	5.0	1.3
29	PST-K15-157	5.2	5.5	5.0	6.7
30	A14-15	5.2	5.5	5.0	4.0
31	A15-276 ³	5.2	5.5	5.0	4.7
32	Midnight	5.2	6.1	4.4	1.0
33	RAD-2868	5.2	5.6	4.8	2.3
34	KB13OT-16	5.2	5.4	5.0	4.7
35	A06-8	5.2	5.4	5.0	5.3

(Continued)

Table 1. Kentucky bluegrass high maintenance turf trial, 2015 (continued).

	Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017
		2016-2017 Avg.	2016 Avg.	2017 Avg.	
36	A06-60	5.2	5.8	4.6	5.3
37	PST-K15-177	5.2	5.4	5.0	2.7
38	PST-T13-44	5.2	5.5	4.9	7.0
39	KB13OT-20	5.2	5.5	4.8	4.0
40	A11-49	5.2	5.5	4.8	2.3
41	Award	5.1	5.7	4.6	1.3
42	Aries	5.1	5.3	4.9	6.7
43	A15-21	5.1	5.4	4.8	2.3
44	J-1853	5.1	5.6	4.7	1.0
45	A05-361	5.1	5.3	4.9	6.0
46	A10-245	5.1	5.2	5.0	4.3
47	A11-38	5.1	5.5	4.7	4.7
48	A10-251	5.1	5.3	4.9	7.7
49	A15-9	5.1	5.5	4.6	4.3
50	NuGlade	5.1	5.6	4.5	1.0
51	PST-K15-167	5.1	5.1	5.1	1.7
52	Glacier	5.1	5.2	4.9	4.7
53	PST-K15-174	5.1	5.2	5.0	5.3
54	Beyond	5.1	5.6	4.5	1.3
55	Bluechip Plus	5.1	5.7	4.4	2.0
56	Ginney II	5.1	5.4	4.7	1.0
57	Prosperity	5.1	5.0	5.1	4.3
58	A13-1	5.1	5.5	4.6	2.7
59	Rush II	5.0	5.9	4.2	1.3
60	PST-T13-46	5.0	5.1	5.0	3.7
61	A13-3	5.0	5.7	4.3	3.3
62	Impact	5.0	5.2	4.8	1.0
63	A10-280 ³	5.0	5.4	4.6	5.7
64	PST-K15-162	5.0	5.5	4.5	6.3
65	PST-T13-39	5.0	5.7	4.3	7.0
66	PST-T13-42	5.0	5.4	4.6	6.7
67	Fullback	5.0	5.1	4.9	6.0
68	PST-K13-140	5.0	5.4	4.6	7.0
69	Diva	5.0	4.9	5.0	5.7
70	PST-11-7	5.0	5.7	4.2	4.0

(Continued)

Table 1. Kentucky bluegrass high maintenance turf trial, 2015 (continued).

	Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017
		2016-2017 Avg.	2016 Avg.	2017 Avg.	
71	NAI-14-13	5.0	5.0	4.9	5.3
72	NAI-14-126	4.9	5.1	4.8	2.7
73	KB13OT-17	4.9	5.3	4.6	3.3
74	Everglade	4.9	5.1	4.7	1.3
75	Lunar	4.9	5.2	4.6	4.3
76	A15-5	4.9	5.2	4.6	4.3
77	PST-K15-171	4.9	4.8	5.0	1.0
78	Pivot	4.9	5.3	4.4	5.0
79	RAD-7PH6	4.9	5.1	4.7	7.3
80	A15-15	4.9	5.4	4.3	2.0
81	PST-K15-168	4.9	4.8	4.9	3.0
82	RAD-1376	4.8	4.8	4.9	4.3
83	A11-42	4.8	5.0	4.7	6.0
84	A15-7	4.8	5.1	4.6	4.0
85	PST-K15-161	4.8	5.0	4.7	4.7
86	PST-K15-172	4.8	5.1	4.5	4.3
87	A15-4	4.8	5.1	4.5	6.0
88	PST-T13-38	4.8	4.9	4.7	2.3
89	A15-10	4.8	5.0	4.6	6.3
90	My Holiday Lawn	4.8	5.4	4.2	2.0
91	Apollo	4.8	5.1	4.4	3.7
92	Dauntless	4.8	4.9	4.7	6.3
93	A12-28	4.8	4.7	4.9	5.0
94	NuBlue Plus	4.8	5.2	4.4	1.7
95	PST-K15-150	4.8	4.8	4.8	4.3
96	Rubix	4.8	5.1	4.4	6.3
97	Shannon	4.8	5.0	4.5	6.0
98	NAI-13-9	4.8	4.9	4.6	2.0
99	A07-1230	4.8	5.2	4.3	4.7
100	A05-853	4.7	4.6	4.9	2.7
101	KB13OT-18	4.7	4.8	4.7	5.7
102	PST-K15-176	4.7	5.0	4.4	8.0
103	A12-7	4.7	5.1	4.3	2.3
104	KB13OT-12	4.7	5.1	4.3	1.0
105	A06-3	4.7	5.1	4.3	4.7

(Continued)

Table 1. Kentucky bluegrass high maintenance turf trial, 2015 (continued).

	Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017
		2016-2017 Avg.	2016 Avg.	2017 Avg.	
106	A12-9	4.7	4.9	4.5	6.0
107	A14-10	4.7	5.1	4.3	3.7
108	NAI-13-39	4.7	4.7	4.6	4.0
109	KB13OT-6	4.7	5.1	4.2	6.0
110	KB13OT-19	4.7	4.8	4.6	4.7
111	PST-K15-195	4.7	5.2	4.1	7.0
112	A00-1400	4.7	4.9	4.4	2.7
113	Volt	4.7	5.3	4.0	6.7
114	CRS 630	4.7	4.9	4.4	5.0
115	PST-K15-163A	4.7	5.2	4.1	4.3
116	A11-41	4.7	4.8	4.5	5.3
117	A15-6	4.6	5.3	4.0	3.3
118	RAD-2276	4.6	5.1	4.2	3.0
119	NAI-14-210	4.6	4.6	4.7	5.7
120	NAI-13-84	4.6	4.6	4.6	4.3
121	A12-8	4.6	4.7	4.5	4.0
122	PST-11-241	4.6	4.7	4.5	5.0
123	Zinger	4.6	5.1	4.2	5.0
124	NAI-13-33	4.6	4.7	4.5	5.0
125	Bolt	4.6	5.3	3.9	6.0
126	CRS 632	4.6	4.9	4.3	5.3
127	NAI-14-205	4.6	5.0	4.2	7.7
128	Limousine	4.6	4.7	4.5	4.7
129	A12-37	4.6	5.2	4.0	2.7
130	RAD-2221	4.6	5.1	4.0	3.3
131	A12-31	4.6	5.0	4.1	7.0
132	PST-IT5-86	4.6	4.9	4.2	3.3
133	A13-18	4.6	5.2	3.9	6.0
134	NAI-11-644	4.5	4.6	4.5	3.3
135	KB13OT-13	4.5	4.8	4.3	5.7
136	Wild Horse	4.5	4.9	4.2	6.0
137	Fahrenheit 90 ³	4.5	4.8	4.2	4.3
138	NAI-13-131	4.5	4.3	4.7	3.3
139	A12-265	4.5	4.6	4.4	4.3
140	A12-293	4.5	4.7	4.3	3.3

(Continued)

Table 1. Kentucky bluegrass high maintenance turf trial, 2015 (continued).

Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017	
	2016-2017 Avg.	2016 Avg.	2017 Avg.		
141	PST-K13-141	4.5	4.7	4.4	4.3
142	Gaelic	4.5	5.1	4.0	5.0
143	NAI-13-14	4.5	4.7	4.3	1.7
144	Arrowhead	4.5	4.7	4.2	4.0
145	RAD-1391	4.5	4.7	4.2	7.0
146	RAD-2250	4.5	4.6	4.4	4.3
147	PST-K15-165	4.5	5.1	3.8	4.0
148	Rubicon	4.5	4.8	4.1	6.3
149	A05-1405	4.5	4.5	4.4	3.7
150	CRS 631	4.4	4.8	4.0	5.7
151	Gladstone	4.4	5.0	3.9	2.7
152	A05-314	4.4	5.1	3.8	3.3
153	A15-2	4.4	4.5	4.3	6.7
154	PST-11A-75	4.4	4.7	4.1	3.3
155	RAD-2191	4.4	4.9	3.9	1.0
156	NAI-13-132	4.4	4.6	4.2	1.3
157	PST-K13-139	4.4	5.0	3.8	4.3
158	A15-19	4.4	5.4	3.3	1.3
159	KB11OT-47	4.4	4.7	4.0	3.7
160	PST-K11-122	4.4	4.7	4.0	4.7
161	Jumpstart	4.3	4.4	4.2	7.7
162	PST-11-1-3	4.3	4.5	4.1	3.7
163	A15-8	4.3	4.8	3.8	2.7
164	Alexa II	4.3	4.4	4.2	1.3
165	A11-396	4.3	4.5	4.1	1.7
166	P-105	4.3	4.5	4.1	3.7
167	A10-873	4.3	4.5	4.0	4.0
168	Selway	4.3	4.2	4.3	5.3
169	RAD-2140	4.3	4.3	4.2	5.7
170	NAI-14-212	4.3	4.3	4.3	3.7
171	A13-332	4.3	4.7	3.8	6.0
172	Noble	4.3	4.8	3.7	4.3
173	NAI-14-105	4.3	3.9	4.6	5.3
174	A13-5	4.3	4.4	4.1	3.3
175	Blitz	4.2	4.4	4.0	6.0

(Continued)

Table 1. Kentucky bluegrass high maintenance turf trial, 2015 (continued).

	Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017
		2016-2017 Avg.	2016 Avg.	2017 Avg.	
176	NAI-14-211	4.2	3.8	4.7	4.7
177	NAI-12-38	4.2	4.3	4.1	5.7
178	PST-K15-170	4.2	4.3	4.2	1.3
179	Raven	4.2	4.3	4.1	3.3
180	PST-10-138	4.2	4.3	4.1	4.0
181	NAI-13-15	4.2	4.6	3.8	4.0
182	PST-K11-124	4.2	4.7	3.7	3.0
183	PST-K11-118	4.2	4.2	4.1	6.0
184	PST-K15-166	4.2	4.2	4.1	5.3
185	NAI-13-32	4.2	4.0	4.3	2.0
186	PST-T13-34	4.2	4.6	3.7	3.3
187	RAD 553	4.1	4.3	4.0	3.7
188	RAD-1405	4.1	4.0	4.2	5.3
189	A13-21	4.1	4.1	4.2	4.7
190	PST-K15-160	4.1	4.2	4.0	5.3
191	Arc	4.1	4.6	3.6	5.7
192	PST-K15-169	4.1	4.0	4.2	3.0
193	NAI-14-15	4.1	4.2	4.0	4.0
194	A11-778	4.1	3.9	4.3	5.3
195	A14-8	4.1	4.2	3.9	2.3
196	NAI-13-105	4.1	4.2	3.9	7.7
197	PST-K15-164A	4.1	4.2	3.9	6.0
198	NAI-13-130	4.1	3.8	4.3	3.3
199	NAI-13-34	4.1	4.2	3.9	1.0
200	A12-266	4.1	4.5	3.6	2.3
201	PST-K15-173	4.1	4.2	3.9	4.0
202	RAD-1971	4.0	4.1	4.0	5.3
203	PST-T13-43	4.0	4.1	4.0	3.7
204	RAD-2027	4.0	4.3	3.7	2.0
205	SPF 30	4.0	4.3	3.7	3.7
206	A13-347	4.0	4.5	3.5	6.0
207	PST-K15-158	4.0	4.1	3.9	5.7
208	A13-313	3.9	3.8	4.1	7.7
209	Black Jack	3.9	4.6	3.3	5.3
210	Bewitched	3.9	4.0	3.8	1.3

(Continued)

Table 1. Kentucky bluegrass high maintenance turf trial, 2015 (continued).

Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017
	2016-2017 Avg.	2016 Avg.	2017 Avg.	
211 Gateway	3.9	3.9	3.9	6.3
212 NAI-13-107	3.9	3.5	4.2	2.3
213 NAI-13-1	3.9	4.1	3.6	7.0
214 Corsair	3.9	4.1	3.6	5.3
215 NAI-12-41	3.8	4.0	3.6	4.7
216 00-3487	3.8	4.3	3.3	4.0
217 NAI-14-201	3.8	3.8	3.8	5.7
218 PST-105-69	3.8	4.0	3.5	4.7
219 RAD-1677	3.8	4.1	3.4	7.3
220 PST-K11-125	3.8	4.2	3.3	3.7
221 Rockstar	3.7	4.0	3.4	7.7
222 Bluestar	3.7	4.1	3.2	3.0
223 NAI-13-121	3.6	3.6	3.7	3.7
224 PST-K15-159	3.6	4.2	3.1	6.7
225 NAI-14-217	3.6	3.2	4.0	3.7
226 NAI-3840	3.6	3.4	3.7	4.0
227 A15-11	3.5	3.3	3.7	8.7
228 NAI-14-214	3.5	3.3	3.7	5.7
229 NAI-15-0153	3.5	3.5	3.4	3.3
230 PST-8-56	3.5	4.0	2.9	5.0
231 NAI-14-219	3.4	3.2	3.6	4.0
232 KB13OT-3	3.4	3.7	3.1	5.0
233 GO-MRC	3.4	3.5	3.2	7.7
234 RAD-2010	3.2	3.4	3.0	6.7
235 NAI-14-175	3.2	3.5	2.9	2.7
236 NAI-14-183	3.1	3.2	3.1	6.0
237 PST-11-149	3.1	3.5	2.8	6.0
238 NAI-13-124	3.0	3.0	2.9	4.3
239 Action	2.8	2.3	3.4	8.3
240 NAI-14-104	2.8	2.8	2.8	6.0
241 NAI-14-207	2.8	2.5	3.1	3.3
242 NAI-14-202	2.7	2.2	3.3	5.7
243 RAD-2015	2.7	2.9	2.5	8.0
244 NAI-13-118	2.5	2.3	2.7	4.3
245 NAI-14-228	2.4	2.2	2.5	4.0

(Continued)

Table 1. Kentucky bluegrass high maintenance turf trial, 2015 (continued).

Cultivar or Selection	----- Turf Quality ¹ -----			Spring Green-up ² 13 April 2017
	2016-2017 Avg.	2016 Avg.	2017 Avg.	
246 NAI-14-223	2.3	1.9	2.6	6.0
247 PST-21P5135	2.3	2.7	1.8	8.7
248 NAI-13-119	2.2	1.8	2.6	4.3
249 NAI-14-114	2.2	1.8	2.6	5.0
LSD at 5% =	0.7	0.8	0.9	1.6

¹ 9 = best turf quality

² 9 = earliest spring green-up

³ TB = Texas bluegrass hybrid in which plants contain a percentage of Texas bluegrass genetics in a Kentucky bluegrass background

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2016 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 31 Oct. 2016
1 A16-231 ³	6.4	4.3
2 RAD-3240	6.4	6.7
3 PST-T15-46	6.3	3.7
4 A16-228 ³	6.3	4.0
5 A06-11	6.1	5.7
6 Bolt	6.0	8.3
7 A05-361	5.9	7.3
8 Avalanche	5.9	7.7
9 A04TB-258 ³	5.9	3.3
10 PST-K15-157	5.8	6.0
11 A10-245	5.7	7.0
12 A16-245 ³	5.6	6.0
13 A07-782	5.6	6.3
14 A11-41	5.6	8.3
15 A99-3122	5.6	6.7
16 PST-C-74	5.6	7.3
17 Legend	5.5	7.3
18 PST-K12-129	5.5	6.7
19 A16-220 ³	5.5	6.3
20 A05TB-258 ³	5.5	3.7
21 KB13OT-4	5.5	8.0
22 Glade	5.5	6.3
23 A14-26	5.5	6.0
24 A12-57	5.5	2.0
25 Diva	5.5	6.7
26 PST-K15-168-BS	5.5	5.7
27 A14-2	5.4	7.0
28 A10-249	5.3	4.7
29 A06-8	5.3	6.0
30 NAI-13-9	5.3	7.0
31 PST-K15-172-BS	5.3	7.3
32 PST-T14-37	5.3	4.3
33 A16-225 ³	5.3	6.3
34 Hampton	5.3	8.3
35 PST-T14-40	5.2	7.3

(Continued)

Table 2. Kentucky bluegrass high maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 31 Oct. 2016
36 A16-253 ³	5.2	5.3
37 A16-14	5.2	5.3
38 A16-16	5.2	6.3
39 PST-K13-141	5.2	5.7
40 A16-221 ³	5.2	5.3
41 A16-222 ³	5.2	5.3
42 Midnight	5.2	7.3
43 A13-1	5.2	6.0
44 A04-67	5.2	8.0
45 Apollo H2O	5.2	7.3
46 Pivot	5.2	6.7
47 KB13OT-17	5.2	3.7
48 PST-K13-143	5.2	5.0
49 A14-20	5.2	3.7
50 A16-3	5.1	5.7
51 A14-422	5.1	7.3
52 A98-879	5.1	5.7
53 NAI-13-79	5.1	5.3
54 PST-K15-178	5.1	7.3
55 A10-244	5.1	4.0
56 NAI-14-176	5.1	6.7
57 Blue Note	5.1	6.3
58 Tirem	5.1	6.7
59 A16-8	5.0	5.0
60 A16-15	5.0	5.3
61 A12-30	5.0	6.7
62 A11-398	5.0	8.3
63 Mystere H2O	5.0	5.7
64 NAI-14-130	5.0	6.3
65 A16-224 ³	5.0	5.0
66 A14-424	5.0	7.7
67 A06-33	5.0	4.3
68 A14-13	5.0	7.0
69 Rubicon	5.0	4.7
70 PST-4-C2	5.0	6.7

(Continued)

Table 2. Kentucky bluegrass high maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 31 Oct. 2016
71 PST-K15-179	5.0	6.0
72 Appalachian	5.0	7.0
73 A16-2	5.0	6.0
74 A16-20	5.0	8.3
75 A12-7	5.0	7.3
76 A14-31	5.0	6.0
77 NAI-14-132	5.0	5.0
78 RAD-3285	5.0	7.3
79 PST-K15-166	5.0	7.7
80 A11-49	4.9	5.3
81 A14-280	4.9	5.3
82 Bluestar	4.9	7.3
83 NAI-14-128	4.9	6.7
84 PST-K14-144	4.9	6.7
85 A16-17	4.9	7.7
86 A14-10	4.9	5.7
87 A13-332	4.9	7.7
88 A05-853	4.9	6.0
89 A13-683	4.9	6.0
90 Dauntless	4.9	6.7
91 PST-K15-171	4.9	4.0
92 A16-226 ³	4.9	4.7
93 A16-7	4.9	5.0
94 A10-241	4.9	4.7
95 NAI-14-133	4.9	6.3
96 NAI-15-110	4.9	6.7
97 KB15OT-22	4.9	4.7
98 A16-219 ³	4.9	6.0
99 A14-9	4.8	5.3
100 A11-38	4.8	5.0
101 A14-14	4.8	6.7
102 RAD-3383	4.8	5.0
103 PST-105-69	4.8	6.3
104 PST-K15-167-BS	4.8	6.0
105 Fahrenheit 90 ³	4.8	5.3

(Continued)

Table 2. Kentucky bluegrass high maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 31 Oct. 2016
106 PST-R14-279	4.8	6.7
107 A10-280 ³	4.8	2.7
108 A16-4	4.8	7.7
109 A16-21	4.8	8.0
110 A14-15	4.8	4.0
111 Bluecoat	4.8	8.0
112 NAI-13-132	4.8	7.7
113 KB13OT-13	4.8	6.7
114 PST-K15-177	4.8	3.7
115 PST-11-112	4.8	7.7
116 A14-4	4.7	5.7
117 A10-871	4.7	4.3
118 Bluebank	4.7	5.7
119 A11-778	4.7	7.7
120 A16-12	4.7	6.7
121 A13-313	4.7	7.7
122 KB15OT-24	4.7	4.7
123 PST-K13-137	4.7	7.0
124 PST-K13-140	4.7	7.7
125 A13-347	4.7	9.0
126 A12-34	4.7	4.0
127 A14-229	4.7	5.3
128 NAI-14-124	4.7	7.0
129 PST-T14-41	4.7	4.0
130 A16-230 ³	4.7	4.7
131 A16-18	4.6	8.7
132 Bluedevil/Prafin	4.6	7.3
133 NAI-14-155	4.6	5.0
134 PST-K13-139	4.6	3.7
135 A16-6	4.6	6.3
136 A14-3	4.6	4.0
137 A13-325	4.6	6.3
138 Jumpstart	4.6	6.7
139 A10-238	4.6	5.7
140 NAI-14-122	4.6	6.3

(Continued)

Table 2. Kentucky bluegrass high maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 31 Oct. 2016
141 NAI-14-126	4.6	6.7
142 NAI-14-187	4.6	5.7
143 A11-47	4.6	7.3
144 KB15OT-29	4.6	8.3
145 PST-K15-163A	4.6	6.0
146 A16-10	4.5	6.7
147 CRS630	4.5	6.7
148 NAI-13-39	4.5	6.7
149 A14-345	4.5	6.7
150 PST-K15-158	4.5	6.0
151 PST-T14-39	4.5	4.3
152 A11-770	4.5	9.0
153 A15-4	4.5	5.3
154 Arrowhead	4.5	7.3
155 PST-K14-152	4.5	6.0
156 PST-K15-169	4.5	6.7
157 A16-5	4.5	4.3
158 A14-233	4.4	7.3
159 Fullback	4.4	6.0
160 Lunar	4.4	7.0
161 NAI-15-89	4.4	7.0
162 A12-266	4.4	6.3
163 Rubix	4.4	6.7
164 NAI-13-10	4.4	1.7
165 NAI-14-127	4.4	6.7
166 NAI-14-178	4.4	1.0
167 Orion	4.4	5.7
168 A09-231	4.4	6.7
169 KB15OT-20	4.4	7.0
170 PST-K15-160	4.4	4.7
171 A11-53	4.3	5.7
172 A14-234	4.3	6.0
173 A12-267	4.3	7.3
174 NAI-14-121	4.3	4.7
175 KB15OT-47	4.3	4.0

(Continued)

Table 2. Kentucky bluegrass high maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 31 Oct. 2016
176 PST-K15-173	4.3	2.7
177 PST-T13-32	4.3	3.7
178 PST-T15-43	4.3	4.7
179 PST-Paulina Falls River-DARK	4.3	7.3
180 A13-5	4.3	3.3
181 SPF 30	4.3	7.7
182 Moonshine	4.3	7.0
183 Aries	4.3	7.3
184 Rockstar	4.3	5.7
185 Slingshot	4.3	7.0
186 PST-11-7	4.3	7.3
187 A13-9	4.2	5.3
188 Arc	4.2	6.7
189 NAI-13-14	4.2	7.7
190 Volt	4.2	7.3
191 RAD-3169	4.2	6.3
192 A16-1	4.2	6.3
193 Endurance	4.2	3.3
194 A07-385	4.2	8.7
195 Nobel	4.2	6.0
196 PST-10-38	4.2	4.3
197 Shannon	4.1	8.0
198 Gladstone	4.1	2.0
199 P-105	4.1	1.3
200 KB15OT-32	4.1	2.7
201 A16-11	4.0	6.0
202 A16-19	4.0	8.0
203 Courtyard	4.0	5.3
204 PST-K14-154	4.0	5.3
205 Midnight II	4.0	6.3
206 A13-679	3.9	9.0
207 RAD-3302	3.9	7.3
208 KB13OT-19	3.9	4.3
209 KB15OT-9	3.9	7.0
210 KB15OT-21	3.9	1.3

(Continued)

Table 2. Kentucky bluegrass high maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 31 Oct. 2016
211 PST-4-H1	3.9	7.7
212 PST-K15-180	3.9	3.7
213 Prosperity	3.9	7.3
214 Wild Horse	3.8	7.7
215 KB15OT-50	3.8	4.3
216 PST-11-13	3.8	8.0
217 Gaelic	3.8	7.3
218 NAI-15-100	3.7	1.7
219 NAI-13-118	3.6	6.0
220 A14-246	3.6	7.3
221 PST-K14-146	3.5	5.7
222 RAD-2363	3.5	3.0
223 KB15OT-25	3.3	2.7
224 KB15OT-35	3.3	2.3
225 PST-TX8-56	3.3	5.7
LSD at 5% =	0.7	1.4

¹ 9 = best turf quality

² 9 = best establishment

³ TB = Texas bluegrass hybrid in which plants contain a percentage of Texas bluegrass genetics in a Kentucky bluegrass background

Table 3. Performance of Kentucky bluegrass cultivars and selections in a low maintenance turf trial seeded in September 2016 at North Brunswick, NJ.

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 6 Oct. 2016	Height ³ 24 Oct. 2016	Mesotrione Damage ⁴ 2016 Avg.	Leaf Spot ⁵ 9 June 2017	Stem Rust ⁵ 10 Oct. 2017
1 Glade	6.2	5.0	8.0	7.5	5.5	6.7
2 A16-231 ⁶	5.9	2.7	8.3	6.0	6.8	5.0
3 NAI-13-79	5.9	4.3	8.3	7.5	6.5	7.7
4 A16-253 ⁶	5.9	5.0	6.0	4.6	6.3	2.3
5 A16-14	5.8	4.0	6.3	3.6	7.7	5.3
6 A12-7	5.8	4.7	7.0	6.8	4.8	3.7
7 A07-782	5.8	4.0	9.0	7.7	5.8	4.7
8 Hampton	5.8	7.3	5.0	7.5	7.2	3.7
9 Midnight	5.7	7.7	6.3	8.6	5.0	7.3
10 A16-220 ⁶	5.6	4.3	7.3	7.8	4.8	7.3
11 A16-222 ⁶	5.6	4.3	7.7	7.7	5.3	7.0
12 A14-2	5.6	6.0	6.3	4.8	6.7	6.0
13 A16-226 ⁶	5.6	4.0	7.3	4.5	4.7	2.3
14 A16-228 ⁶	5.6	2.3	8.0	6.2	6.3	3.3
15 A16-16	5.5	3.7	6.0	5.3	3.8	7.7
16 A99-3122	5.5	5.7	7.3	6.7	6.0	7.3
17 Bluebank	5.5	5.3	7.3	8.3	5.3	7.0
18 A16-224 ⁶	5.5	5.3	7.7	8.1	4.8	6.7
19 A16-219 ⁶	5.5	6.7	7.3	7.4	5.0	7.0
20 A04TB-258 ⁶	5.5	1.0	8.3	4.2	7.0	6.0
21 NAI-14-124	5.4	5.3	7.0	8.6	6.7	3.3
22 A16-245 ⁶	5.4	4.7	6.3	5.0	6.5	2.0
23 A12-30	5.4	4.0	6.7	8.9	6.2	3.7
24 PST-C-74	5.4	5.3	6.7	6.6	6.8	6.0
25 A12-266	5.3	6.0	6.7	7.1	4.3	6.3
26 NAI-13-39	5.3	4.0	7.3	6.8	5.0	5.3
27 A11-47	5.3	7.3	4.3	6.5	5.7	4.3
28 KB15OT-20	5.3	5.3	6.3	7.4	5.3	2.7
29 A10-280 ⁶	5.3	2.0	7.3	6.3	7.7	7.0
30 A16-230 ⁶	5.3	4.3	7.3	4.9	6.7	3.0
31 A05TB-258 ⁶	5.3	1.3	7.7	5.4	7.0	7.7
32 A13-1	5.3	5.3	6.7	5.8	6.7	7.7
33 Aries	5.3	8.7	4.3	7.9	4.2	5.0
34 A09-231	5.3	4.7	5.7	6.0	4.3	5.3
35 NAI-14-128	5.3	5.0	6.7	7.8	7.3	3.0

(Continued)

Table 3. Kentucky bluegrass low maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 6 Oct. 2016	Height ³ 24 Oct. 2016	Mesotrione Damage ⁴ 2016 Avg.	Leaf Spot ⁵ 9 June 2017	Stem Rust ⁵ 10 Oct. 2017
36 A12-57	5.3	2.0	8.0	6.2	6.7	6.7
37 A16-17	5.2	6.0	5.3	2.7	5.0	6.7
38 NAI-13-132	5.2	6.7	7.3	8.5	4.0	6.7
39 Slingshot	5.2	3.0	7.0	5.0	5.2	5.0
40 A16-225 ⁶	5.2	3.3	7.7	7.6	3.7	5.3
41 A05-853	5.2	3.3	6.3	3.6	3.7	6.3
42 Blue Note	5.2	4.3	7.3	6.9	4.8	6.0
43 A07-385	5.2	5.7	3.7	7.5	3.5	3.0
44 KB13OT-19	5.2	2.3	8.3	4.1	4.7	4.0
45 A10-871	5.1	4.3	6.0	5.2	6.7	5.0
46 Prospertiy	5.1	8.3	6.7	8.9	6.5	1.0
47 Blue Devil/Prafin	5.1	6.3	6.0	8.4	5.3	6.0
48 Pivot	5.1	6.0	5.7	7.2	5.3	1.7
49 NAI-14-133	5.1	5.0	7.0	8.4	6.3	2.0
50 KB13OT-4	5.1	3.7	7.3	8.2	5.5	4.7
51 A16-221 ⁶	5.1	4.3	7.3	7.5	3.8	3.7
52 A16-252 ⁶	5.1	3.0	8.3	5.4	5.0	6.0
53 A16-2	5.1	4.7	6.7	7.5	4.2	5.7
54 A11-38	5.1	5.0	6.7	5.6	3.5	4.3
55 A06-11	5.1	4.3	8.0	5.9	6.0	7.7
56 A11-41	5.1	5.3	5.7	8.6	5.5	2.7
57 A16-6	5.1	5.7	6.0	7.2	6.3	3.7
58 Orion	5.1	3.0	7.0	3.8	4.5	4.3
59 Volt	5.1	8.0	4.0	7.0	4.5	4.3
60 A11-53	5.0	4.3	7.3	6.9	6.5	7.0
61 Gaelic	5.0	6.3	5.7	6.4	5.5	4.0
62 NAI-13-9	5.0	6.0	7.7	8.5	4.3	6.3
63 NAI-13-10	5.0	2.3	8.3	4.5	6.2	5.3
64 A14-26	5.0	2.7	7.7	6.2	6.8	3.0
65 A11-49	5.0	3.7	7.3	7.5	6.3	7.0
66 A10-249	5.0	4.3	7.3	4.2	7.2	5.7
67 A12-267	5.0	4.7	4.7	2.7	2.5	5.7
68 Gladstone	5.0	4.3	6.7	7.1	6.5	4.7
69 KB13OT-17	5.0	4.7	6.7	3.8	7.0	5.7
70 KB15OT-9	5.0	2.7	7.3	4.4	4.2	4.7

(Continued)

Table 3. Kentucky bluegrass low maintenance turf trial, 2016 (continued).

	Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 6 Oct. 2016	Height ³ 24 Oct. 2016	Mesotrione Damage ⁴ 2016 Avg.	Leaf Spot ⁵ 9 June 2017	Stem Rust ⁵ 10 Oct. 2017
71	KB15OT-22	5.0	2.3	6.3	2.4	4.8	6.7
72	A16-12	5.0	5.7	5.7	5.3	6.0	3.7
73	A14-10	5.0	4.7	7.3	5.6	6.5	4.3
74	A12-34	5.0	3.0	7.7	4.9	6.0	7.0
75	KB15OT-29	5.0	4.0	6.0	5.3	4.5	5.7
76	Fahrenheit 90 ⁶	5.0	5.3	5.7	5.1	3.8	3.7
77	A06-8	4.9	4.7	8.7	6.3	7.0	6.0
78	Fullback	4.9	7.3	5.0	7.0	5.8	4.0
79	Rockstar	4.9	3.7	6.3	4.9	4.3	4.0
80	NAI-14-122	4.9	4.3	7.0	7.4	6.5	3.3
81	Apollo H2O	4.9	5.0	7.0	6.9	6.2	6.7
82	A14-345	4.9	4.7	7.3	7.9	4.3	5.3
83	NAI-13-14	4.9	6.3	8.7	8.4	4.0	6.7
84	NAI-14-132	4.9	4.7	7.7	8.2	7.3	3.0
85	A05-361	4.8	2.7	7.3	6.7	6.2	6.0
86	A10-245	4.8	6.0	6.3	5.1	7.3	6.3
87	CRS630	4.8	5.7	6.3	7.0	4.0	5.0
88	NAI-14-126	4.8	3.7	7.3	8.2	7.2	2.7
89	Lunar	4.8	6.7	5.7	6.8	5.5	3.0
90	Dauntless	4.8	5.7	7.0	7.4	4.5	4.3
91	A16-7	4.8	4.3	7.7	6.7	6.3	6.7
92	A14-234	4.8	3.7	8.0	7.5	4.8	5.7
93	A14-422	4.8	4.3	5.0	6.8	2.3	5.3
94	Bluestar	4.8	6.0	6.3	5.9	5.3	5.3
95	NAI-14-127	4.8	4.7	6.0	7.2	6.2	2.7
96	Bolt	4.8	8.0	4.0	4.5	4.2	5.3
97	A16-1	4.7	5.3	5.7	6.0	4.3	3.7
98	A10-241	4.7	3.7	7.3	5.1	6.7	4.0
99	Diva	4.7	4.3	7.0	5.8	5.8	5.3
100	NAI-14-187	4.7	3.7	6.7	7.6	7.3	3.0
101	A11-778	4.7	4.0	5.7	5.9	1.7	3.7
102	A16-10	4.7	5.0	7.7	7.2	5.0	4.7
103	A16-15	4.7	3.0	8.3	3.9	7.5	3.3
104	A14-9	4.7	5.0	6.7	6.4	6.5	7.3
105	A14-424	4.7	4.3	6.0	7.9	2.5	4.0

(Continued)

Table 3. Kentucky bluegrass low maintenance turf trial, 2016 (continued).

	Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 6 Oct. 2016	Height ³ 24 Oct. 2016	Mesotrione Damage ⁴ 2016 Avg.	Leaf Spot ⁵ 9 June 2017	Stem Rust ⁵ 10 Oct. 2017
106	A10-244	4.7	3.3	7.3	4.1	6.8	6.7
107	Nobel	4.7	6.0	5.0	6.4	5.5	2.0
108	KB15OT-47	4.7	2.3	7.7	4.8	4.8	3.7
109	A13-5	4.6	3.0	7.3	3.1	7.2	3.7
110	KB13OT-13	4.6	4.3	7.3	4.3	4.0	3.3
111	A14-4	4.6	5.0	8.3	5.8	6.5	4.7
112	A14-246	4.6	5.7	8.3	8.3	5.8	1.0
113	A14-233	4.6	4.7	4.3	7.2	4.0	2.7
114	A14-31	4.6	4.3	6.3	5.1	7.3	5.3
115	Mystere H2O	4.6	6.0	6.7	7.2	6.5	6.7
116	A98-879	4.6	5.3	7.0	7.4	5.0	3.7
117	Rubicon	4.6	6.3	6.3	5.5	5.7	5.3
118	NAI-14-176	4.6	5.3	7.0	8.6	6.2	1.7
119	Legend	4.6	6.0	7.0	6.6	6.7	3.7
120	A16-18	4.6	5.3	6.7	7.7	5.2	4.0
121	A06-33	4.6	3.7	7.3	4.8	7.5	6.0
122	NAI-15-110	4.6	4.7	7.0	5.1	3.5	2.3
123	Appalachian	4.6	5.0	6.0	6.6	2.8	3.7
124	A14-20	4.6	2.7	8.0	3.9	6.2	6.7
125	A10-238	4.5	8.0	6.0	7.1	5.7	5.0
126	NAI-14-121	4.5	3.0	6.7	6.9	5.8	1.7
127	A14-3	4.5	4.3	6.3	4.2	7.0	6.3
128	Jumpstart	4.5	7.0	4.3	6.2	3.8	1.3
129	A13-9	4.4	4.7	8.0	6.8	6.8	1.3
130	SPF 30	4.4	5.3	5.3	5.8	3.5	5.7
131	Bluecoat	4.4	6.3	6.0	8.8	4.8	2.0
132	NAI-14-178	4.4	3.0	7.3	3.5	5.3	5.3
133	KB15OT-32	4.4	1.7	8.3	4.8	6.2	6.0
134	A16-8	4.4	4.7	7.0	6.3	5.0	7.3
135	A14-15	4.4	3.0	8.3	6.2	6.5	4.3
136	A04-67	4.4	6.3	6.0	8.3	5.2	3.7
137	NAI-15-89	4.4	4.3	6.0	4.8	4.5	5.3
138	KB15OT-24	4.4	3.7	7.7	4.6	5.8	1.0
139	A16-21	4.3	6.7	6.3	6.2	2.0	1.7
140	A13-332	4.3	5.7	6.0	6.2	2.7	1.0

(Continued)

Table 3. Kentucky bluegrass low maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 6 Oct. 2016	Height ³ 24 Oct. 2016	Mesotrione Damage ⁴ 2016 Avg.	Leaf Spot ⁵ 9 June 2017	Stem Rust ⁵ 10 Oct. 2017
141 A11-398	4.3	4.0	7.7	7.2	4.7	3.7
142 NAI-14-130	4.3	2.7	7.3	7.1	7.3	2.7
143 Arrowhead	4.3	7.7	6.0	8.9	5.2	1.7
144 A16-3	4.3	4.7	7.7	8.6	5.0	4.7
145 A16-4	4.3	4.7	7.7	8.5	3.7	5.3
146 A16-11	4.3	5.7	7.0	7.1	4.8	3.7
147 A13-347	4.3	8.0	4.7	6.7	1.7	1.0
148 A13-683	4.3	4.7	7.0	6.2	2.7	1.7
149 A14-229	4.3	4.7	9.0	8.2	3.3	3.0
150 Wild Horse	4.2	6.7	6.7	7.2	3.5	3.3
151 A16-19	4.1	5.0	7.0	8.0	4.2	5.3
152 A14-280	4.1	6.7	6.3	6.1	3.3	1.3
153 A13-325	4.1	3.3	7.0	3.8	3.3	1.3
154 A15-4	4.1	3.7	8.0	4.9	4.3	6.0
155 A14-14	4.0	5.3	8.0	7.3	5.8	3.3
156 A13-679	4.0	7.7	2.7	8.7	2.0	7.0
157 P-105	4.0	1.7	7.0	2.8	3.3	1.7
158 KB15OT-21	3.9	1.0	8.3	4.2	6.3	3.3
159 Arc	3.9	6.0	6.0	7.3	2.8	4.7
160 KB15OT-50	3.9	3.7	7.0	5.8	4.3	2.3
161 A16-20	3.8	5.3	5.7	7.3	1.2	4.0
162 Rubix	3.8	6.0	6.7	6.0	4.0	3.0
163 A13-313	3.8	5.7	5.7	4.9	2.5	1.0
164 Shannon	3.8	6.7	5.0	5.5	2.5	1.7
165 NAI-14-155	3.7	2.7	7.0	4.8	4.7	5.0
166 NAI-15-100	3.6	2.0	8.3	4.0	4.8	2.7
167 A11-770	3.6	4.7	6.7	8.9	1.8	1.0
168 NAI-13-118	3.2	4.0	7.0	5.3	1.7	1.3
169 KB15OT-25	3.2	1.3	7.7	5.5	5.8	4.0
170 A16-5	2.8	3.3	7.7	4.9	2.3	3.3
171 KB15OT-35	2.7	2.3	8.3	6.8	5.8	1.0

(Continued)

Table 3. Kentucky bluegrass low maintenance turf trial, 2016 (continued).

Cultivar or Selection	Turf Quality ¹ 2017 Avg.	Establishment ² 6 Oct. 2016	Height ³ 24 Oct. 2016	Mesotrione Damage ⁴ 2016 Avg.	Leaf Spot ⁵ 9 June 2017	Stem Rust ⁵ 10 Oct. 2017
LSD at 5% =	0.8	1.8	1.4	1.5	1.4	1.6

¹ 9 = best turf quality

² 9 = best establishment

³ 9 = tallest growth

⁴ 9 = least mesotrione damage

⁵ 9 = least disease

⁶ TB = Texas bluegrass hybrid in which plants contain a percentage of Texas bluegrass genetics in a Kentucky bluegrass background

Table 4. Yearly nitrogen (N) applied and mowing height (Ht) on Kentucky bluegrass tests established at Adelphia and North Brunswick, NJ.

	2015		2016	
	N ¹	Ht ²	N	Ht
Table 1 (2015 Adelphia).....	4.40	1.5	4.75	1.5
Table 2 (2016 Adelphia).....			4.00	1.5
Table 3 (2016 North Brunswick).....			2.48	3.0

¹Annual N applied (lb/1000 ft²)

²Mowing height in inches