

Kentucky Bluegrass Shade Cultivar Trial

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Introduction

This is the third full year data from Kentucky bluegrass (*Poa pratensis* L.) growing in natural shade conditions. This is a National Turfgrass Evaluation Program (NTEP) ancillary trial, and is being conducted at only Iowa State University, Horticulture Research Station, Ames, Iowa. It contains 89 seeded cultivars, including a number of new experimental cultivars. Iowa State University 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 trial was planted September 15, 2017. Plots are 4 ft by 5 ft, and all cultivars are replicated three times. Supplemental irrigation was provided during the growing season and two pounds of nitrogen was applied/1,000 ft² over the course of the growing season with a 28-0-3 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 April 2020 to November 2020. Digital images were captured with the use of a light box to ensure a consistent lighting and a digital camera. Images were scanned using Sigma

Scan for percent green cover (1-100% cover) not presented here, color (1 = light green color and 9 = dark green color), not presented here and turfgrass quality (1 = poor 9 = excellent, and 6 = acceptable quality).

Results and Discussion

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

The values listed under each month in Table 1 are the averages of the visual 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 continued to decline in percent green cover over the year due to the heavy shade competition. Cultivars that had high quality ratings also tended to have higher color ratings, but due to space restrictions, color and percent cover data is not presented here.

Acknowledgements

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Table 1. Visual quality ratings for the Kentucky bluegrass shade cultivar evaluation trial, Ames, Iowa.

| Cultivars | Visual turfgrass quality ^a | | | | | | | |
|----------------|---------------------------------------|------|------|------|------|------|------|------|
| | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. |
| A11-40 | 4.0 | 4.7 | 4.3 | 5.0 | 5.0 | 5.0 | 4.7 | 3.0 |
| A13-1 | 4.7 | 5.0 | 5.0 | 4.7 | 5.0 | 5.3 | 4.7 | 4.0 |
| A99-2897 | 5.7 | 5.0 | 5.0 | 5.0 | 5.3 | 5.7 | 5.7 | 4.0 |
| LTP-11-41 | 4.3 | 4.3 | 4.7 | 5.0 | 5.0 | 5.0 | 4.7 | 3.7 |
| Blue Knight | 4.0 | 4.3 | 4.3 | 4.3 | 4.3 | 4.3 | 4.0 | 4.0 |
| RAD 553 | 4.3 | 5.0 | 4.7 | 5.0 | 5.0 | 5.7 | 4.7 | 3.7 |
| Selway | 4.3 | 4.7 | 4.7 | 5.0 | 5.0 | 5.0 | 4.3 | 4.0 |
| Babe | 4.7 | 4.3 | 4.3 | 4.7 | 5.0 | 5.3 | 4.3 | 3.7 |
| AKB3128 | 5.0 | 6.0 | 5.0 | 5.3 | 5.3 | 5.7 | 5.0 | 4.0 |
| AKB3179 | 4.3 | 4.3 | 4.7 | 4.7 | 4.3 | 4.7 | 4.7 | 4.3 |
| AKB3241 | 5.0 | 5.0 | 4.7 | 5.0 | 5.3 | 5.7 | 5.3 | 3.7 |
| NK-1 | 5.0 | 5.3 | 5.0 | 4.3 | 5.0 | 5.3 | 4.3 | 3.3 |
| KH3492 | 5.3 | 5.3 | 5.0 | 4.7 | 5.0 | 5.3 | 5.3 | 4.3 |
| A12-7 | 4.3 | 4.0 | 4.3 | 4.3 | 4.7 | 5.3 | 4.3 | 4.0 |
| After Midnight | 5.7 | 5.3 | 5.3 | 5.0 | 5.7 | 5.3 | 5.3 | 4.0 |
| J-1138 | 5.0 | 5.7 | 5.7 | 5.0 | 4.7 | 5.3 | 4.0 | 3.3 |
| J-1319 | 6.0 | 6.0 | 5.3 | 5.0 | 5.3 | 5.7 | 5.0 | 3.3 |
| J-2726 | 6.0 | 6.0 | 5.0 | 5.3 | 5.3 | 6.0 | 4.7 | 3.7 |
| J-3510 | 4.7 | 4.7 | 5.0 | 4.7 | 5.0 | 5.0 | 4.3 | 4.0 |
| BAR PP 71213 | 4.0 | 4.0 | 4.3 | 4.0 | 4.3 | 4.7 | 4.3 | 3.0 |
| BAR PP 7309V | 6.3 | 6.3 | 6.0 | 5.3 | 5.7 | 6.0 | 5.3 | 4.0 |
| BAR PP 79366 | 5.3 | 5.3 | 5.0 | 5.0 | 5.7 | 5.7 | 4.7 | 3.7 |
| Barvette HGT® | 4.7 | 4.7 | 4.7 | 4.7 | 6.0 | 5.3 | 4.3 | 4.0 |
| BAR PP 7K426 | 5.0 | 5.0 | 4.7 | 4.0 | 5.7 | 5.3 | 5.0 | 4.7 |
| BAR PP 7236V | 4.7 | 4.7 | 4.0 | 5.0 | 4.7 | 4.7 | 4.0 | 3.7 |
| BAR PP 79494 | 5.3 | 5.0 | 5.3 | 4.7 | 6.0 | 5.3 | 6.0 | 3.7 |
| BAR PP 110358 | 6.0 | 4.7 | 4.7 | 4.0 | 5.0 | 4.7 | 4.7 | 3.3 |
| RAD-1776 | 4.0 | 5.3 | 4.7 | 5.0 | 5.3 | 5.7 | 4.7 | 3.3 |
| NAI-A16-3 | 5.0 | 6.0 | 5.7 | 4.3 | 5.0 | 6.3 | 5.0 | 3.7 |
| NAI-13-132 | 5.3 | 5.3 | 5.3 | 4.7 | 5.0 | 5.3 | 5.3 | 3.7 |
| NAI-15-80 | 4.0 | 6.0 | 4.3 | 5.3 | 4.3 | 4.7 | 4.0 | 3.7 |
| NAI-13-9 | 4.0 | 5.3 | 5.0 | 4.7 | 5.3 | 6.0 | 5.0 | 4.0 |
| NAI-13-14 | 5.0 | 4.0 | 4.7 | 5.3 | 5.3 | 5.7 | 6.0 | 4.3 |
| NAI-14-122 | 5.3 | 4.0 | 4.3 | 4.7 | 4.7 | 5.0 | 4.0 | 3.3 |
| PST-K13-143 | 4.0 | 5.3 | 4.0 | 4.0 | 4.3 | 4.7 | 4.0 | 4.0 |
| NAI-14-128 | 4.0 | 4.0 | 4.7 | 5.3 | 5.3 | 6.0 | 5.7 | 4.0 |
| NAI-14-132 | 5.3 | 4.3 | 4.3 | 5.0 | 4.7 | 5.0 | 4.7 | 3.0 |
| NAI-14-133 | 4.0 | 4.0 | 4.3 | 4.7 | 4.7 | 5.0 | 4.7 | 3.3 |
| NAI-14-176 | 4.3 | 4.0 | 4.3 | 4.0 | 4.7 | 5.0 | 4.7 | 3.3 |
| NAI-14-178 | 4.0 | 4. | 4.0 | 5.3 | 4.7 | 4.7 | 4.7 | 3.0 |
| NAI-14-187 | 4.7 | 74.0 | 4.7 | 4.7 | 5.0 | 5.0 | 4.7 | 3.7 |
| NAI-15-84 | 4.0 | 5.0 | 4.3 | 4.7 | 4.7 | 4.7 | 4.7 | 4.0 |
| Pivot | 5.0 | 4.0 | 5.0 | 4.3 | 5.0 | 5.0 | 5.0 | 3.7 |
| Blue Devil | 4.0 | 4.0 | 4.3 | 4.3 | 4.7 | 4.3 | 4.3 | 3.0 |
| Skye | 4.0 | 5.3 | 4.0 | 4.3 | 4.7 | 4.7 | 4.3 | 3.3 |
| GO-22B23 | 5.3 | 5.3 | 5.0 | 4.7 | 6.0 | 5.3 | 4.7 | 4.3 |
| GO-2628 | 5.3 | 5.0 | 4.7 | 4.7 | 5.3 | 6.0 | 4.7 | 3.3 |
| GO-2425 | 5.0 | 4.3 | 4.3 | 4.3 | 4.3 | 5.0 | 4.3 | 3.0 |
| DLFPS-340/3364 | 4.3 | 5.3 | 4.3 | 4.3 | 4.0 | 4.7 | 4.0 | 4.0 |
| DLFPS-340/3446 | 5.3 | 5.3 | 5.7 | 4.7 | 6.0 | 6.0 | 5.3 | 3.7 |

Table 1 (continued). Visual quality ratings for the Kentucky bluegrass shade cultivar trial, Ames, Iowa.

| Cultivars | Visual turfgrass quality ^a | | | | | | | |
|-------------------------------|---------------------------------------|-----|------|------|------|------|------|------|
| | Apr. | May | Jun. | Jul. | Aug. | Sep. | Oct. | Nov. |
| DLFPS-340/3556 | 5.3 | 4.7 | 5.0 | 4.7 | 6.0 | 5.3 | 5.0 | 3.7 |
| DLFPS-340/3553 | 4.7 | 5.0 | 4.7 | 4.7 | 4.3 | 5.0 | 4.7 | 3.3 |
| DLFPS-340/3494 | 5.0 | 5.0 | 5.7 | 3.7 | 6.0 | 7.0 | 5.7 | 4.3 |
| DLFPS-340/3500 | 5.0 | 4.0 | 5.7 | 5.3 | 5.0 | 5.7 | 5.3 | 3.7 |
| DLFPS-340/3438 | 4.0 | 5.0 | 4.7 | 5.0 | 5.0 | 5.0 | 4.3 | 3.7 |
| DLFPS-340/3549 | 5.0 | 4.3 | 4.3 | 4.3 | 4.7 | 5.3 | 4.7 | 3.3 |
| DLFPS-340/3548 | 4.3 | 4.7 | 4.0 | 5.7 | 4.7 | 5.0 | 3.7 | 3.0 |
| DLFPS-340/3444 | 4.6 | 5.3 | 4.3 | 5.3 | 4.3 | 5.0 | 4.0 | 3.3 |
| DLFPS-340/3455 | 5.3 | 4.7 | 6.0 | 4.7 | 5.7 | 5.7 | 5.0 | 4.7 |
| DLFPS-340/3550 | 4.7 | 4.7 | 4.7 | 4.7 | 5.0 | 5.0 | 4.0 | 3.7 |
| DLFPS-340/3551 | 4.7 | 4.7 | 4.7 | 4.0 | 4.3 | 5.3 | 4.3 | 4.3 |
| DLFPS-340/3552 | 4.0 | 4.0 | 5.0 | 4.7 | 5.3 | 5.3 | 4.7 | 3.3 |
| MVS-130 | 4.0 | 4.0 | 4.3 | 5.0 | 4.3 | 4.7 | 4.3 | 4.3 |
| A16-1 | 4.0 | 4.0 | 4.3 | 4.7 | 5.0 | 5.0 | 4.3 | 3.7 |
| A16-7 | 4.0 | 5.0 | 4.7 | 4.7 | 4.0 | 4.7 | 4.0 | 3.3 |
| A12-34 | 5.0 | 4.0 | 5.0 | 4.7 | 5.3 | 5.7 | 4.3 | 4.0 |
| A11-26 | 4.0 | 4.3 | 4.7 | 4.7 | 5.0 | 5.0 | 4.3 | 4.0 |
| PPG-KB 1320 | 4.3 | 4.3 | 4.7 | 4.7 | 4.7 | 5.3 | 5.0 | 4.0 |
| A11-38 | 4.3 | 4.3 | 4.3 | 4.0 | 4.3 | 5.3 | 4.3 | 3.3 |
| PPG-KB 1131 | 4.3 | 5.0 | 4.3 | 4.3 | 5.0 | 5.0 | 4.3 | 4.0 |
| A10-280 | 5.0 | 4.3 | 4.7 | 5.3 | 5.3 | 5.7 | 5.3 | 3.7 |
| Shamrock | 4.3 | 5.0 | 4.3 | 4.6 | 4.7 | 5.0 | 4.7 | 3.0 |
| A16-2 | 5.0 | 5.0 | 4.7 | 5.3 | 5.3 | 5.3 | 5.0 | 4.3 |
| PPG-KB 1304 | 5.0 | 5.0 | 5.3 | 4.6 | 5.3 | 5.0 | 4.0 | 4.0 |
| A15-6 | 5.7 | 5.7 | 4.7 | 4.6 | 4.3 | 5.0 | 4.7 | 3.0 |
| A16-17 | 4.3 | 4.3 | 5.3 | 5.3 | 5.3 | 5.7 | 5.7 | 4.7 |
| Prosperity | 6.0 | 6.0 | 4.3 | 4.0 | 4.3 | 4.7 | 4.0 | 3.7 |
| A06-8 | 4.0 | 4.0 | 6.0 | 5.6 | 5.7 | 6.7 | 5.3 | 4.0 |
| Kenblue | 4.3 | 4.3 | 4.3 | 4.7 | 4.7 | 5.0 | 4.3 | 3.7 |
| PST-K13-139 | 5.3 | 5.3 | 4.7 | 4.7 | 4.7 | 5.3 | 4.7 | 3.3 |
| PST-K13-141 | 4.3 | 4.3 | 5.0 | 4.0 | 5.0 | 5.0 | 4.7 | 4.0 |
| PST-K11-118 | 4.0 | 4.0 | 4.3 | 4.3 | 4.3 | 4.3 | 4.7 | 3.3 |
| PST-K15-157 | 5.0 | 5.0 | 4.0 | 4.3 | 4.0 | 4.3 | 4.7 | 3.0 |
| PST-11-7 | 4.3 | 4.3 | 5.0 | 4.3 | 5.3 | 5.7 | 5.3 | 4.0 |
| PST-K15-167 | 4.0 | 4.0 | 4.3 | 4.6 | 4.7 | 4.7 | 4.7 | 4.0 |
| PST-K15-177 | 4.7 | 4.7 | 4.3 | 4.0 | 4.7 | 5.0 | 4.0 | 3.7 |
| PST-K15-172 | 4.7 | 4.7 | 4.7 | 4.7 | 4.7 | 5.3 | 4.3 | 3.3 |
| Midnight | 5.0 | 5.0 | 4.7 | 4.7 | 4.7 | 4.7 | 4.3 | 3.3 |
| PST-T14-39 | 5.7 | 5.7 | 4.0 | 4.3 | 4.0 | 4.7 | 4.0 | 3.7 |
| LSD (0.05)^b | 1.6 | 1.5 | 1.2 | 1.2 | 1.4 | 1.5 | 1.2 | 1.0 |

^aTurfgrass visual quality rated on a 1 to 9 scale, with 1 = poor and 6 = acceptable.

^bMeans were separated using Fisher's LSD.