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In Cooperation with
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The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public.

This publication includes lecture notes of papers presented at the 2021 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 Anne Diglio and Barbara Fitzgerald for administrative support.

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PERFORMANCE OF KENTUCKY BLUEGRASS CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS, 2021

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INTRODUCTION

Kentucky bluegrass (*Poa pratensis* L.) is a popular cool-season turfgrass that is widely used across the northern United States and Canada. An important characteristic of this grass is the extensive system of rhizomes that it grows. After establishment, the rhizomes will rapidly spread to help recover from any damage or stress, which makes this an ideal turf for athletic fields. Some problems that remain within this species are high disease susceptibility and poor heat and drought tolerance (Casler and Duncan, 2003).

Kentucky bluegrass reproduces through an asexual process called apomixis. Sexual reproduction is possible within this species, but is typically selected against during the breeding process. Cultivars with high apomixis are more desired since they are more uniform and will restore hybrid vigor. This reproduction method has many benefits, but makes it difficult for breeders to select hybrids and maintain a high level of apomixis within the new hybrids.

Texas bluegrass (*Poa arachnifera* L.) is a species that is native to the southwest region of the United States. Compared to Kentucky bluegrass, this species is more resilient under heat and drought stress. This species is dioecious, meaning it has male and female flowers on separate plants. In efforts to improve the drought and heat tolerance in Kentucky bluegrass cultivars, crosses have been made using Texas bluegrass females with Kentucky bluegrass males.

Collections are taken from around the world to increase the genetic diversity of the Kentucky bluegrass germplasm at the New Jersey Agricultural Experiment Station. These collections help enhance the breeding program by increasing the resistance to disease, pests, and other abiotic factors in new cultivars. They

are also used to improve cultivars' response to a changing climate.

Rutgers participates in the National Turfgrass Evaluation Program (NTEP). This program is sponsored by the USDA Beltsville Agricultural Research Center and National Turfgrass Federation, Inc. NTEP cooperates with institutions nationwide to evaluate turfgrass cultivars and selections in various locations. Proceedings from all trials conducted by NTEP can be found at <http://www.ntep.org>.

PROCEDURES

Four trials of Kentucky bluegrass were seeded from 2017 to 2020. These trials were located at the Rutgers Plant Biology and Pathology Research and Extension Farm at Adelphia, NJ (Tables 1-4). These trials were planted by sowing at most 0.53 oz of seed in 3 x 5 ft plots (2.2 lbs of seed per 1000 ft²). The trials all have three replications arranged in a randomized block design. Tenacity (Mesotrione) was applied at a rate of 5 oz per 1000 ft² to the trials at the time of seeding and again four weeks after emergence to control the annual bluegrass and other weeds. Annual nitrogen rates (19-0-9 or 15.5-0-0) as well as mowing heights can be found in Table 5. Single nitrogen application rates never exceeded 0.75 lb N/1000 ft². Mowing heights were maintained by using rotary mowers at heights given in table 5.

Ratings are taken monthly of the tests to assess the overall performance; this visual assessment is based on color, uniformity, density, texture, and disease or insect damage. Data for all the 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 Tables 1-4 are presented with entries ranked by average turf quality over multiple years.

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Data is present for single year quality averages as well as additional ratings taken when there were differences within the trials. Although previous years' data is included in the tables, only the additional ratings for the year under review will be discussed.

RESULTS

Turf Quality

Turf quality measures the overall performance of each of the entries. This rating is based on the different characteristics of the grasses including color, density, texture, and the presence of certain abiotic or biotic stresses at the time of rating. Entries with the highest rating for quality include A-16-17, PPG-KB 1304, A11-26, A16-228, A16-17 and A19-8 (Tables 1-4). Entries with the lowest ratings for quality include PPG-KB 1320, Bluestar, Geronimo, Zedor, PST-K11-118, A20-56 and Blue Ghost (Tables 1-4).

Establishment

Establishment is an important characteristic for consumers, sod growers, and other turf managers. Of all cool season turfgrasses, Kentucky bluegrass is one of the slowest to germinate and mature. The rate of establishment can be affected by different factors such as genetics, seed quality, environment, management practices, and after-ripening dormancy. Other factors that influence germination include age of seed, storage conditions, and environmental conditions around the time of seeding. Entries that were quick to establish include A19-16, A09-305, A17-4, A18-5, A15-14, A16-835, A17-838, A19-10, NuRush, A20-54, A14-667, A15-486, Legend, A14-306 Right, Harvest Moon, Touchdown, Unique, Bewichted, Everest, K15-157, T15-42, A16-528, A19-4, Balin, Impact, Zip, A19-9, Ares, Fahrenheit 90, Mercury, Bluebank, Jackpot, Award, Moonshine, T15-44, After Midnight, A14-299, Arrowhead, A17-799, and Navy (Table 4). Entries that were slower to establish include PST-K11-118, A20-56, A20-55, and Blue Ghost (Table 4).

Spring Green-up

This characteristic is highly variable within the Kentucky bluegrass genotypes. Green-up occurs when there is an increase in leaf elongation because of increased temperatures and longer day lengths (Parsons and Robson, 1980). Entries that green-up earlier are typically more adapted to the spring con-

ditions in this region. Entries that are better adapted to higher latitudes need more dramatic changes in temperature and photoperiod before starting to green-up. Entries that were quick to green-up include PPG-KB 1304, Barvette HGT, A16-824, and A19-12 (Tables 1-3). The slowest entries to green-up include PST-11-7, NAI 14-128, Powerplay, and RAD-4277, PST-K15-167, and A14-26 (Tables 1-3).

Winter Activity

Like spring green-up, winter activity is a measure of how active a newly established test following a full season of winter. It measures how vigorously the new seedlings are growing during the late months. The entries with the highest rating for winter activity include A14-4, A20-49, Comet, and A06-08 (Table 4); entries that showed the least winter activity include A19-5, and Comanche (Table 4).

Stemminess/Seed Heads

This rating measures how many stems, or seed heads, are present within each entry. The seed heads are the reproductive organ of the plant and may appear during mid-late spring. Low growing Kentucky bluegrasses often exhibit more stemminess than more erect entries. These seed heads can be mowed down so they are less visible, but often the stems will become straw colored and cause reduced uniformity in the turfgrass plots. There were several entries that did not have seed heads present including A17-833, NAI-17-6, and A10-838 (Table 3); however, entries like PST-K16-178, A17-6, and J09-2676 had many seed heads present (Table 3).

Drought Quality

Drought quality measures the overall performance of each entry under drought stress. The same characteristics assessed in turf quality are evaluated in this rating, including color, density, texture, and uniformity and it also includes the amount of leaf wilting and/or firing due to lack of soil moisture. Entries like PPG-KB 1304, Blue Magic, A13-1, Syrah, KB15OT-24 (Table 1), KB16OT-3, Twilight, KB13OT-12, A06-8 PST-K17-189AD, A16-8, (Table 2) all performed well while under drought stress. Conversely, entries like Paloma, DLFPS-340/3494, PST-11-7, New Moon (Table 1), A09-305, Kelly, Dauntless and PST-K18-198 (Tables 1-2) performed poorly under the drought stress.

SUMMARY

Kentucky bluegrass is produced for a variety of uses in different soil, environmental, and management conditions. There is a demand for new cultivars with greater seed yield, increased durability and higher quality with less inputs. The extensive rhizome system that Kentucky bluegrass grows allow it to quickly recover from stressful conditions, but it is important to prevent initial damage to the turfgrass. For cultivars to perform best across different environments, better resistance to key diseases, pests, and other abiotic stresses is necessary.

ACKNOWLEDGEMENTS

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Table 1. Performance of Kentucky bluegrass cultivars and selections organized by the National Turfgrass Evaluation Program, seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹					Spring Green-up ²	Drought Quality ³	Density ⁴	Color ⁵	Percent Ground Cover ⁶
	2018-21 Avg.	2018 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Mar 30 2021 Avg.	May 17 2021 Avg.	Nov 3 2021 Avg.	Nov 5 2021 Avg.	Nov 5 2021 Avg.
1 A-16-17	7.0	6.5	7.1	7.1	7.3	6.7	7.7	7.7	4.7	100.0
2 PPG-KB 1304	7.0	7.1	7.3	7.0	6.6	8.3	8.7	5.3	7.3	98.3
3 Barserati	6.8	6.6	7.0	6.9	6.7	7.3	7.0	8.0	4.7	100.0
4 A11-26	6.8	6.6	7.3	6.7	6.5	4.7	5.7	7.7	6.0	100.0
5 Blue Magic	6.7	6.5	6.8	6.7	6.8	7.3	8.3	7.3	7.0	100.0
6 BAR PP 79366	6.6	6.1	6.7	6.6	7.1	5.3	7.3	7.3	7.0	100.0
7 Bombay	6.6	6.1	7.0	6.9	6.3	5.0	8.0	6.7	7.7	99.7
8 Starr	6.6	6.4	6.9	6.6	6.6	6.0	7.7	8.7	7.3	100.0
9 A13-1	6.5	6.2	7.0	6.5	6.5	6.7	8.3	5.0	6.0	100.0
10 DLFPS-340/3556	6.4	6.7	6.1	6.7	6.2	5.3	7.0	5.3	6.7	100.0
11 Cloud	6.4	6.6	6.6	6.8	5.7	5.7	7.7	6.7	6.7	98.0
12 DLFPS-340/3553	6.3	6.3	6.6	6.3	6.3	6.3	6.3	6.0	6.7	100.0
13 NuRush	6.3	6.7	6.3	6.0	6.2	5.0	5.3	5.3	6.3	98.3
14 DLFPS-340/3550	6.2	5.8	6.3	6.5	6.1	6.7	6.7	8.0	7.0	100.0
15 Syrah	6.2	5.8	5.6	6.7	6.6	5.0	8.3	8.0	6.3	99.7
16 A04-383	6.2	6.6	6.2	6.0	5.9	6.7	3.0	9.0	5.3	100.0
17 J-1138	6.2	6.1	6.1	6.1	6.5	4.7	5.3	7.0	7.3	100.0
18 Skye	6.2	5.4	6.3	6.8	6.1	5.7	8.0	6.0	7.0	98.3
19 DLFPS-340/3500	6.1	5.9	6.3	6.3	5.9	7.0	7.3	7.7	7.0	100.0
20 DLFPS-340/3552	6.1	5.6	5.8	6.6	6.4	5.3	6.0	8.3	6.3	99.7

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(Continued)

Table 1. Performance of Kentucky bluegrass cultivars and selections organized by the National Turfgrass Evaluation Program, seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹					Spring Green-up ²	Drought Quality ³	Density ⁴	Color ⁵	Percent Ground Cover ⁶
	2018-21 Avg.	2018 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Mar 30 2021 Avg.	May 17 2021 Avg.	Nov 3 2021 Avg.	Nov 5 2021 Avg.	Nov 5 2021 Avg.
21 PST-K15-172	6.0	5.8	5.9	6.1	6.1	6.0	5.3	8.7	5.0	100.0
22 Barvette HGT	5.9	6.4	5.6	5.9	5.8	8.3	3.0	8.3	4.7	100.0
23 BAR PP 7236V	5.9	5.9	5.8	5.7	5.9	7.3	4.7	6.3	4.7	100.0
24 Blue Gem	5.8	5.6	5.9	5.7	6.1	4.0	5.0	6.0	7.0	96.7
25 AKB3128	5.8	5.9	5.7	6.0	5.6	7.0	5.0	6.3	6.3	98.3
26 Midnight	5.8	5.6	5.7	5.8	6.1	4.3	5.0	6.0	7.7	99.7
27 DLFPS-340/3551	5.7	5.7	5.9	5.9	5.5	6.0	5.0	5.3	7.0	99.7
28 A10-280	5.7	6.8	5.7	5.6	4.9	7.3	4.3	6.3	7.0	100.0
29 Acoustic	5.6	5.2	5.6	5.9	5.7	5.0	5.3	6.0	7.0	100.0
30 United	5.5	5.6	5.6	5.2	5.5	4.0	4.7	5.7	6.7	100.0
31 PST-K13-141	5.5	5.2	5.7	5.3	5.5	7.0	4.7	5.7	6.0	98.3
32 After Midnight	5.5	5.3	5.7	6.0	4.8	3.0	5.7	7.3	7.0	98.0
33 DLFPS-340/3438	5.4	5.2	5.6	5.9	5.2	6.0	5.0	5.7	8.0	100.0
34 Electric	5.4	5.3	5.7	5.5	5.1	7.3	6.0	4.3	2.3	83.3
35 BAR PP 79494	5.3	4.8	5.0	5.7	5.6	5.7	6.3	6.0	6.3	100.0
36 BAR PP 71213	5.2	5.5	6.0	4.8	4.5	6.0	3.7	4.3	4.7	98.3
37 BAR PP 7K426	5.2	5.7	5.0	5.1	5.1	5.7	6.7	5.3	6.0	98.3
38 Blue Devil	5.2	5.3	4.9	5.1	5.4	4.7	5.0	6.0	7.0	100.0
39 A11-40	5.2	5.6	4.5	5.3	5.5	7.3	7.3	5.0	6.3	93.0
40 Twilight	5.2	5.7	5.0	5.0	5.1	3.7	3.7	5.3	7.0	98.3

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(Continued)

Table 1. Performance of Kentucky bluegrass cultivars and selections organized by the National Turfgrass Evaluation Program, seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹					Spring Green-up ²	Drought Quality ³	Density ⁴	Color ⁵	Percent Ground Cover ⁶
	2018-21 Avg.	2018 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Mar 30 2021 Avg.	May 17 2021 Avg.	Nov 3 2021 Avg.	Nov 5 2021 Avg.	Nov 5 2021 Avg.
41 A-15-6	5.1	4.1	5.1	5.8	5.3	6.0	6.7	6.0	7.0	100.0
42 NK-1	5.1	5.0	5.4	5.2	4.8	5.7	6.3	5.0	6.3	98.0
43 PST-T14-139	5.1	5.2	5.5	5.3	4.6	6.7	4.3	5.7	6.3	96.7
44 Jersey	5.0	5.6	4.4	4.8	4.9	5.7	3.7	8.0	6.3	98.3
45 AKB3241	5.0	5.0	5.5	5.1	4.4	5.0	4.0	6.0	6.7	98.3
46 A06-8	4.9	5.8	4.7	4.5	4.7	6.3	4.7	6.0	6.3	98.0
47 Pivot	4.8	5.2	4.4	4.6	4.8	4.7	5.3	5.0	5.7	98.3
48 A12-34	4.8	4.7	4.3	5.6	4.7	6.3	6.0	6.0	6.0	98.3
49 AKB3179	4.8	5.6	4.4	4.4	4.7	3.0	4.3	7.3	7.0	100.0
50 KH3492	4.8	4.9	4.2	5.1	5.0	5.7	5.3	4.7	7.0	93.3
51 A-16-2	4.8	5.5	4.6	4.5	4.5	6.3	5.3	4.7	6.0	96.7
52 BAR PP 7309V	4.7	5.2	4.8	4.4	4.4	6.3	3.7	5.7	6.3	98.3
53 Finish Line	4.7	3.4	5.5	4.4	5.5	7.0	2.7	8.0	7.0	98.3
54 Amaze	4.6	4.6	4.7	4.9	4.0	5.0	4.7	7.3	6.7	98.0
55 DLFPS-340/3446	4.6	4.9	4.6	4.4	4.4	6.0	3.7	5.3	6.7	98.3
56 Selway	4.6	3.9	4.4	5.1	5.2	5.0	5.0	7.0	5.0	100.0
57 J-1319	4.6	5.7	4.3	4.9	3.7	2.7	3.7	3.0	7.3	93.3
58 J-2726	4.6	5.3	4.7	4.6	3.8	2.3	2.3	4.3	5.3	91.7
59 Babe	4.5	4.6	4.2	4.3	4.9	5.3	4.3	4.7	6.0	98.0
60 DLFPS-340/3455	4.4	5.3	4.4	3.9	4.1	6.0	4.0	5.7	6.3	98.3

(Continued)

Table 1. Performance of Kentucky bluegrass cultivars and selections organized by the National Turfgrass Evaluation Program, seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹					Spring Green-up ²	Drought Quality ³	Density ⁴	Color ⁵	Percent Ground Cover ⁶
	2018-21 Avg.	2018 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Mar 30 2021 Avg.	May 17 2021 Avg.	Nov 3 2021 Avg.	Nov 5 2021 Avg.	Nov 5 2021 Avg.
61 A16-7	4.4	4.5	4.3	4.7	4.2	4.3	3.7	4.0	7.3	96.7
62 NAI-15-80	4.4	4.8	4.1	4.4	4.1	5.0	3.0	6.0	6.7	96.3
63 NAI-14-128	4.3	4.6	3.9	5.0	4.0	2.7	4.7	8.3	8.0	96.7
64 NAI-14-132	4.3	4.8	3.9	4.8	3.7	3.7	5.3	8.0	7.7	98.3
65 DLFPS-340/3548	4.3	5.1	3.7	4.1	4.3	5.3	5.7	6.3	7.7	97.7
66 Yellowstone	4.3	5.6	5.1	3.5	3.0	3.0	1.3	2.7	6.7	91.7
67 PST-K15-167	4.3	4.4	4.4	4.7	4.0	3.0	4.0	5.7	6.7	96.7
68 MVS-130	4.1	4.5	4.2	4.1	3.7	3.0	3.0	7.7	8.3	99.7
69 Dublin	4.1	5.1	3.9	3.8	3.9	6.0	2.3	4.0	8.3	94.7
70 RAD 553	4.1	4.7	3.8	4.1	4.0	4.3	4.0	4.7	4.7	100.0
71 Heartland	4.0	4.2	3.5	4.5	4.0	3.0	6.3	7.3	7.7	96.3
72 DLFPS-340/3549	4.0	4.3	3.4	4.1	4.3	5.0	5.0	5.0	6.3	98.3
73 Orion	4.0	3.7	3.7	4.0	4.6	5.0	4.0	5.3	6.7	98.3
74 NAI-14-122	3.9	4.1	3.3	4.2	3.8	3.3	3.7	7.3	7.7	98.3
75 DLFPS-340/3364	3.9	2.6	3.8	4.2	4.9	5.7	5.3	6.0	6.0	100.0
76 Prosperity	3.8	4.6	3.3	3.9	3.4	3.3	1.7	4.0	6.7	96.7
77 Comanche	3.8	4.3	3.1	4.4	3.4	2.0	4.0	7.0	8.0	91.3
78 New Moon	3.8	5.2	4.7	2.9	2.5	3.3	1.0	4.3	6.7	94.7
79 RAD-1776	3.7	3.9	3.4	3.3	4.1	5.0	2.0	6.3	6.7	99.3
80 PST-11-7	3.5	5.0	4.6	3.1	1.3	1.7	1.0	1.0	5.3	53.3

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(Continued)

Table 1. Performance of Kentucky bluegrass cultivars and selections organized by the National Turfgrass Evaluation Program, seeded in September 2017 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹					Spring Green-up ²	Drought Quality ³	Density ⁴	Color ⁵	Percent Ground Cover ⁶
	2018-21 Avg.	2018 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Mar 30 2021 Avg.	May 17 2021 Avg.	Nov 3 2021 Avg.	Nov 5 2021 Avg.	Nov 5 2021 Avg.
81 Shamrock	3.5	4.6	3.1	3.0	3.2	3.3	2.7	4.7	6.3	98.0
82 A11-38	3.4	4.3	3.3	3.0	3.2	4.3	1.7	4.0	5.7	93.0
83 Aviator II	3.1	4.2	2.2	3.1	2.8	3.3	2.7	3.0	6.3	93.0
84 DLFPS-340/3494	3.1	5.7	2.4	1.6	2.7	2.0	1.0	4.7	6.7	95.0
85 DLFPS-340/3444	3.1	3.6	2.2	3.0	3.8	6.3	2.7	7.3	4.3	100.0
86 A16-1	3.0	4.0	2.5	2.4	3.2	3.3	1.7	3.3	7.0	98.3
87 Kenblue	3.0	2.7	2.1	3.0	4.4	8.0	2.0	5.7	5.0	97.7
88 Paloma	2.8	3.9	2.0	2.2	3.2	2.7	1.0	4.7	6.3	98.3
89 Blue Knight	2.7	2.2	2.0	3.0	3.5	5.0	2.7	4.7	5.0	96.7
90 PPG-KB 1320	2.0	2.9	1.0	1.3	2.7	3.0	1.7	4.3	7.7	90.0
LSD @ 5%=	0.6	0.7	1.0	0.9	0.9	1.7	2.0	1.9	1.5	7.9
CV=	7.6	8.7	12.8	11.4	11.9	20.2	26.1	19.7	14.4	5.0

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¹9 = Best turf quality
²9 = Earliest spring green-up
³9 = Best drought quality
⁴9 = Most dense turf
⁵9 = Darkest green color
⁶100% = Complete ground cover

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
1 A11-26	6.4	6.7	6.1	6.5	6.3	7.3	7.7	7.3	6.3	4.3	3.3	6.3
2 Twilight	6.1	6.9	5.4	6.0	7.7	6.7	4.3	9.0	6.7	2.7	4.3	8.0
3 Bolt	6.0	6.4	5.7	5.9	4.0	7.7	5.7	6.7	6.3	5.7	3.3	6.3
4 A09-305	5.9	6.4	6.2	4.9	7.0	7.3	6.7	9.0	5.3	5.3	4.0	2.7
5 A12-38	5.9	6.8	5.1	5.6	5.7	7.3	5.7	7.7	8.7	5.3	3.3	5.7
6 A14-420	5.9	6.0	5.7	5.9	5.0	6.7	7.0	8.0	6.0	2.7	3.0	5.7
7 Heidi	5.9	5.9	6.2	5.6	5.0	6.3	8.3	6.0	8.0	3.3	3.3	5.3
8 KB16OT-3	5.9	6.1	5.7	5.8	6.7	5.0	5.7	6.3	7.7	5.0	5.0	8.3
9 PST-K17-182	5.9	5.8	5.7	6.2	5.3	5.3	6.0	5.3	7.7	6.3	3.3	7.0
10 Skye	5.9	6.0	5.7	6.0	6.0	5.0	4.0	8.3	8.3	5.7	5.0	7.0
11 KB13OT-12	5.8	6.2	5.3	5.9	7.3	6.0	6.3	9.0	7.7	3.0	3.3	8.0
12 Pulsar	5.8	6.4	4.8	6.2	7.0	6.0	4.7	9.0	7.0	3.0	3.7	7.0
13 A16-12	5.7	5.5	5.6	6.0	5.3	4.7	7.0	4.7	8.0	5.7	5.7	6.3
14 A18-7	5.7	6.2	5.4	5.4	7.7	6.7	6.0	9.0	8.0	4.0	3.3	6.3
15 A18-9	5.7	6.3	5.6	5.2	8.3	4.0	6.3	5.7	8.3	3.7	5.0	6.0
16 Avalanche	5.7	5.8	5.2	5.9	6.3	7.7	5.7	8.7	4.3	5.0	4.0	6.3
17 Blue Bank	5.7	6.3	5.3	5.5	7.0	5.7	3.7	8.7	7.0	3.3	3.7	6.3
18 Legend	5.7	5.8	5.5	5.9	3.3	6.3	7.3	8.0	9.0	3.7	3.7	7.0
19 Zinfandel	5.7	6.0	5.5	5.7	5.3	6.7	6.7	9.0	9.0	4.0	4.0	7.3
20 A12-30	5.6	6.4	4.8	5.6	4.3	6.7	5.3	4.3	7.0	4.3	5.3	6.0

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
21 A16-10	5.6	5.6	5.8	5.4	4.3	6.0	6.0	5.0	8.0	6.7	6.7	5.0
22 A17-835	5.6	5.9	5.0	6.0	8.0	4.3	3.0	8.3	5.3	7.0	7.0	6.0
23 Blue Note	5.6	5.2	5.6	6.1	4.7	5.3	5.3	6.7	7.7	6.0	5.0	6.3
24 Blue Velvet	5.6	6.4	5.0	5.5	3.3	6.7	5.3	9.0	7.7	2.7	4.3	6.7
25 Midnight	5.6	6.5	4.9	5.3	6.0	6.7	6.0	8.7	7.7	3.0	3.7	7.3
26 Rugby II	5.6	6.1	5.1	5.6	6.7	6.7	6.0	9.0	7.0	2.7	4.3	7.3
27 Touche	5.6	6.3	5.4	5.1	4.0	8.0	4.7	6.3	4.0	4.3	3.0	5.0
28 A16-2	5.5	5.9	5.3	5.4	5.3	6.0	5.0	7.7	6.7	6.3	6.0	4.3
29 Granite	5.5	6.9	4.6	5.0	6.0	7.7	3.7	8.3	8.3	3.0	3.7	5.7
30 H03-556	5.5	5.2	5.4	5.9	4.7	4.0	5.7	8.7	7.0	7.3	7.3	7.7
31 Martha	5.5	5.6	5.5	5.5	3.7	5.0	6.3	6.7	7.3	4.7	4.3	6.0
32 PST-K17-191	5.5	6.1	5.6	4.9	4.7	5.3	5.0	4.7	8.3	6.0	5.7	4.7
33 United	5.5	6.2	4.9	5.3	7.0	6.3	4.0	9.0	7.7	2.7	3.7	6.7
34 A06-8	5.4	4.9	4.8	6.5	2.0	7.0	5.7	5.3	7.7	4.0	4.3	8.0
35 Hampton	5.4	5.7	4.8	5.5	4.7	4.7	4.7	7.0	7.3	4.3	5.0	6.0
36 Jersey	5.4	6.0	5.2	5.0	6.0	6.0	4.3	5.0	4.7	6.0	4.3	4.3
37 Jumpstart	5.4	5.3	4.9	6.1	5.7	3.0	3.7	7.3	7.0	6.3	5.7	6.7
38 KB13OT-4	5.4	4.8	5.2	6.1	5.7	4.7	8.3	6.7	8.0	6.0	6.0	7.7
39 Keeneland	5.4	5.7	5.2	5.3	6.3	4.7	5.3	8.3	7.7	3.7	3.7	6.0
40 RAD-3240	5.4	6.4	5.3	4.5	6.3	5.3	3.3	6.3	6.3	5.0	4.7	3.3

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
41 Rhythm	5.4	5.2	5.2	5.9	4.7	6.0	8.3	7.3	8.0	4.0	3.3	7.0
42 A15-17	5.3	5.2	5.3	5.3	4.7	6.3	7.0	5.7	8.3	4.7	4.3	5.3
43 A16-538	5.3	5.9	5.2	4.9	5.3	4.3	6.0	8.7	7.0	4.3	4.0	4.3
44 A16-540	5.3	5.8	4.8	5.1	5.7	6.3	5.0	8.3	6.0	3.7	2.7	5.0
45 A17-869	5.3	5.9	4.4	5.6	6.3	5.7	3.7	9.0	5.7	5.3	3.7	6.7
46 Arc II	5.3	4.9	5.6	5.4	4.0	4.3	5.3	1.3	7.7	4.0	3.0	5.3
47 Award	5.3	5.5	4.9	5.3	6.3	4.3	3.0	9.0	5.0	4.0	2.7	5.3
48 Explorer	5.3	6.1	4.8	5.1	4.7	5.3	5.3	7.0	8.3	3.0	4.0	6.0
49 J-2495	5.3	5.8	5.1	5.0	5.3	4.3	4.3	8.7	7.0	4.3	4.0	6.3
50 KB13OT-16	5.3	5.5	4.9	5.4	5.7	5.7	5.0	8.0	7.0	4.0	3.7	6.7
51 PST-K17-189AD	5.3	5.7	4.9	5.2	6.5	2.5	2.0	4.0	6.0	4.0	5.0	8.0
52 A09-794	5.2	5.7	5.0	4.9	5.7	3.3	4.7	3.0	3.7	4.0	3.3	4.7
53 A18-11	5.2	5.6	4.6	5.4	4.7	5.7	7.3	1.0	8.7	4.7	4.3	7.3
54 A18-6	5.2	5.5	5.4	4.8	6.7	4.3	6.7	3.3	8.3	3.7	4.3	5.7
55 Aries	5.2	5.1	5.2	5.3	3.3	6.3	5.0	4.7	7.7	6.0	5.3	5.3
56 Arrowhead	5.2	4.7	4.9	5.9	5.0	3.3	2.3	5.3	6.0	5.7	5.3	6.7
57 Babe	5.2	5.3	5.1	5.3	4.3	5.7	5.0	4.7	6.0	6.0	6.0	4.3
58 Beyond	5.2	5.3	4.9	5.5	6.7	5.3	4.0	8.3	6.7	2.3	4.0	7.0
59 Champagne	5.2	5.6	4.7	5.3	5.7	6.0	5.3	3.3	4.3	4.7	5.0	6.0
60 Corsair	5.2	4.9	5.5	5.2	3.7	4.3	5.0	6.7	7.7	5.3	5.7	3.7

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
61 J-299	5.2	5.8	5.5	4.5	6.7	3.7	6.7	7.3	8.0	3.7	4.0	4.7
62 KB13OT-19	5.2	5.5	5.0	5.2	6.0	3.7	3.0	7.0	7.0	4.7	4.3	5.3
63 KB15OT-29	5.2	5.7	4.5	5.5	6.7	6.0	4.7	6.7	6.0	5.7	2.3	7.7
64 Powerplay	5.2	5.4	4.8	5.3	4.0	4.3	6.0	8.0	8.0	3.3	2.0	6.0
65 Prosperity	5.2	5.8	5.0	4.8	6.3	1.3	1.0	7.7	5.3	4.7	3.7	6.0
66 PST-K18-199	5.2	5.7	5.3	4.5	4.5	3.5	4.5	4.5	4.5	6.0	5.5	5.5
67 PST-K8-76NO	5.2	5.8	4.7	5.0	3.7	6.0	4.7	6.7	2.0	5.3	3.0	6.7
68 Rockstar	5.2	5.1	5.3	5.0	5.7	5.3	5.7	5.0	7.0	5.7	5.0	5.0
69 Sombrero	5.2	5.4	5.1	5.2	5.3	4.0	6.7	4.7	6.0	5.0	5.3	5.3
70 Tirem	5.2	5.9	4.9	4.9	6.7	7.0	8.0	1.0	8.7	5.0	5.3	6.3
71 10-2233	5.1	6.1	4.7	4.4	6.0	6.7	5.7	8.3	8.0	3.3	3.7	5.7
72 A12-267	5.1	5.6	5.3	4.5	5.7	6.0	5.7	7.0	7.7	5.7	3.7	4.3
73 A16-8	5.1	5.5	4.9	5.0	4.7	6.7	6.3	3.0	7.0	4.7	4.7	8.0
74 A17-814	5.1	5.7	4.6	4.9	7.3	7.3	6.3	2.3	7.3	5.7	4.3	4.3
75 A18-1	5.1	4.9	5.3	5.1	4.3	5.7	6.3	4.7	6.0	5.3	5.0	6.7
76 A18-10	5.1	4.9	5.2	5.3	3.7	3.3	4.3	3.0	8.0	4.7	5.3	6.7
77 A18-5	5.1	6.1	4.9	4.3	6.0	4.7	6.3	6.7	3.3	5.7	4.7	4.0
78 Arcadia	5.1	5.6	4.7	5.1	4.7	5.7	4.0	8.0	5.7	3.3	4.3	7.0
79 Dauntless Select	5.1	5.8	5.5	4.1	4.7	6.7	5.3	5.7	7.0	5.3	5.7	4.3
80 Denali II	5.1	5.5	4.7	5.1	6.3	3.3	3.3	6.3	6.7	7.0	5.0	5.0

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
81 KB15OT-39	5.1	5.6	4.6	5.1	3.3	7.0	5.7	6.3	7.3	4.0	4.7	6.0
82 Moonshine	5.1	4.8	5.4	5.1	5.7	4.3	5.3	6.7	7.0	5.7	6.0	5.3
83 NAI-17-2	5.1	5.2	4.8	5.3	6.3	3.7	6.3	4.7	8.3	6.7	5.0	6.7
84 Paragon	5.1	5.5	4.9	4.9	5.3	6.0	5.3	5.7	7.7	5.0	4.7	4.7
85 PST-K13-141	5.1	4.8	5.3	5.2	4.0	4.7	6.3	4.0	6.3	4.7	4.3	5.0
86 RAD-3909	5.1	5.3	5.0	4.9	5.3	3.7	7.0	2.0	7.7	4.3	3.7	6.7
87 SPF 30	5.1	5.5	5.1	4.8	7.0	6.3	6.0	6.0	6.0	5.7	4.0	4.3
88 A17-889	5.0	5.7	4.3	5.0	7.7	5.0	4.3	5.7	5.7	6.0	5.3	7.7
89 Blueberry	5.0	4.6	5.0	5.3	5.0	5.3	5.7	5.7	7.3	5.7	4.7	5.7
90 Deep Blue	5.0	5.2	4.7	5.2	7.0	6.0	5.7	5.3	5.0	5.7	4.7	4.3
91 NAI-15-89	5.0	5.4	4.9	4.7	7.0	7.0	6.7	4.3	7.0	4.3	3.7	5.3
92 PST-11-7	5.0	5.1	5.0	5.0	4.0	2.7	4.0	3.7	6.7	4.7	4.7	7.0
93 PST-K11-118	5.0	4.7	5.1	5.1	4.3	5.0	6.0	6.3	7.3	4.7	5.3	5.7
94 PST-T15-44	5.0	5.6	4.6	5.0	6.0	3.7	4.3	4.0	6.3	6.0	5.0	3.3
95 Rhapsody	5.0	4.2	5.1	5.6	4.0	3.7	6.7	7.0	7.0	5.0	4.7	5.7
96 Selway	5.0	4.9	4.8	5.2	5.0	2.0	4.0	3.7	5.3	6.3	3.7	5.3
97 A18-207	4.9	3.8	5.6	5.3	2.0	3.3	7.3	5.0	8.3	5.3	3.3	6.0
98 A18-8	4.9	4.9	4.9	4.9	4.7	3.7	5.3	8.3	8.3	3.7	3.7	3.3
99 A98-363	4.9	4.5	4.7	5.4	3.3	4.3	4.7	3.0	9.0	4.3	4.7	7.0
100 Bewitched	4.9	4.7	4.9	5.2	5.3	3.7	3.7	5.0	5.3	6.7	5.0	5.3

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
101 Crest	4.9	5.3	5.0	4.4	5.0	6.7	6.3	5.3	8.0	4.3	4.3	3.3
102 Gaelic	4.9	5.5	5.1	4.2	6.3	4.0	3.7	6.7	6.3	6.3	5.7	4.0
103 KB15OT-24	4.9	4.9	4.5	5.3	5.3	3.7	3.3	2.0	6.7	4.3	5.7	8.3
104 Midnight II	4.9	4.8	5.1	4.8	4.7	4.7	5.3	7.7	8.0	3.7	4.7	6.3
105 NAI-11-644	4.9	5.6	4.4	4.6	4.7	4.7	4.0	7.0	2.3	4.7	4.0	7.0
106 NAI-17-13	4.9	5.1	4.4	5.2	6.3	3.3	4.7	4.7	7.3	6.7	4.7	6.7
107 NAI-17-49	4.9	4.9	4.6	5.2	5.3	4.0	3.3	7.7	7.0	3.0	4.0	5.7
108 PST-K17-186	4.9	5.3	5.1	4.2	5.3	5.3	4.3	6.7	7.7	4.7	4.7	4.0
109 PST-K17-193	4.9	4.9	4.6	5.2	3.3	4.0	2.3	6.0	5.7	4.3	4.3	3.3
110 Rubix	4.9	3.9	5.3	5.5	1.3	3.3	4.0	7.7	6.3	6.3	6.3	7.0
111 Shamrock	4.9	5.6	4.5	4.6	5.7	4.7	4.0	7.3	6.0	7.3	5.3	4.3
112 A09-789	4.8	5.5	4.5	4.4	6.3	3.7	4.0	3.0	1.7	5.0	4.7	4.0
113 A14-439	4.8	4.5	4.6	5.1	5.0	3.3	3.7	4.7	8.0	6.3	5.3	6.0
114 A17-806	4.8	5.0	5.4	4.0	5.3	6.3	5.7	4.7	4.7	4.3	5.0	4.7
115 A17-863	4.8	5.3	4.4	4.8	6.7	5.7	5.0	3.7	4.7	5.7	4.0	7.3
116 Abbey	4.8	5.1	5.2	4.1	6.3	4.3	6.7	7.3	8.0	4.3	3.0	4.7
117 Bandera	4.8	5.3	4.8	4.4	4.0	4.7	6.0	5.3	6.3	3.7	3.0	5.0
118 Courtyard	4.8	5.3	4.6	4.5	5.7	4.7	4.3	6.3	6.7	4.3	4.3	4.3
119 Everest	4.8	5.3	4.7	4.4	6.3	6.0	6.0	9.0	8.0	2.7	3.3	6.3
120 Geisha	4.8	5.2	5.0	4.1	6.0	4.7	5.3	7.7	7.3	4.0	3.7	3.0

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
121 GO-SWM	4.8	4.9	4.4	5.0	6.0	3.7	1.3	2.7	7.7	5.3	4.3	7.7
122 Green Star	4.8	5.6	4.9	3.9	5.7	3.0	1.7	7.0	7.7	5.7	4.3	4.3
123 Jackrabbit	4.8	5.2	4.4	4.9	5.0	4.0	3.7	5.0	7.0	5.0	5.3	6.7
124 P-105	4.8	4.7	4.6	5.0	5.7	3.0	5.3	4.7	6.0	5.3	4.7	5.0
125 PST-K15-167	4.8	5.3	4.3	4.8	3.7	3.7	6.0	2.0	8.0	3.7	3.0	5.7
126 PST-K17-185	4.8	4.6	5.0	4.8	4.7	3.3	6.3	5.0	7.3	4.0	4.3	5.0
127 PST-K17-187	4.8	5.1	5.0	4.3	4.3	3.7	3.3	5.3	7.0	4.7	5.3	3.0
128 PST-K17-196	4.8	5.2	4.8	4.6	3.3	3.7	6.3	2.0	6.7	4.0	3.3	5.0
129 Wildhorse	4.8	4.5	5.2	4.8	5.0	4.7	6.0	5.7	7.0	6.0	5.7	5.0
130 A14-423	4.7	4.5	4.3	5.2	5.7	6.0	5.3	3.7	5.0	6.7	4.3	7.3
131 A17-878	4.7	4.6	4.2	5.3	7.0	7.3	3.3	4.7	3.7	5.7	2.7	6.7
132 A18-204	4.7	4.7	4.7	4.6	3.7	2.3	4.0	1.3	7.3	4.3	3.7	5.0
133 Finish Line	4.7	3.6	5.0	5.5	1.3	3.0	5.0	6.0	6.3	6.3	6.7	6.3
134 Kelly	4.7	5.3	5.3	3.4	6.7	4.0	6.3	9.0	6.7	4.0	3.0	2.0
135 Limousine	4.7	5.4	4.8	3.8	4.7	4.7	4.0	5.7	3.3	6.0	2.7	6.0
136 NAI 14-133	4.7	5.6	4.1	4.5	2.7	2.7	1.7	1.3	8.7	4.3	2.7	5.0
137 NAI-15-80	4.7	4.6	4.9	4.7	4.0	4.0	3.0	3.7	8.0	4.7	4.7	6.0
138 PST-K15-169	4.7	4.7	4.2	5.0	3.7	3.3	2.0	3.7	6.3	3.0	2.3	5.0
139 PST-K17-183	4.7	4.6	4.6	5.0	2.7	2.0	1.3	6.0	7.0	4.0	3.7	5.3
140 Quantum Leap	4.7	5.5	4.3	4.5	4.7	5.7	5.0	8.7	8.0	3.0	4.0	5.7

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establish- ment ²	Stem Rust ³		Stem- miness ⁴	Dollar Spot ⁵	Spring Green-up ⁶		Drought Quality ⁷
	2019-21	2019	2020	2021	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
141 RAD-3285	4.7	4.6	4.4	5.1	4.7	3.0	5.0	2.0	8.7	4.0	4.0	6.0
142 A09-793	4.6	4.9	4.5	4.3	4.7	4.0	5.3	3.0	2.3	5.0	4.0	5.0
143 A16-8	4.6	4.6	4.4	4.9	5.7	4.7	3.3	4.7	6.0	3.7	3.7	6.3
144 A16-824	4.6	4.6	4.4	4.9	6.7	3.3	4.3	8.7	7.7	6.7	7.7	6.7
145 A18-12	4.6	4.1	4.7	5.0	5.0	4.0	4.7	2.7	7.3	6.0	3.7	4.3
146 A18-208	4.6	3.6	4.7	5.4	2.3	2.7	5.7	5.3	7.7	5.0	3.7	5.7
147 A18-3	4.6	4.5	4.2	5.0	3.7	4.3	5.0	4.7	7.3	6.3	3.7	4.3
148 ARC	4.6	4.1	4.7	5.0	3.7	2.3	3.3	5.0	5.3	5.7	5.0	5.7
149 Aviator II	4.6	4.7	4.4	4.5	5.3	3.7	3.0	5.3	8.7	3.7	4.0	7.3
150 Dauntless	4.6	4.6	4.9	4.3	2.7	5.0	4.7	5.3	6.3	5.7	4.7	2.7
151 Diva	4.6	4.7	4.7	4.5	6.3	3.0	5.3	6.0	6.3	5.7	5.3	6.0
152 Endurance	4.6	3.6	4.9	5.2	2.7	1.7	6.0	6.0	8.7	4.7	5.0	7.0
153 Fielder	4.6	4.7	4.5	4.8	5.0	3.7	4.7	6.3	5.7	6.0	5.0	4.7
154 J-920	4.6	4.5	4.5	4.8	5.0	4.3	6.0	6.0	7.0	6.0	5.3	6.3
155 J-924	4.6	5.3	4.5	4.1	5.3	4.0	3.0	7.0	5.3	6.3	4.7	4.0
156 KB11OT-47	4.6	4.0	4.9	5.0	2.3	3.0	4.7	3.7	5.0	4.7	4.0	6.7
157 Kenblue	4.6	4.3	4.3	5.3	5.7	4.0	5.7	3.3	8.7	7.7	7.7	7.0
158 Lunar	4.6	4.9	4.6	4.2	5.7	4.7	6.0	2.0	8.7	4.7	5.3	4.0
159 Noble	4.6	5.1	4.2	4.5	6.0	3.3	3.3	6.3	8.7	4.0	4.3	6.3
160 Nugget (B)	4.6	5.4	4.2	4.1	4.7	3.0	1.3	7.7	3.7	3.7	4.0	4.7

(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
161 SR 2100	4.6	5.1	4.8	4.0	4.3	6.0	5.0	7.0	6.7	3.0	3.7	3.0
162 A14-426	4.5	4.6	3.6	5.4	5.3	3.7	2.0	3.3	4.7	4.3	2.7	6.3
163 A18-14	4.5	4.1	4.6	5.0	2.3	4.3	6.0	1.3	6.7	5.3	2.7	6.0
164 A18-206	4.5	4.2	4.3	5.0	3.3	4.3	4.3	2.7	5.3	5.3	4.0	6.0
165 Baron	4.5	4.8	5.0	3.8	5.0	5.3	6.3	4.0	7.0	3.7	3.3	3.3
166 Bordeaux	4.5	4.4	4.3	4.8	5.7	3.3	5.0	5.0	6.7	4.7	5.0	5.3
167 Comet	4.5	4.2	4.7	4.6	3.7	3.3	4.7	2.7	8.0	3.7	4.7	6.0
168 Heartland	4.5	5.0	3.6	4.8	2.3	2.7	1.0	1.0	7.0	4.7	2.3	5.7
169 NAI 14-122	4.5	4.7	4.1	4.7	2.0	2.7	1.7	1.7	8.7	3.7	2.3	5.7
170 NAI 14-128	4.5	5.1	4.0	4.4	2.7	3.7	2.0	1.0	8.0	4.3	2.0	5.0
171 NAI-13-131	4.5	3.9	4.5	5.0	4.0	4.7	6.3	4.3	8.3	4.3	4.0	6.7
172 PST-K16-178	4.5	5.0	4.1	4.3	6.7	3.7	4.0	2.7	5.7	4.7	4.0	5.3
173 PST-T17-47	4.5	4.3	4.6	4.7	3.3	3.7	3.7	4.7	6.3	6.0	5.7	5.3
174 RAD-3956	4.5	4.8	4.0	4.6	4.0	6.7	3.7	4.0	4.3	6.0	5.0	4.0
175 A14-31	4.4	4.9	4.1	4.2	3.7	5.0	4.7	2.7	7.3	3.3	3.3	4.7
176 A16-806	4.4	4.4	4.0	4.7	5.3	2.7	4.3	4.3	5.7	5.7	5.3	6.3
177 A17-853	4.4	4.5	3.9	4.9	4.7	3.7	3.7	5.3	4.7	5.0	4.3	7.0
178 Bluecoat	4.4	4.9	4.1	4.2	4.7	3.7	1.3	1.7	7.3	4.3	3.0	3.7
179 Cutting Edge	4.4	4.9	4.1	4.2	5.3	2.7	2.0	2.7	4.7	5.0	4.0	7.0
180 Fahrenheit	4.4	5.1	3.7	4.3	4.7	4.3	2.0	5.7	4.0	4.0	4.0	4.0

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
181 Milagro	4.4	4.2	4.0	5.0	4.7	2.3	1.3	1.3	7.0	5.0	4.7	8.3
182 NAI-14-132	4.4	4.8	3.8	4.6	3.0	3.3	1.3	1.3	9.0	4.7	2.7	5.7
183 PST-105-69	4.4	4.1	3.9	5.1	3.7	2.3	3.3	3.0	6.0	5.7	5.0	5.7
184 PST-K15-158	4.4	3.8	4.2	5.1	2.3	4.3	5.7	2.3	7.0	5.0	5.0	6.7
185 PST-K16-179	4.4	4.8	4.2	4.2	3.7	3.3	3.7	3.7	7.3	5.3	5.0	4.7
186 A12-300	4.3	3.7	4.3	4.9	3.3	2.7	3.0	2.3	5.0	6.0	4.3	6.3
187 NAI-14-126	4.3	4.3	3.7	4.9	1.7	3.0	1.7	1.3	7.7	5.3	3.0	5.3
188 NAI-15-111	4.3	4.0	4.1	4.8	3.0	1.7	2.0	4.0	5.7	5.7	3.7	4.3
189 PST-K15-173	4.3	4.0	4.4	4.5	1.7	5.7	5.7	3.3	7.3	4.7	4.3	4.3
190 PST-K15-177	4.3	4.3	4.2	4.4	3.0	2.3	1.0	4.0	6.3	3.7	3.7	6.0
191 PST-K17-192	4.3	4.5	4.1	4.3	4.0	3.0	3.3	4.0	6.7	4.7	3.7	4.3
192 PST-K17-194	4.3	4.2	4.4	4.4	4.3	3.0	5.7	3.0	7.0	5.0	4.0	3.3
193 PST-T15-43	4.3	4.2	4.6	4.1	2.3	2.7	5.7	4.3	6.3	3.7	4.0	4.3
194 Rubicon	4.3	3.6	4.5	4.9	2.3	3.3	3.7	6.3	5.3	5.0	6.0	5.7
195 Sunray	4.3	4.9	4.0	4.1	5.3	3.0	2.3	1.7	4.3	4.3	4.0	5.0
196 Touchdown	4.3	4.2	4.3	4.3	6.0	3.0	4.0	4.3	5.3	7.3	7.3	4.7
197 A12-34	4.2	4.4	3.9	4.4	4.0	3.7	3.7	7.0	7.7	4.0	4.0	6.3
198 A13-679	4.2	3.8	4.3	4.6	4.0	4.3	4.0	4.0	5.3	5.3	2.7	6.0
199 A18-13	4.2	3.3	4.9	4.3	1.7	3.3	6.0	4.0	8.7	6.0	4.0	4.3
200 KB16OT-1	4.2	4.0	4.1	4.5	6.7	2.0	2.0	6.3	6.3	8.0	7.3	6.7

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
201 NAI 14-176	4.2	5.0	3.6	4.1	3.3	3.3	1.0	1.0	8.0	4.0	2.3	4.3
202 NAI-14-127	4.2	4.6	3.8	4.1	3.3	3.7	1.3	1.7	6.3	4.0	3.3	4.0
203 PST-K15-160	4.2	3.8	4.0	4.9	2.7	3.0	4.7	4.0	7.7	4.3	5.0	5.7
204 PST-K15-163A	4.2	4.2	4.0	4.5	4.3	1.7	2.3	3.0	5.3	5.0	5.7	4.3
205 PST-TX8-56	4.2	5.6	3.6	3.3	5.7	3.7	3.7	7.0	3.3	5.0	4.7	4.3
206 Shannon	4.2	3.9	3.8	4.8	1.7	3.7	3.7	3.3	8.0	4.7	4.7	5.0
207 A17-849	4.1	4.6	3.4	4.2	4.7	4.3	2.3	6.7	3.3	5.3	4.7	6.0
208 A18-2	4.1	3.9	4.2	4.2	3.7	5.7	5.3	5.7	7.3	7.0	6.7	3.3
209 MacMillan	4.1	4.1	3.9	4.1	2.7	3.3	5.3	1.0	7.7	4.7	3.7	4.7
210 NAI-12-41	4.1	3.7	4.3	4.4	2.7	2.7	4.0	4.7	6.7	5.0	3.3	4.7
211 NAI-15-112	4.1	4.3	3.9	4.3	5.0	2.0	2.3	4.7	4.0	5.7	3.3	4.3
212 PST-K13-139	4.1	3.5	4.3	4.6	2.7	3.0	4.3	3.3	5.7	5.0	3.3	4.3
213 PST-K15-172	4.1	3.6	3.9	4.9	1.3	5.3	5.0	1.7	6.7	3.7	3.3	5.0
214 PST-K16-180	4.1	3.8	4.3	4.3	2.3	4.7	5.7	3.3	6.7	4.0	4.0	5.7
215 RAD-3988	4.1	3.8	4.4	4.1	4.7	4.0	4.0	3.0	8.3	6.3	5.3	5.7
216 A18-209	4.0	3.5	4.1	4.4	3.7	3.3	6.0	4.3	7.7	3.7	4.3	7.3
217 A18-4	4.0	3.4	3.8	4.7	2.0	3.3	3.7	5.7	7.3	4.0	4.0	6.3
218 A15-1088	3.9	3.2	3.3	5.0	1.3	2.0	3.0	1.0	6.3	5.7	5.0	7.3
219 A15-2	3.9	2.8	4.3	4.4	1.0	4.0	5.3	1.3	6.7	5.7	4.0	4.0
220 A18-205	3.9	3.6	3.4	4.5	2.0	3.0	3.7	1.7	6.7	4.0	3.0	5.0

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish-	----- Stem Rust ³ -----		Stem-	Dollar	Spring		Drought
	2019-21	2019	2020	2021	ment ²	Sep. 20	Sep. 24	miness ⁴	Spot ⁵	Green-up ⁶ -----		Quality ⁷
	Avg.	Avg.	Avg.	Avg.	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
					2019	2019	2020	2020	2020	2020	2021	2021
					Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
221 Harvest Moon	3.9	4.1	3.8	3.8	5.3	2.7	2.7	1.7	5.0	5.3	4.3	4.3
222 Morocco	3.9	4.7	3.5	3.4	7.0	4.0	3.3	7.3	4.3	8.7	7.7	6.0
223 Mercury	3.8	3.4	3.8	4.3	1.3	3.3	6.0	1.0	8.7	4.3	3.7	6.0
224 NAI-17-90	3.8	3.0	4.0	4.4	2.3	4.0	4.7	3.0	7.0	3.7	4.0	5.3
225 PST-T14-39	3.8	2.7	3.9	4.7	1.0	3.0	5.0	1.7	8.0	6.3	3.7	5.7
226 RAD-2375	3.8	4.4	3.6	3.5	5.3	2.0	2.7	7.0	4.3	7.7	4.7	3.0
227 RAD-3813	3.8	3.5	3.4	4.6	2.7	5.7	5.3	1.0	8.7	5.7	6.3	6.0
228 Volt	3.8	2.9	4.4	4.1	1.7	3.3	5.7	2.7	6.7	5.3	4.3	4.3
229 A16-5	3.7	3.6	3.6	4.0	2.3	1.7	3.3	1.7	6.3	4.7	5.0	4.3
230 NAI-13-79	3.7	2.5	3.6	5.0	1.0	2.7	5.0	3.7	6.3	5.3	4.7	7.0
231 NAI-17-88	3.7	3.0	3.9	4.3	2.3	3.7	4.0	3.3	5.3	4.3	4.7	4.3
232 PST-K18-197	3.7	3.7	3.8	3.8	3.3	3.0	3.0	3.3	5.7	4.3	2.7	3.3
233 PST-T17-50	3.7	2.8	4.0	4.4	2.0	2.0	3.0	4.3	5.3	5.3	4.0	5.0
234 RAD-3651	3.7	3.5	3.7	3.9	3.0	1.7	2.3	2.3	5.3	4.0	4.3	4.3
235 RAD-3832	3.7	3.7	3.3	4.1	4.3	1.7	1.7	2.0	7.3	5.3	6.0	5.7
236 Blackjack	3.6	3.2	3.6	4.0	2.0	2.3	2.7	2.7	6.3	5.0	4.3	5.0
237 KB16OT-2	3.6	2.5	3.8	4.5	1.0	3.3	5.0	2.7	8.0	5.3	5.0	6.3
238 PST-K18-198	3.6	3.8	3.5	3.7	4.3	1.0	1.3	3.0	7.0	5.7	3.3	2.7
239 NAI-17-89	3.5	3.0	3.5	4.1	2.3	3.7	3.0	2.3	7.0	4.7	4.3	5.7
240 Blue Ghost	3.4	1.8	4.1	4.3	1.0	1.3	3.3	1.3	6.3	5.3	4.3	6.3

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(Continued)

Table 2. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----				Establish- ment ²	----- Stem Rust ³ -----		Stem- miness ⁴	Dollar Spot ⁵	Spring Green-up ⁶ -----		Drought Quality ⁷
	2019-21	2019	2020	2021	Apr. 4	Sep. 20	Sep. 24	May. 18	Sep. 4	Apr. 8	Apr. 2	Jul. 28
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.*	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
241 Prafin	3.0	1.4	3.1	4.4	1.0	3.3	4.7	3.3	6.3	5.0	4.7	5.3
242 Bluestar	2.6	1.4	2.8	3.5	1.0	2.3	4.7	1.7	7.0	5.3	3.3	5.3
LSD @ 5% =	0.7	1.0	0.8	1.1	1.8	1.8	2.4	1.9	2.7	1.4	1.1	2.5
CV =	9.2	13.3	10.3	14.5	24.7	26.5	33.9	23.7	25.1	17.6	16.3	28.4

*= rust rating Sept 20,2019 was mainly stem with some crown+stripe rust

¹9 = Best turf quality

²9 = Quickest establishment

³9 = Least disease

⁴9 = Least stemminess

⁵9 = Least disease

⁶9 = Earliest spring green-up

⁷9 = Best drought quality

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
1 A16-228	7.0	6.8	7.1	6.0	8.7	6.0	8.7
2 A16-231	6.6	6.5	6.7	5.3	8.7	7.0	8.7
3 A19-08	6.5	6.6	6.3	8.0	7.3	3.7	7.0
4 T15-46	6.5	6.7	6.3	4.3	9.0	3.3	9.0
5 PST-K19-208	6.4	5.9	6.9	6.3	5.7	4.3	7.7
6 NAI-13-29	6.3	6.5	6.1	7.3	7.3	1.7	9.0
7 A17-1	6.2	6.1	6.2	6.7	8.3	3.7	6.7
8 A19-299	6.2	5.6	6.8	6.3	6.3	7.0	8.7
9 NAI-17-37	6.2	5.9	6.5	7.7	6.3	2.3	8.7
10 NAI-17-40	6.2	5.7	6.6	6.3	6.3	2.7	8.7
11 A11-26	6.1	6.0	6.1	6.0	8.3	2.7	6.3
12 Bolt	6.1	5.8	6.4	5.3	8.3	3.7	8.7
13 NAI-17-43	6.1	5.8	6.4	7.3	6.0	2.7	8.7
14 NAI-17-51	6.1	5.9	6.2	7.3	7.0	3.0	8.3
15 PST-K11-118	6.1	5.7	6.5	7.0	6.3	6.0	4.0
16 SRX 5321	6.1	6.0	6.0	6.3	7.3	3.3	8.0
17 A12-38	6.0	5.8	6.2	8.3	6.0	2.0	8.7
18 A19-11	6.0	5.5	6.5	5.3	6.0	5.0	9.0
19 A19-17	6.0	5.5	6.4	7.7	7.0	7.3	5.0
20 Desert Moon	6.0	6.1	5.8	6.0	7.0	3.0	8.7

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
21 Hampton	6.0	5.8	6.2	7.7	6.7	6.3	8.3
22 A05TB-258	5.9	6.2	5.7	3.7	7.7	3.0	7.7
23 A19-03	5.9	5.5	6.3	5.3	6.7	5.7	7.0
24 A19-16	5.9	5.7	6.1	8.0	5.3	4.3	7.7
25 A98-363	5.9	5.5	6.2	7.0	6.0	4.3	7.7
26 NAI-17-42	5.9	5.4	6.3	7.3	6.7	2.7	8.7
27 PST-K17-191	5.9	5.7	6.1	6.7	7.7	6.7	8.3
28 A09-305	5.8	5.5	6.2	4.7	8.3	5.7	6.7
29 A14-422	5.8	6.0	5.6	9.0	8.7	6.7	9.0
30 A16-807	5.8	5.8	5.9	8.7	7.7	4.3	9.0
31 A16-816	5.8	5.8	5.7	8.7	8.0	4.3	9.0
32 A19-18	5.8	5.7	5.8	7.0	6.7	3.3	5.3
33 A19-50	5.8	5.3	6.2	6.0	6.7	4.0	8.3
34 H03-556	5.8	4.7	6.9	6.7	5.3	7.0	9.0
35 Midnight	5.8	5.8	5.9	6.7	6.3	1.3	9.0
36 MVS-280	5.8	6.0	5.6	4.7	8.7	5.3	4.0
37 NAI-17-53	5.8	5.4	6.2	8.0	6.3	2.7	8.7
38 NAI-17-54	5.8	5.4	6.2	6.3	7.3	2.3	8.3
39 PST-K17-187	5.8	5.6	5.9	5.3	5.3	4.0	9.0
40 Right	5.8	5.6	6.1	5.3	5.7	3.7	7.0

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
41 T14-37	5.8	5.7	5.9	7.7	5.0	4.3	8.3
42 T15-47	5.8	5.6	6.0	5.7	6.3	7.0	5.3
43 A16-14	5.7	5.6	5.8	7.0	8.3	6.7	6.3
44 A19-295	5.7	5.5	5.9	4.3	7.7	6.3	7.0
45 Bluenote	5.7	5.1	6.2	7.0	5.3	5.7	6.3
46 J09-2797	5.7	5.4	6.0	6.3	5.3	3.3	7.0
47 365SS	5.6	5.3	5.9	7.0	7.7	5.0	6.7
48 A14-677	5.6	5.3	6.0	8.3	5.0	6.0	9.0
49 A15-17	5.6	5.3	5.9	6.7	7.7	5.0	3.7
50 A19-01	5.6	5.6	5.8	6.3	7.7	2.7	4.0
51 Blue Velvet	5.6	5.4	5.8	6.7	6.3	3.3	7.7
52 Finish Line	5.6	5.5	5.7	4.7	5.7	7.0	8.3
53 J00-1249	5.6	5.5	5.7	8.7	6.3	1.7	8.3
54 NAI-17-49	5.6	5.6	5.7	7.3	6.7	3.7	8.0
55 A13-1	5.5	5.5	5.6	4.0	7.3	3.3	7.7
56 A18-5	5.5	5.4	5.6	8.0	7.0	4.7	7.3
57 A19-10	5.5	5.3	5.6	7.0	7.0	6.0	1.3
58 Granite	5.5	5.6	5.4	8.7	6.3	2.0	8.0
59 J10-2233	5.5	5.3	5.7	8.0	6.0	2.7	7.3
60 LTP-11-41	5.5	5.4	5.6	8.3	6.7	5.3	8.7

(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
61 NAI-17-41	5.5	5.2	5.9	7.0	5.3	2.7	8.7
62 NAI-17-46	5.5	5.5	5.6	7.3	6.7	2.3	8.3
63 NAI-17-48	5.5	5.5	5.5	7.7	6.3	1.7	9.0
64 NuGlade	5.5	5.0	6.0	7.3	4.3	2.0	8.3
65 Prafin	5.5	5.4	5.6	8.0	4.7	2.3	8.0
66 PST-K17-182	5.5	5.2	5.7	3.7	6.0	5.0	4.0
67 A12-37	5.4	5.4	5.5	8.3	5.3	1.7	8.7
68 A16-17	5.4	6.0	4.7	7.0	6.7	2.0	8.7
69 A17-5	5.4	5.5	5.2	7.3	7.0	4.3	8.0
70 A18-11	5.4	5.7	5.1	7.0	7.0	3.3	2.0
71 A19-47	5.4	5.7	5.1	7.0	7.7	4.7	5.0
72 Champagne	5.4	5.5	5.3	7.3	6.3	4.7	4.7
73 Heidi	5.4	5.5	5.4	4.7	4.7	5.7	7.3
74 J-299	5.4	5.5	5.3	8.7	5.7	3.7	3.3
75 J00-1138	5.4	5.4	5.3	8.3	5.3	1.7	7.7
76 J00-2830	5.4	5.1	5.7	8.0	3.0	2.0	7.3
77 NAI-17-38	5.4	5.1	5.7	7.3	5.3	3.0	7.3
78 NAI-17-39	5.4	5.1	5.7	6.7	4.3	3.3	6.3
79 NAI-17-47	5.4	5.1	5.8	7.7	6.7	2.7	8.3
80 NAI-17-50	5.4	5.1	5.8	7.0	6.0	2.0	8.7

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
81 PST-K13-141	5.4	5.3	5.4	7.3	7.0	4.7	4.7
82 PST-K18-199	5.4	5.7	5.2	5.3	7.0	6.0	6.0
83 United	5.4	5.6	5.3	7.7	5.0	2.7	8.7
84 Yellowstone	5.4	5.0	5.9	4.7	6.0	3.7	6.7
85 A14-26	5.3	6.0	4.5	6.7	5.3	1.0	8.7
86 A19-12	5.3	5.0	5.5	6.3	5.3	8.0	7.3
87 A19-19	5.3	5.3	5.3	6.7	5.3	4.7	7.0
88 A19-298	5.3	5.1	5.5	3.7	7.7	3.0	5.3
89 Blue Gem	5.3	5.0	5.6	7.3	5.7	2.7	8.3
90 Geisha	5.3	5.3	5.3	8.7	4.7	4.3	1.7
91 Ginney II	5.3	5.1	5.4	8.3	5.3	2.7	6.3
92 J00-3301	5.3	5.1	5.6	8.3	4.7	1.7	9.0
93 J05-1331	5.3	5.1	5.5	6.7	4.7	3.7	6.3
94 NAI-17-44	5.3	5.3	5.3	7.0	6.7	1.7	8.7
95 NAI-17-87	5.3	5.4	5.2	4.0	7.3	4.3	4.3
96 Twilight	5.3	5.0	5.6	7.7	3.7	2.7	9.0
97 A15-480	5.2	5.2	5.3	8.7	6.0	4.3	8.7
98 A15-486	5.2	5.4	4.9	8.3	6.3	3.3	6.3
99 A16-12	5.2	4.8	5.6	8.0	6.0	6.3	7.0
100 A17-802	5.2	5.3	5.1	5.0	7.7	3.0	6.7

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
101 Aviator II	5.2	5.0	5.5	8.3	4.0	4.3	6.7
102 Bewitched	5.2	4.8	5.5	6.3	4.7	3.7	7.7
103 Jersey	5.2	5.0	5.3	6.3	4.3	3.7	7.0
104 NAI-17-12	5.2	5.2	5.1	7.7	6.7	7.0	7.7
105 NAI-17-4	5.2	5.0	5.4	7.7	5.0	7.7	8.7
106 NAI-17-92	5.2	5.2	5.3	3.7	7.3	2.3	6.7
107 RAD-4285	5.2	5.3	5.2	5.0	5.7	2.7	8.7
108 SPF 30	5.2	4.9	5.5	8.7	6.0	4.3	8.7
109 A06-08	5.1	5.2	5.1	6.0	7.0	4.0	4.3
110 A12-298	5.1	5.3	5.0	8.3	6.0	6.0	4.0
111 A14-299	5.1	4.8	5.4	8.0	5.3	4.7	9.0
112 A14-334	5.1	5.7	4.5	7.0	6.0	5.3	7.7
113 A15-474	5.1	4.4	5.7	6.3	5.3	5.7	9.0
114 A17-8	5.1	5.1	5.0	5.0	5.3	5.7	6.3
115 A17-869	5.1	4.7	5.6	7.7	5.7	3.7	9.0
116 A19-04	5.1	5.1	5.0	8.3	5.7	3.3	4.3
117 A19-05	5.1	5.9	4.3	4.0	7.0	2.0	8.0
118 A19-14	5.1	5.0	5.1	6.3	3.0	2.3	7.7
119 Arcadia	5.1	5.2	5.0	7.7	5.7	2.7	6.7
120 Blue Devil	5.1	5.0	5.2	7.7	4.7	3.0	7.7

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
121 Bluebank	5.1	5.2	5.1	8.3	4.3	2.3	7.7
122 Jumpstart	5.1	4.7	5.5	7.0	4.3	6.7	8.7
123 Kelly	5.1	5.2	4.9	8.3	6.3	3.3	4.0
124 NAI-17-58	5.1	5.0	5.2	8.0	7.0	7.0	8.7
125 Pivot	5.1	4.6	5.8	7.3	3.7	4.7	5.3
126 Quantum Leap	5.1	5.0	5.2	7.7	6.7	2.3	7.0
127 RAD-4272	5.1	4.7	5.7	4.7	6.3	5.3	7.7
128 T14-40	5.1	4.8	5.4	8.0	5.0	4.3	8.3
129 Tirem	5.1	5.8	4.4	6.3	7.3	6.7	1.3
130 A09-793	5.0	5.5	4.5	5.0	8.0	5.0	9.0
131 A09-794	5.0	5.5	4.6	6.0	8.3	5.0	7.0
132 A17-4	5.0	4.8	5.2	7.7	2.3	4.3	8.7
133 A19-02	5.0	4.9	5.1	4.7	7.3	6.3	5.3
134 A19-07	5.0	4.8	5.2	8.0	3.7	4.7	8.0
135 Award	5.0	4.7	5.2	7.0	5.3	2.0	7.3
136 Diva	5.0	4.6	5.4	7.7	5.7	6.0	4.3
137 NAI-17-45	5.0	5.1	5.0	6.7	6.3	2.0	8.3
138 PST-K17-193	5.0	5.1	5.0	4.7	5.3	3.3	8.7
139 PST-K19-202	5.0	4.9	5.2	5.3	4.0	3.0	2.7
140 PST-K19-206	5.0	5.1	5.0	5.0	6.3	4.0	5.0

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
141 RAD-4405	5.0	4.9	5.0	4.7	5.3	2.0	3.3
142 Rhythm	5.0	5.0	4.9	7.7	5.3	3.3	3.0
143 Sombrero	5.0	4.9	5.1	8.0	4.7	5.0	5.7
144 T14-39	5.0	4.8	5.2	4.3	4.7	5.3	4.7
145 A16-253	4.9	5.0	4.9	7.7	3.3	2.0	5.3
146 A16-3	4.9	4.9	4.8	6.3	3.7	4.3	6.7
147 A17-833	4.9	4.7	5.2	8.7	4.3	7.7	9.0
148 Comet	4.9	4.8	4.9	5.7	4.7	6.3	3.7
149 Dauntless Select	4.9	4.7	5.1	6.7	6.0	3.7	5.3
150 J03-1231	4.9	4.8	5.1	8.3	4.3	2.0	8.3
151 J04-1094	4.9	4.6	5.1	5.0	4.7	2.3	6.7
152 J08-2163	4.9	5.0	5.0	5.3	6.0	5.3	4.3
153 J98-2605	4.9	4.7	5.0	6.7	4.0	3.3	5.0
154 Jackrabbit	4.9	4.4	5.4	6.7	4.0	6.3	6.0
155 Legend	4.9	5.2	4.5	6.0	6.7	3.7	5.0
156 My Holiday Lawn	4.9	4.7	5.0	7.3	3.7	3.0	7.7
157 NAI-17-10	4.9	4.6	5.3	8.3	5.0	6.0	7.7
158 NAI-17-6	4.9	4.6	5.1	8.3	6.0	7.7	9.0
159 Prosperity	4.9	4.9	5.0	8.3	1.7	5.0	7.0
160 PST-K15-169	4.9	4.9	4.9	5.7	3.0	1.3	5.0

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
161 PST-K19-201	4.9	5.2	4.5	5.3	5.7	3.3	6.7
162 Sonora	4.9	5.1	4.6	5.3	6.7	4.7	3.3
163 Zip	4.9	4.7	5.0	7.3	3.3	2.7	8.3
164 A09-789	4.8	5.3	4.3	5.0	7.3	5.3	6.0
165 A18-6	4.8	5.0	4.6	6.3	6.0	4.7	3.0
166 A19-09	4.8	4.3	5.2	6.3	6.7	5.7	5.7
167 A19-13	4.8	4.9	4.8	7.3	3.3	2.7	4.3
168 J11-2184	4.8	5.0	4.7	8.7	6.7	2.3	2.7
169 Lunar	4.8	4.9	4.7	6.7	7.0	4.3	3.0
170 NAI-14-77	4.8	5.2	4.4	1.7	5.0	2.0	4.0
171 NAI-15-84	4.8	4.6	5.0	7.0	3.3	4.0	5.7
172 NAI-17-30	4.8	4.7	4.9	2.0	5.7	1.7	2.7
173 NAI-17-8	4.8	4.9	4.8	8.3	7.0	7.0	9.0
174 PST-K15-163A	4.8	4.5	5.1	7.0	3.0	6.7	4.3
175 PST-K15-172	4.8	5.3	4.3	6.3	5.7	2.0	3.7
176 PST-K19-204	4.8	4.5	5.1	3.3	5.7	3.0	5.0
177 RAD-4242	4.8	4.4	5.2	5.3	4.0	4.7	3.7
178 RAD-4279	4.8	5.3	4.5	3.7	6.3	3.0	9.0
179 Rubicon	4.8	4.8	4.8	5.3	4.7	5.7	7.3
180 Shannon	4.8	4.1	5.4	8.3	6.7	8.0	8.7

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
181 A17-799	4.7	4.7	4.8	8.0	3.7	4.0	7.3
182 A17-878	4.7	4.9	4.5	6.7	5.3	4.0	9.0
183 A17-9	4.7	4.8	4.8	5.0	5.7	1.7	3.0
184 A19-297	4.7	4.8	4.6	8.3	4.3	4.0	5.7
185 Corsair	4.7	4.6	4.8	6.0	5.3	5.3	6.0
186 J09-2761	4.7	4.7	4.7	8.3	2.0	2.3	7.0
187 K8-76NO	4.7	4.6	4.9	2.7	4.7	3.3	4.3
188 NAI-17-17	4.7	4.9	4.5	2.0	6.3	2.3	3.0
189 SR 2100	4.7	5.0	4.4	7.3	5.0	4.3	4.3
190 A15-10	4.6	4.5	4.8	6.0	5.0	6.3	6.0
191 A17-889	4.6	4.2	4.9	9.0	4.0	6.3	8.0
192 A19-20	4.6	4.5	4.8	2.0	5.0	6.3	9.0
193 A19-48	4.6	5.0	4.3	6.3	7.7	3.3	4.3
194 Arrowhead	4.6	4.3	4.9	6.7	2.3	4.0	8.0
195 Dauntless	4.6	4.6	4.7	5.7	5.7	5.0	6.0
196 Fielder	4.6	5.0	4.3	7.0	5.3	5.7	6.0
197 J00-3510	4.6	4.1	5.1	8.7	3.7	2.3	9.0
198 J09-3287	4.6	4.2	5.2	9.0	4.7	4.7	9.0
199 NAI-17-2	4.6	4.4	4.8	7.3	6.3	6.7	8.7
200 NAI-17-3	4.6	4.7	4.5	8.7	5.0	6.3	9.0

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
201 NAI-17-55	4.6	4.7	4.6	8.3	6.0	7.3	9.0
202 PST-K15-167	4.6	5.0	4.1	6.3	4.7	1.0	2.7
203 PST-K17-192	4.6	4.5	4.8	6.3	5.0	4.7	6.0
204 RAD-3710	4.6	4.8	4.5	6.3	3.3	4.7	4.7
205 A10-838	4.5	4.6	4.5	3.7	5.7	7.7	9.0
206 A12-49	4.5	4.8	4.3	8.0	3.0	1.3	5.7
207 A15-484	4.5	4.8	4.1	7.3	7.0	6.3	3.3
208 A16-212	4.5	4.5	4.5	7.3	3.3	2.0	4.7
209 A16-528	4.5	3.9	5.3	9.0	4.0	7.0	9.0
210 A18-767	4.5	4.4	4.6	9.0	4.7	5.7	9.0
211 A19-49	4.5	4.8	4.3	5.7	7.3	4.3	3.3
212 Arc	4.5	4.5	4.5	6.0	4.0	6.0	4.7
213 Armada	4.5	4.5	4.6	5.7	4.7	4.0	2.0
214 Full Moon	4.5	4.6	4.3	4.3	5.3	6.7	2.0
215 Midnight II	4.5	4.6	4.5	1.0	6.0	2.7	6.3
216 NAI-17-97	4.5	4.4	4.7	3.3	5.3	3.7	4.0
217 Noble	4.5	4.1	4.9	8.7	3.0	5.7	5.7
218 PST-K18-197	4.5	4.4	4.6	5.7	3.0	3.0	3.7
219 RAD-4333	4.5	4.4	4.7	4.3	2.0	2.0	5.3
220 Volt	4.5	4.5	4.5	5.0	6.0	5.7	5.7

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
221 A13-695	4.4	4.5	4.2	7.7	3.7	6.0	9.0
222 A19-21	4.4	4.4	4.5	7.0	4.0	6.0	8.7
223 After Midnight	4.4	4.3	4.6	8.3	2.7	3.0	8.0
224 Bandera	4.4	4.5	4.2	7.0	5.0	1.3	1.7
225 Endurance	4.4	4.6	4.2	6.0	4.7	4.7	3.7
226 J00-2934	4.4	4.5	4.3	8.0	6.7	5.0	4.7
227 Limousine	4.4	4.5	4.2	4.0	3.3	3.3	3.7
228 NAI-14-132	4.4	4.6	4.0	6.7	2.0	2.3	4.7
229 NAI-17-74	4.4	4.1	4.7	1.7	6.3	2.7	2.7
230 NAI-17-93	4.4	4.3	4.4	2.7	4.7	2.3	3.7
231 New Moon	4.4	4.7	4.2	3.7	3.3	3.3	4.7
232 PST-K16-179	4.4	4.5	4.4	6.3	5.3	5.0	5.0
233 PST-K17-196	4.4	4.4	4.5	5.0	6.0	2.0	2.7
234 RAD-4227	4.4	4.1	4.7	3.7	5.0	5.0	3.0
235 Waterworks	4.4	4.3	4.6	8.7	5.7	4.0	1.3
236 A16-800	4.3	4.6	4.1	5.3	5.3	6.3	9.0
237 A18-774	4.3	4.3	4.4	9.0	4.0	5.7	8.3
238 Aries	4.3	4.4	4.1	7.7	5.7	5.7	6.0
239 Bordeaux	4.3	4.4	4.3	6.7	4.3	5.7	3.3
240 Cutting Edge	4.3	4.7	4.0	7.0	1.3	5.3	3.0

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
241 Harvest Moon	4.3	4.9	3.7	7.3	4.3	2.7	2.3
242 J-924	4.3	4.3	4.2	5.0	4.0	5.7	5.0
243 J11-2132	4.3	4.5	4.0	8.3	3.0	3.3	3.7
244 NAI-14-122	4.3	4.5	4.1	7.0	2.0	2.0	5.7
245 NAI-14-128	4.3	4.4	4.3	6.7	1.3	2.3	6.0
246 PST-K16-178	4.3	4.9	3.7	7.7	5.7	3.7	1.0
247 Rubix	4.3	4.3	4.3	6.0	4.7	4.7	5.0
248 Spitfire	4.3	4.5	4.2	7.3	3.7	4.3	4.0
249 Gaelic	4.2	4.0	4.4	5.7	5.3	7.7	6.3
250 Mercury	4.2	4.0	4.4	7.7	3.0	5.3	3.3
251 Milagro	4.2	4.0	4.5	8.3	1.7	5.7	6.3
252 NAI-14-176	4.2	4.3	4.0	7.7	2.0	1.7	5.3
253 NAI-17-26	4.2	3.8	4.6	4.7	6.0	6.3	3.7
254 PST-K17-189AD	4.2	4.4	4.1	6.3	2.0	5.7	4.3
255 PST-K17-194	4.2	4.1	4.4	4.7	5.7	2.7	5.3
256 PST-K19-203	4.2	4.4	4.0	5.0	3.0	5.7	4.0
257 Shamrock	4.2	4.3	4.2	7.0	5.0	6.0	4.7
258 T15-49	4.2	4.2	4.2	5.3	5.7	5.0	1.3
259 A17-6	4.1	4.4	3.7	5.0	4.3	4.7	1.0
260 A19-300	4.1	4.3	3.9	1.7	7.3	4.7	1.3

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
261 Amaze	4.1	4.3	3.9	7.3	1.3	1.7	4.3
262 Bluecoat	4.1	4.2	4.0	7.7	1.3	2.7	4.7
263 Fahrenheit 90	4.1	3.8	4.3	8.3	1.7	5.0	6.3
264 NAI-14-126	4.1	4.4	3.9	5.0	2.7	3.0	5.0
265 T15-43	4.1	4.0	4.3	4.0	6.3	4.7	2.3
266 Wild Horse	4.1	4.1	4.2	6.7	4.3	5.3	4.7
267 79111	4.0	4.0	4.0	2.3	5.7	3.7	3.7
268 A14-439	4.0	4.3	3.8	6.0	4.3	6.0	4.3
269 J-920	4.0	4.2	3.8	6.3	4.3	5.7	6.3
270 Morocco	4.0	4.2	3.7	7.0	3.3	6.0	9.0
271 PST-K19-200	4.0	3.6	4.5	1.0	5.7	5.0	4.3
272 RAD-4207	4.0	3.8	4.4	5.3	2.3	4.0	7.3
273 RAD-4277	4.0	4.3	3.7	6.7	4.0	1.0	7.0
274 Rockstar	4.0	4.2	3.9	6.7	4.7	6.0	5.0
275 Blackjack	3.9	3.9	4.0	7.0	2.3	5.7	5.7
276 Heartland	3.9	4.1	3.6	7.3	1.7	1.7	3.3
277 PST-K19-207	3.9	3.9	4.1	4.3	2.7	7.0	6.0
278 A19-15	3.8	4.1	3.5	5.7	5.7	7.3	4.7
279 NAI-17-18	3.8	3.5	4.2	5.3	4.3	5.0	3.7
280 NAI-17-9	3.8	3.9	3.8	5.3	4.0	5.7	7.0

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(Continued)

Table 3. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2019 at Adelphia, NJ.

Cultivar or Selection	----- Turf Quality ¹ -----			Establishment ²	Stem Rust ³	Spring Green-up ⁴	Stemminess ⁵
	2020-21 Avg.	2020 Avg.	2021 Avg.	Apr. 22, 2020 Avg.	Sep. 24, 2020 Avg.	Apr. 6, 2021 Avg.	May. 25, 2021 Avg.
281 PST-K18-198	3.8	3.5	4.0	7.0	2.7	5.3	6.0
282 RAD-4303	3.8	3.5	4.1	3.3	1.7	3.0	4.3
283 Zinfandel	3.8	3.4	4.3	1.0	5.7	4.0	4.0
284 NAI-17-36	3.7	4.0	3.4	3.3	4.7	5.3	3.7
285 A17-7	3.6	3.6	3.6	5.0	5.0	6.7	4.0
286 A19-06	3.6	3.6	3.6	6.3	1.3	3.0	3.7
287 J09-2676	3.3	3.5	3.1	5.7	3.3	5.0	1.0
288 TX8-56	3.3	3.8	2.8	8.0	3.7	5.3	5.7
289 NAI-17-90	3.0	2.4	3.6	4.7	2.7	4.0	1.3
290 A19-296	2.7	2.1	3.3	1.0	2.3	6.3	3.3
291 Geronimo	2.3	1.5	3.2	1.0	2.0	4.7	2.7
LSD @ 5%=	0.9	0.8	1.1	1.3	1.8	1.8	1.5
CV=	10.8	10.7	13.5	12.2	21.6	25.8	15.3

¹9 = Best turf quality

²9 = Quickest establishment

³9 = Least disease

⁴9 = Earliest spring green-up

⁵9 = Least stemminess

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020	Winter Activity ³ Mar. 24, 2021
1 A16-17	7.1	8.3	2.7
2 A19-8	7.0	8.0	4.3
3 Martha	6.9	5.3	5.7
4 A19-50	6.7	7.7	5.0
5 K20-1	6.7	6.7	6.3
6 A14-417	6.6	7.3	3.3
7 A16-228	6.6	7.3	5.7
8 A18-7	6.6	6.3	3.7
9 Avalanche	6.6	7.0	3.7
10 A19-16	6.5	9.0	5.3
11 A20-3	6.5	7.3	5.3
12 Bolt	6.5	7.3	3.7
13 A09-305	6.4	9.0	4.0
14 A17-4	6.2	9.0	2.3
15 A18-5	6.2	9.0	5.3
16 A18-9	6.2	8.0	3.3
17 A20-15	6.2	7.0	2.7
18 Pick 033	6.2	7.7	4.3
19 A15-14	6.1	9.0	3.0
20 A16-231	6.1	8.0	5.0
21 A20-14	6.1	5.3	6.0
22 A20-4	6.1	5.3	5.3
23 A20-51	6.1	6.0	6.3
24 A20-8	6.1	7.0	4.7
25 K17-182	6.1	8.7	4.3
26 A16-835	6.0	9.0	3.0
27 A17-833	6.0	8.7	3.0
28 A17-878	6.0	9.0	4.3
29 A19-10	6.0	9.0	4.3
30 NuRush	6.0	9.0	4.3
31 SRX 2758	6.0	8.0	3.7
32 Starr	6.0	8.0	4.3
33 A04-68	5.9	7.0	4.7
34 A12-300	5.9	6.7	3.7
35 A17-863	5.9	7.0	4.3

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020	Winter Activity ³ Mar. 24, 2021
36 A20-12	5.9	6.7	4.7
37 A20-17	5.9	8.0	3.7
38 A20-54	5.9	9.0	4.0
39 A20-6	5.9	7.7	3.3
40 A04TB-258	5.8	3.0	6.0
41 A14-677	5.8	9.0	3.3
42 A15-486	5.8	9.0	4.0
43 A15-8	5.8	7.7	3.0
44 A19-11	5.8	6.7	5.3
45 A20-19	5.8	7.3	5.3
46 Jersey	5.8	7.7	4.3
47 K19-206	5.8	6.3	4.7
48 A17-814	5.7	8.0	5.0
49 A17-849	5.7	8.3	4.0
50 A17-869	5.7	8.7	4.0
51 A19-7	5.7	8.3	3.0
52 A20-5	5.7	7.7	4.3
53 A20-9	5.7	5.0	4.3
54 Finish Line	5.7	7.7	5.0
55 Keeneland	5.7	7.7	5.0
56 Legend	5.7	9.0	5.3
57 A14-306	5.6	9.0	3.0
58 A14-307	5.6	7.7	4.3
59 A16-258	5.6	7.0	4.7
60 A17-853	5.6	7.0	4.3
61 A20-16	5.6	4.0	5.0
62 Blue Note	5.6	6.7	4.7
63 K18-199	5.6	7.3	4.0
64 Right	5.6	9.0	3.3
65 A17-807	5.5	6.7	5.3
66 A18-12	5.5	7.7	3.0
67 A20-53	5.5	3.7	4.7
68 Diva	5.5	8.3	3.3
69 Harvest Moon	5.5	9.0	4.3
70 NAI-19-181	5.5	6.3	3.0

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020	Winter Activity ³ Mar. 24, 2021
71 Touchdown	5.5	9.0	3.0
72 UN (Unique)	5.5	9.0	5.3
73 A12-287	5.4	8.7	4.3
74 A14-281	5.4	8.3	3.7
75 A14-423	5.4	7.3	4.7
76 A16-12	5.4	8.7	4.3
77 A16-14	5.4	7.0	4.7
78 A19-5	5.4	8.0	1.3
79 A20-10	5.4	7.7	3.3
80 A20-13	5.4	8.0	4.3
81 A20-18	5.4	6.7	5.3
82 A20-49	5.4	4.7	6.7
83 Bewitched	5.4	9.0	4.0
84 Everest	5.4	9.0	3.3
85 K11-118	5.4	6.7	4.0
86 K15-157	5.4	9.0	4.0
87 K15-172	5.4	6.3	4.0
88 K19-202	5.4	6.0	3.3
89 NAI-13-29	5.4	7.7	2.3
90 T15-42	5.4	9.0	5.0
91 A06-08	5.3	7.3	6.7
92 A11-49	5.3	5.7	4.0
93 A12-3	5.3	5.3	6.3
94 Beyond	5.3	8.3	3.7
95 GO-20KB-8	5.3	6.0	4.0
96 K17-187	5.3	7.3	3.3
97 K19-208	5.3	7.0	4.7
98 NAI-17-4	5.3	8.0	4.3
99 PK 218-B	5.3	6.7	5.0
100 Rugby II	5.3	8.7	4.3
101 SRX 4338	5.3	4.7	4.7
102 Tirem	5.3	8.3	4.7
103 A14-248	5.2	7.7	3.3
104 A15-9	5.2	7.7	5.7
105 A16-528	5.2	9.0	2.7

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020	Winter Activity ³ Mar. 24, 2021	
106	A17-802	5.2	5.3	4.3
107	A17-828	5.2	8.7	3.0
108	A19-4	5.2	9.0	3.7
109	Balin	5.2	9.0	3.7
110	Fullback C3	5.2	5.0	5.3
111	Impact	5.2	9.0	4.0
112	Jumpstart	5.2	8.7	4.7
113	K13-141	5.2	8.0	5.3
114	Midnight	5.2	8.0	3.7
115	NAI-17-58	5.2	6.0	4.3
116	SRX-466	5.2	8.0	4.7
117	Zip	5.2	9.0	4.0
118	A05-361	5.1	5.7	4.3
119	A14-3	5.1	6.7	5.0
120	A14-334	5.1	7.3	3.3
121	A18-14	5.1	7.0	4.0
122	A19-9	5.1	9.0	3.3
123	Aries	5.1	9.0	4.0
124	Armada	5.1	6.7	5.0
125	Fahrenheit 90	5.1	9.0	3.7
126	Harmonie	5.1	6.0	4.0
127	K16-178	5.1	6.3	5.3
128	K19-201	5.1	6.0	3.7
129	Mercury	5.1	9.0	3.7
130	Merit	5.1	8.0	3.7
131	PK 218-A	5.1	6.0	3.3
132	Skye	5.1	8.3	5.0
133	Twilight	5.1	8.7	4.0
134	A05-295	5.0	5.7	5.3
135	A14-267	5.0	7.3	3.7
136	A17-850	5.0	8.0	4.3
137	A18-11	5.0	4.0	3.7
138	Blue Gem	5.0	8.7	4.0
139	CREST	5.0	7.3	4.0
140	Geronimo	5.0	7.3	3.7

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020	Winter Activity ³ Mar. 24, 2021	
141	K15-157	5.0	8.3	3.3
142	Kelly	5.0	8.3	4.3
143	NAI-19-133	5.0	8.3	3.0
144	New Moon	5.0	6.7	5.7
145	PK 217	5.0	6.3	4.3
146	PPG-2-13-40201	5.0	6.3	4.7
147	Prafin	5.0	8.7	3.7
148	T14-37	5.0	8.3	3.3
149	Yellowstone	5.0	8.7	3.3
150	Bedazzled	4.9	6.7	5.7
151	Blue Magic	4.9	6.7	5.3
152	Bluebank	4.9	9.0	4.0
153	Jackpot	4.9	9.0	4.7
154	NAI-19-58	4.9	6.3	3.7
155	P-105	4.9	6.7	4.3
156	Rhapsody	4.9	5.3	6.3
157	SR 2100	4.9	6.7	3.7
158	A12-1	4.8	4.3	5.7
159	A12-266	4.8	7.3	3.3
160	A14-258	4.8	7.3	4.0
161	A14-373	4.8	8.7	5.0
162	A16-12	4.8	7.0	4.0
163	A19-19	4.8	8.7	3.3
164	Abbey	4.8	8.7	3.7
165	Arcadia	4.8	7.7	4.0
166	Argos	4.8	8.0	5.0
167	Cloud	4.8	4.3	4.0
168	Corsiar	4.8	6.7	4.3
169	Geisha	4.8	8.7	3.3
170	Jackrabbit	4.8	8.7	4.7
171	K19-204	4.8	5.7	4.7
172	NAI-17-48	4.8	7.0	4.0
173	NAI-19-108	4.8	4.3	5.3
174	NAI-19-109	4.8	5.0	4.0
175	PK 215	4.8	5.0	4.7

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020	Winter Activity ³ Mar. 24, 2021
176 Thermal Blue	4.8	8.0	4.0
177 United	4.8	8.7	3.3
178 Volt	4.8	7.3	4.3
179 Arc	4.7	8.3	5.3
180 Aviator II	4.7	7.3	4.3
181 Award	4.7	9.0	4.7
182 Blue Devil	4.7	8.7	4.3
183 Blue Velvet	4.7	6.7	4.0
184 Fullback C2	4.7	3.3	4.3
185 GO-20KB-5	4.7	6.7	4.3
186 Heidi	4.7	4.0	4.7
187 Moonshine	4.7	9.0	4.0
188 NAI-19-188LS	4.7	6.0	4.3
189 Rubix	4.7	8.3	4.0
190 T14-39	4.7	7.3	4.3
191 T15-44	4.7	9.0	5.0
192 11-7	4.6	7.7	4.0
193 A14-330	4.6	6.3	3.0
194 A15-16	4.6	6.7	4.0
195 A15-7	4.6	3.3	4.7
196 A20-11	4.6	6.7	3.7
197 A20-50	4.6	3.7	5.7
198 After Midnight	4.6	9.0	4.0
199 Comet	4.6	6.7	6.7
200 Courtyard	4.6	7.3	3.7
201 Dauntless	4.6	7.3	4.3
202 Gaelic	4.6	8.3	4.7
203 NAI-19-186LS	4.6	6.3	4.0
204 NAI-19-191LS	4.6	4.0	4.3
205 NuGlade	4.6	8.3	3.7
206 PK 214	4.6	5.7	5.3
207 T17-47	4.6	7.3	4.7
208 A14-299	4.5	9.0	2.3
209 A20-2	4.5	4.3	3.0
210 A20-52	4.5	4.7	5.3

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020 Avg.	Winter Activity ³ Mar. 24, 2021 Avg.
211 Amaze	4.5	8.7	2.0
212 Bandera	4.5	6.7	3.3
213 Cutting Edge	4.5	8.0	4.0
214 Fortuna	4.5	7.3	4.0
215 Ginney II	4.5	8.3	3.7
216 K15-167	4.5	7.0	3.7
217 K17-196	4.5	6.3	4.3
218 K18-197	4.5	5.3	4.3
219 NAI-19-165	4.5	7.0	2.3
220 A13-3	4.4	4.3	4.3
221 A14-4	4.4	6.0	7.0
222 Arrowhead	4.4	9.0	4.0
223 Baron	4.4	7.3	4.3
224 Granite	4.4	7.7	4.0
225 K15-163A	4.4	8.3	3.7
226 NAI-17-44	4.4	6.3	4.0
227 NAI-17-54	4.4	6.0	4.0
228 NAI-19-190LS	4.4	5.3	4.3
229 Pivot	4.4	8.0	3.7
230 Pp H10920	4.4	4.7	5.0
231 PPG-2-13-44911	4.4	6.7	4.0
232 Rhythm	4.4	7.7	4.3
233 A04TB-212	4.3	3.0	6.0
234 A16-12	4.3	7.0	3.3
235 A17-799	4.3	9.0	2.7
236 A19-21	4.3	8.3	4.7
237 Bombay	4.3	4.0	3.3
238 K20-3	4.3	6.0	4.7
239 K20-5	4.3	4.7	4.3
240 NAI-17-49	4.3	7.0	3.3
241 NAI-19-125	4.3	4.0	3.7
242 PK 213	4.3	4.0	5.7
243 Rubicon	4.3	7.3	3.7
244 Solar	4.3	7.7	2.7
245 Sunray	4.3	4.7	3.7

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020 Avg.	Winter Activity ³ Mar. 24, 2021 Avg.
246	A15-6	4.2	5.0
247	A16-540	4.2	5.0
248	Desert Moon	4.2	4.3
249	Fielder	4.2	6.7
250	Fullback C1	4.2	3.0
251	GO-20KB-1	4.2	7.7
252	K19-207	4.2	6.3
253	Lakeshore	4.2	6.3
254	Navy	4.2	9.0
255	Prosperity	4.2	8.7
256	Quantum Leap	4.2	6.3
257	Rockstar	4.2	6.3
258	Shamrock	4.2	8.0
259	SRX 5321	4.2	6.7
260	A12-2	4.1	6.0
261	A14-247	4.1	7.0
262	Fullback C4	4.1	3.7
263	Heartland	4.1	8.0
264	NAI-17-38	4.1	6.7
265	NAI-19-185LS	4.1	5.0
266	Wild Horse	4.1	7.0
267	A10-4	4.0	5.3
268	A16-538	4.0	4.7
269	Blue Coat	4.0	7.7
270	Comanche	4.0	7.7
271	A20-7	3.9	4.0
272	Blackjack	3.9	8.3
273	GO-20KB-3	3.9	4.3
274	GO-20KB-7	3.9	3.7
275	K17-189AD	3.9	7.0
276	PK 210	3.9	5.7
277	A15-8	3.8	3.7
278	Corsair II	3.8	5.7
279	GO-20KB-2	3.8	5.0
280	K20-2	3.7	5.0

(Continued)

Table 4. Performance of Kentucky bluegrass cultivars and selections in a high maintenance turf trial seeded in September 2020 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹ 2021 Avg.	Establishment ² Oct. 6, 2020 Avg.	Winter Activity ³ Mar. 24, 2021 Avg.
281 Limousine	3.7	6.0	4.0
282 T15-43	3.7	6.3	3.3
283 A20-55	3.6	1.3	5.7
284 TX8-56	3.6	6.7	5.0
285 NAI-19-106	3.5	3.7	3.7
286 PK 209	3.5	6.7	3.7
287 K20-4	3.3	4.0	3.3
288 PPG-2-13-44917	3.2	5.3	3.0
289 GO-20KB-9	3.0	2.7	2.7
290 GO-20KB-6	2.9	3.0	3.0
291 Pp H11128	2.9	4.7	4.7
292 A20-1	2.8	5.7	2.7
293 PPG-2-13-44924	2.7	6.0	3.0
294 GO-20KB-4	2.6	4.7	3.0
295 Blue Ghost	2.0	1.3	4.5
296 A20-56	1.9	1.0	6.0
297 Zedor	1.9	3.0	2.7
LSD @ 5%=	0.8	1.6	1.3
CV=	10.3	14.2	18.8

¹9 = Best turf quality

²9 = Quickest establishment

³9 = Best winter activity

Table 5. Yearly nitrogen (N) and mowing height (Ht) on Kentucky bluegrass tests established at Adelphia, NJ.

	----- 2017 -----		----- 2018 -----		----- 2019 -----		----- 2020 -----		----- 2021 -----	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht	N	Ht
Table 1 (2017)	2.05	1.5	4.25	1.5	3	1.5	2.25	1.5	3.75	1.5
Table 2 (2018)	–	–	2.15	1.5	3.75	1.5	3.75	1.5	4.5	1.5
Table 3 (2019)	–	–	–	–	–	–	3.75	1.5	3.75	1.5
Table 4 (2020)	–	–	–	–	–	–	–	–	4.5	1.5

¹Annual N applied (lb/1000 ft²)

²Mowing height (inches)