

# Kentucky Bluegrass Shade Cultivar Evaluation Trial

## RFR-A1915

Adam Thoms, assistant professor  
A.J. Lindsey, graduate student  
Ben Pease, research associate  
Nick Christians, university professor  
Department of Horticulture

### Introduction

This is the second full year 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/1,000 ft<sup>2</sup> over the course of the growing season with a 28-0-5 fertilizer. The mowing height is three inches. 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 (data not shown) 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 and quality 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. Also appreciation to Colin Laswell, Thomas Gould, Nathan Underwood, Simon Mitbo, and Spencer Sherrick for help with data collection.

**Table 1. Percent green cover ratings for the Kentucky bluegrass shade cultivar evaluation trial at the ISU Horticulture Research Station, Ames, IA.**

Cultivar	Percent green cover <sup>1</sup>							
	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
A11-40	5.0	11.7	6.7	8.3	8.3	6.7	5.0	5.0
A13-1	8.3	26.7	18.3	10.0	6.7	15.0	6.7	6.7
A99-2897	16.7	25.0	18.3	21.7	15.0	18.3	20.0	10.0
LTP-11-41	5.0	13.3	10.0	11.7	6.7	6.7	5.0	5.0
Blue Knight	10.0	28.8	15.0	10.0	6.3	11.3	8.8	7.5
RAD 553	10.0	20.0	15.0	10.0	11.7	13.3	8.3	5.0
Selway	5.0	11.7	8.3	8.3	10.0	6.7	6.7	5.0
Babe	10.0	10.0	11.7	6.7	5.0	8.3	5.0	5.0
AKB3128	16.7	45.0	25.0	16.7	11.7	20.0	11.7	8.3
AKB3179	5.0	11.7	6.7	8.3	6.7	6.7	11.7	6.7
AKB3241	16.7	35.0	18.3	11.7	11.7	21.7	20.0	8.3
NK-1	11.7	20.0	16.7	8.3	10.0	10.0	8.3	6.7
KH3492	20.0	38.3	20.0	16.7	11.7	21.7	11.7	10.0
A12-7	5.0	8.3	5.0	6.7	5.0	6.7	6.7	5.0
After Midnight	13.3	41.7	25.0	15.0	13.3	18.3	6.7	5.0
J-1138	11.7	46.7	26.7	8.3	6.7	6.7	5.0	5.0
J-1319	18.3	35.0	23.3	15.0	10.0	11.7	5.0	5.0
J-2726	23.3	26.7	21.7	13.3	8.3	15.0	6.7	5.0
J-3510	6.7	16.7	11.7	8.3	6.7	10.0	8.3	6.7
BAR PP 71213	5.0	5.0	5.0	5.0	8.3	6.7	5.0	5.0
BAR PP 7309V	23.3	51.7	35.0	18.3	15.0	23.3	8.3	8.3
BAR PP 79366	5.0	18.3	20.0	21.7	15.0	15.0	6.7	6.7
Barvette HGT®	5.0	30.0	13.3	10.0	6.7	8.3	10.0	6.7
BAR PP 7K426	18.3	15.0	21.7	15.0	11.7	18.3	13.3	10.0
BAR PP 7236V	6.7	10.0	5.0	5.0	6.7	6.7	5.0	5.0
BAR PP 79494	13.3	35.0	15.0	21.7	18.3	18.3	20.0	13.3
BAR PP 110358	5.0	11.7	5.0	5.0	5.0	5.0	5.0	6.7
RAD-1776	11.7	43.3	16.7	8.3	10.0	8.3	10.0	6.7
NAI-A16-3	21.7	51.7	38.3	18.3	13.3	21.7	11.7	10.0
NAI-13-132	10.0	46.7	23.3	10.0	10.0	13.3	11.7	6.7
NAI-15-80	5.0	6.7	5.0	5.0	5.0	5.0	5.0	5.0
NAI-13-9	16.7	36.7	21.7	16.7	11.7	15.0	16.7	16.7
NAI-13-14	20.0	40.0	13.3	11.7	16.7	25.0	20.0	10.0
NAI-14-122	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
PST-K13-143	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
NAI-14-128	23.3	31.7	13.3	16.7	13.3	18.3	10.0	6.7
NAI-14-132	5.0	10.0	6.7	5.0	5.0	5.0	5.0	5.0
NAI-14-133	5.0	15.0	6.7	6.7	5.0	5.0	5.0	5.0
NAI-14-176	5.0	11.7	5.0	5.0	5.0	5.0	5.0	5.0
NAI-14-178	5.0	11.7	5.0	6.7	5.0	6.7	5.0	5.0
NAI-14-187	5.0	10.0	8.3	5.0	6.7	6.7	6.7	5.0
NAI-15-84	5.0	8.3	5.0	5.0	5.0	5.0	5.0	5.0
Pivot	13.3	31.7	16.7	13.3	10.0	11.7	10.0	6.7
Blue Devil	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
Skye	5.0	8.3	5.0	5.0	5.0	5.0	5.0	5.0
GO-22B23	11.7	36.7	28.3	11.7	18.3	15.0	11.7	6.7
GO-2628	18.3	41.7	23.3	11.7	10.0	16.7	8.3	6.7
GO-2425	5.0	10.0	6.7	6.7	6.7	8.3	5.0	5.0
DLFPS-340/3364	5.0	8.3	5.0	5.0	5.0	5.0	5.0	5.0

**Table 1 (continued). Percent green cover ratings for the Kentucky bluegrass shade cultivar evaluation trial at the ISU Horticulture Research Station, Ames, IA.**

Cultivar	Percent green cover <sup>1</sup>							
	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.
DLFPS-340/3446	21.7	48.3	38.3	18.3	11.7	13.3	8.3	5.0
DLFPS-340/3556	25.0	38.3	18.3	15.0	16.7	20.0	8.3	6.7
DLFPS-340/3553	5.0	8.3	6.7	5.0	5.0	6.7	5.0	5.0
DLFPS-340/3494	18.3	33.3	40.0	23.3	21.7	33.3	21.7	15.0
DLFPS-340/3500	20.0	35.0	30.0	16.7	11.7	23.3	6.7	6.7
DLFPS-340/3438	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
DLFPS-340/3549	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
DLFPS-340/3548	5.0	11.7	6.7	5.0	5.0	5.0	5.0	5.0
DLFPS-340/3444	5.0	10.0	5.0	5.0	5.0	6.7	5.0	5.0
DLFPS-340/3455	18.3	41.7	41.7	20.0	15.0	23.3	11.7	8.3
DLFPS-340/3550	8.3	11.7	11.7	8.3	11.7	13.3	6.7	5.0
DLFPS-340/3551	11.7	20.0	16.7	11.7	6.7	10.0	5.0	5.0
DLFPS-340/3552	5.0	18.3	10.0	11.7	13.3	15.0	5.0	6.7
MVS-130	5.0	11.7	8.3	6.7	5.0	5.0	5.0	5.0
A16-1	5.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
A16-7	5.0	6.7	5.0	5.0	5.0	5.0	5.0	5.0
A12-34	10.0	23.3	16.7	11.7	13.3	16.7	6.7	6.7
A11-26	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
PPG-KB 1320	5.0	11.7	10.0	5.0	6.7	8.3	6.7	5.0
A11-38	6.7	10.0	8.3	6.7	6.7	8.3	5.0	5.0
PPG-KB 1131	5.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0
A10-280	21.7	35.0	20.0	18.3	15.0	20.0	18.3	10.0
Shamrock	5.0	11.7	10.0	6.7	6.7	8.3	5.0	5.0
A16-2	18.3	38.3	23.3	20.0	13.3	18.3	16.7	10.0
PPG-KB 1304	10.0	31.7	18.3	13.3	10.0	8.3	5.0	5.0
A15-6	5.0	11.7	6.7	5.0	5.0	5.0	5.0	5.0
A16-17	23.3	33.3	25.0	13.3	11.7	18.3	10.0	6.7
Prosperity	5.0	13.3	8.3	8.3	5.0	8.3	5.0	5.0
A06-8	25.0	51.7	36.7	30.0	18.3	30.0	18.3	11.7
Kenblue	5.0	11.7	6.7	5.0	5.0	5.0	5.0	5.0
PST-K13-139	6.7	13.3	21.7	11.7	6.7	13.3	8.3	6.7
PST-K13-141	20.0	28.3	20.0	15.0	16.7	20.0	8.3	5.0
PST-K11-118	5.0	15.0	5.0	5.0	6.7	6.7	5.0	5.0
PST-K15-157	5.0	6.7	5.0	5.0	5.0	5.0	5.0	5.0
PST-11-7	11.7	21.7	18.3	16.7	16.7	15.0	15.0	10.0
PST-K15-167	5.0	10.0	5.0	6.7	5.0	6.7	5.0	5.0
PST-K15-177	5.0	8.3	5.0	5.0	5.0	5.0	5.0	5.0
PST-K15-172	6.7	15.0	11.7	6.7	5.0	11.7	5.0	6.7
Midnight	5.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0
PST-T14-39	13.3	11.7	5.0	5.0	5.0	5.0	5.0	5.0
<b>LSD (0.05)<sup>2</sup></b>	<b>18.8</b>	<b>35.0</b>	<b>22.5</b>	<b>14.3</b>	<b>12.3</b>	<b>17.8</b>	<b>11.9</b>	<b>6.6</b>

<sup>1</sup>Percent green cover as determined with digital image analysis on a 1 to 100% scale.<sup>2</sup>Means were separated using Fisher's LSD.