

Kentucky Bluegrass Shade Cultivar Evaluation Trial

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Introduction

This is the first full year of data from Kentucky bluegrass growing in natural shade conditions. This is a National Turfgrass Evaluation Program (NTEP) ancillary trial, and is being conducted at several research stations in the United States. It contains 89 seeded cultivars, including a number of new experimental cultivars. Iowa State is home to both a sun and shade setting of this trial.

Materials and Methods

Research was conducted at the Iowa State University Horticulture Research Station. The ground was cleared of all vegetative cover before planting with a nonselective herbicide (glyphosate).

The trial was planted September 15, 2017. Plots are 4 ft x 5 ft in size, and all cultivars are replicated three times. Supplemental irrigation was not needed during the growing season and two pounds of nitrogen was applied per 1,000 ft² over the course of the growing season with a 28-0-5 fertilizer. The mowing height is three inches, clippings returned. Significant shade is provided by the shade tree cultivar trial, under which the turfgrass trial is planted.

Digital images were taken monthly starting in April 2018 and running until November 2018.

Digital images were captured with the use of a light box to ensure consistent lighting and a digital camera. Images were scanned using Sigma Scan for percent green cover (1-100% cover), color (1 = light green color and 9 = dark green color), and turfgrass quality (1 = poor and 6 = acceptable quality). Visual ratings also were taken during this time period, but not presented here.

Results and Discussion

Significant differences existed between cultivars for percent cover, color (data not shown) and quality during the growing season.

The values listed under each month in Table 1 are the averages of the percent green cover and turfgrass quality. The last row states the Fisher's LSD (least significant difference), which is a statistical measurement of how widely the data in each column must vary before these are considered to be different from one another.

Many of the cultivars declined in percent green cover over the year due to the heavy shade competition, as shown in Table 1. Cultivars that had high quality ratings also tended to have higher color ratings, but due to space restrictions color data is not presented here.

Acknowledgements

Appreciation is extended to the NTEP organization for funding to conduct this project, as well as to Jeff Iles, professor and chair, Department of Horticulture, for use of the ground under his shade tree trial.

Table 1. Percent green cover and mean quality ratings for the Kentucky bluegrass shade cultivar evaluation trial, 2018.

Cultivar	Percent green cover ¹								Mean quality ²
	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	
A11-40	13	10	8	8	10	7	7	7	5.6
A13-1	8	7	17	12	13	20	17	12	5.7
A99-2897	17	17	8	10	13	13	13	15	5.7
LTP-11-41	22	17	7	10	13	10	12	8	12.7
Blue Knight	12	8	10	8	10	12	5	12	5.7
RAD 553	10	13	15	10	20	8	8	8	5.4
Selway	17	17	10	13	10	13	10	8	5.6
Babe	12	13	18	10	13	8	10	10	5.6
AKB3128	15	18	20	25	32	25	23	18	6.1
AKB3179	10	5	15	10	10	12	7	10	5.4
AKB3241	10	12	22	13	22	25	15	12	5.8
NK-1	10	7	18	12	22	17	12	10	5.6
KH3492	20	20	15	27	32	38	27	25	6.3
A12-7	10	8	10	10	12	8	7	8	5.5
After Midnight	23	28	40	23	35	20	18	17	6.5
J-1138	20	23	8	13	18	18	15	17	5.8
J-1319	22	23	7	17	20	18	13	13	6.1
J-2726	20	28	33	17	23	13	17	17	6.2
J-3510	22	13	10	8	15	7	8	10	5.9
BAR PP 71213	10	7	12	6	10	10	10	12	5.5
BAR PP 7309V	13	20	8	15	18	18	15	12	5.6
BAR PP 79366	15	12	10	10	15	10	18	10	5.8
Barvette HGT®	12	8	12	12	13	13	13	12	5.7
BAR PP 7K426	27	18	22	13	13	10	10	12	5.8
BAR PP 7236V	13	13	12	7	10	8	10	8	12.0
BAR PP 79494	12	8	25	12	18	22	15	12	5.9
BAR PP 110358	18	15	8	8	10	7	8	8	5.7
RAD-1776	10	8	12	10	13	18	12	10	5.6
NAI-A16-3	13	22	12	13	18	17	13	13	5.5
NAI-13-132	12	17	25	23	20	17	13	15	6.0
NAI-15-80	5	8	8	5	10	5	7	10	5.5
NAI-13-9	17	27	12	17	27	23	20	18	6.1
NAI-13-14	20	17	23	15	23	22	13	15	6.1
NAI-14-122	8	5	10	12	12	7	8	7	5.5
PST-K13-143	8	5	20	8	13	8	10	8	5.6
NAI-14-128	13	17	18	25	32	23	22	13	6.1
NAI-14-132	8	8	12	7	10	7	7	5	5.6
NAI-14-133	10	7	8	10	12	8	7	7	5.6
NAI-14-176	10	5	12	8	10	10	8	9	5.7
NAI-14-178	8	5	10	12	12	12	12	8	5.6
NAI-14-187	17	8	8	10	10	8	8	13	5.7
NAI-15-84	8	7	8	8	8	8	8	7	5.6
Pivot	18	23	27	12	17	13	10	13	5.9
Blue Devil	15	16	26	8	8	10	5	10	5.7
Skye	15	10	8	5	15	5	15	7	5.6
GO-22B23	28	25	17	15	20	22	10	12	5.9
GO-2628	12	22	13	12	20	22	13	13	5.6
GO-2425	18	13	8	15	17	20	10	13	5.8
DLFPS-340/3364	8	10	5	15	5	8	7	12	5.5
DLFPS-340/3446	22	20	13	15	22	13	15	13	5.8

Table 1. Percent green cover and mean quality ratings for the Kentucky bluegrass shade cultivar evaluation trial, 2018 (continued).

Cultivar	Percent green cover ¹								Mean quality ²
	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	
DLFPS-340/3556	20	20	13	17	28	20	18	12	6.0
DLFPS-340/3553	15	10	25	12	12	7	8	10	5.6
DLFPS-340/3494	10	13	10	8	12	8	10	13	5.7
DLFPS-340/3500	13	15	23	22	27	20	20	18	6.0
DLFPS-340/3438	17	17	38	10	10	5	13	8	5.8
DLFPS-340/3549	7	25	10	10	13	25	10	12	5.5
DLFPS-340/3548	10	7	8	5	15	5	7	5	5.5
DLFPS-340/3444	13	12	8	10	12	7	12	12	5.9
DLFPS-340/3455	23	10	13	15	22	17	12	12	5.8
DLFPS-340/3550	12	8	20	13	15	8	13	8	5.6
DLFPS-340/3551	15	10	12	10	13	10	7	12	5.7
DLFPS-340/3552	12	7	8	13	15	8	10	7	5.6
MVS-130	10	8	7	8	10	10	10	10	5.6
A16-1	12	8	8	5	12	8	7	10	5.6
A16-7	10	12	7	7	10	10	10	10	5.6
A12-34	7	8	5	15	17	12	15	12	5.7
A11-26	12	8	45	10	10	7	7	10	5.6
PPG-KB 1320	12	10	7	10	13	8	8	8	5.7
A11-38	12	7	20	12	8	8	8	7	5.4
PPG-KB 1131	19	15	15	5	10	7	8	7	5.7
A10-280	13	7	13	13	27	23	25	22	5.8
Shamrock	10	5	13	10	12	10	7	12	5.5
A16-2	20	15	15	15	20	27	15	17	5.8
PPG-KB 1304	10	10	22	8	13	10	12	8	5.7
A15-6	13	15	10	8	10	8	5	10	5.0
A16-17	17	8	17	17	18	13	10	13	5.6
Prosperity	10	8	7	8	13	10	8	7	5.5
A06-8	13	10	33	15	25	34	23	20	11.3
Kenblue	15	10	10	7	10	5	7	15	5.6
PST-K13-139	10	8	13	8	13	10	10	7	5.5
PST-K13-141	12	10	28	12	17	15	12	10	5.7
PST-K11-118	18	10	10	7	12	7	7	10	5.6
PST-K15-157	8	5	8	7	10	8	15	7	5.5
PST-11-7	15	13	15	13	18	8	13	17	5.8
PST-K15-167	10	12	7	8	8	10	8	5	5.5
PST-K15-177	8	5	10	7	10	5	8	10	12.5
PST-K15-172	8	8	32	8	12	5	13	8	5.6
Midnight	12	10	10	8	8	8	8	8	5.6
PST-T14-39	10	13	15	12	18	8	10	17	5.7
LSD (0.05)³	13	16	22	14	17	20	12	11	0.9

¹Percent green cover as determined with digital image analysis on a 1 to 100% scale.

²Mean quality is the average quality rated monthly and average for the growing season using digital image analysis on a 1 to 9 scale with 1 = lowest quality, and 6 = acceptable quality.

³Means were separated using Fisher's LSD.