



## Tall Fescue Shade Cultivar Evaluation Trial

**Adam Thoms**—assistant professor and extension turfgrass specialist, Department of Horticulture

**Thomas Gould**—research scientist, Department of Horticulture

**AJ Lindsey**—former post-doctorial candidate, Department of Horticulture

**Nick Christians**—university professor, Department of Horticulture

**Ben Pease**—former research scientist, Department of Horticulture

This is the third full year data from tall fescue 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 132 seeded cultivars, including a number of new experimental cultivars. Iowa State University is home to both a traffic tolerance and shade setting of this trial.

### Materials and Methods

The trial was planted on September 18, 2018. Plots are 4 ft. by 5 ft. in size, and all cultivars are replicated three times. Supplemental irrigation was provided during establishment and a starter fertilizer (10-10-10) was applied at seeding providing 1 lb. nitrogen per 1,000 ft.<sup>2</sup>. Fertility was applied at 2 lbs. N per 1,000 ft.<sup>2</sup> over the course of the growing season with a 28-0-5 fertilizer. The mowing height is 3 in. Significant shade is provided by the shade tree cultivar trial, which the turfgrass trial is planted under.

Digital images were taken monthly April through November. Digital images were captured with the use of a light box to ensure a consistent lighting and 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), not presented here, and turfgrass quality (1=poor and 6=acceptable quality), not presented here. Visual ratings also were taken during this time period, and not presented here.

### Results and Discussion

Significant differences existed between cultivars for percent green cover, color (data not shown), and quality (data not shown), for each month's rating dates.

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

### Acknowledgements

Appreciation is extended to the NTEP organization for funding to conduct this project, as well as to Jeff Iles for use of the ground under his shade tree trial. Special appreciation also is given to Simon Midtbo, Ethan DenBeste, and Thomas Donelan for their help on plot maintenance and data collection.

**Table 1. Percent green cover ratings for the tall fescue shade cultivar trial, 2021.**

Cultivar	Percent green cover <sup>a</sup>							
	April	May	June	July	Aug	Sept	Oct	Nov
Naturally Green	30.8	56.7	75.6	49.0	48.2	47.9	39.1	39.6
Paramount	30.4	51.4	34.1	42.1	37.1	42.1	45.2	44.6
DLFPS-321/3693	33.1	63.8	55.0	61.0	66.6	54.5	49.9	48.0
DLFPS-321/3694	31.5	33.3	37.0	30.3	37.2	45.4	40.7	37.5
DLFPS-321/3695	39.7	54.5	58.8	47.7	55.2	51.0	40.1	44.5
TMT1	41.1	51.7	49.7	44.4	53.2	56.7	48.8	50.2
ATF2116	41.1	54.9	51.3	50.5	52.9	46.8	38.6	43.3
NT-3	36.1	49.8	49.0	49.1	50.8	45.3	47.0	46.8
RS1	50.5	53.1	48.1	31.1	41.3	38.9	38.3	38.4
5LSS	33.9	45.2	43.3	37.2	39.5	36.4	37.5	37.1
BGR-TF3	37.4	45.2	47.5	41.5	44.3	43.9	34.7	42.0
ATF 1768	35.0	30.8	36.8	35.8	45.6	40.1	27.2	41.2
DLFPS-TF/3550	30.2	45.9	29.8	32.1	39.4	30.1	25.5	28.1
DLFPS-TF/3552	47.1	54.8	51.3	37.8	54.1	55.3	43.3	47.5
DLFPS-TF/3553	52.1	49.5	44.7	51.8	50.4	66.6	43.1	46.7
DLFPS-321/3679	39.2	44.9	57.2	48.6	39.3	54.6	45.2	49.0
LBF	63.3	61.1	52.1	47.7	57.9	59.6	36.2	36.1
TD2	45.8	64.4	36.9	46.2	55.9	57.9	54.1	43.0
DLFPS-321/3696	71.9	81.5	70.6	72.8	69.4	73.3	57.0	60.1
DLFPS-321/3699	71.0	84.3	52.6	68.5	59.9	64.7	56.3	65.6
Grande 3	67.4	85.7	73.6	64.9	70.5	81.5	75.3	76.1
Fayette	70.9	91.2	79.5	62.4	76.5	86.8	64.4	70.2
JT-517	68.5	85.0	76.1	58.5	77.6	67.0	64.5	67.4
JS-DTT	53.9	76.6	74.0	72.5	72.3	73.2	61.1	64.6
RDC	42.5	91.1	74.9	89.3	95.9	85.3	73.1	64.0
BAR 9FE MAS	22.7	63.2	80.9	65.0	53.7	48.4	34.9	45.8
BAR FA 8228	13.5	24.4	49.7	23.7	13.8	18.6	15.9	12.6
COL-TF-148	58.5	67.9	42.9	56.1	62.6	63.3	57.1	46.2
LTP-TF-122	68.5	86.1	59.7	67.8	66.8	68.7	59.9	58.6
LTP-TF-111	72.9	93.8	62.5	83.2	83.9	77.1	67.6	67.5
K18-ROE	57.9	64.5	57.5	57.3	56.6	56.2	43.2	47.0
K18-NSE	70.6	85.7	78.0	81.9	82.6	78.3	50.9	56.0
BY-TF-169	39.0	79.6	59.7	69.3	77.6	62.5	45.7	37.2
DLFPS-321/3701	62.6	77.7	69.5	77.4	76.5	75.0	59.7	64.3
DLFPS-321/3702	46.4	61.3	55.3	54.3	54.6	53.0	37.9	38.6
DLFPS-321/3703	58.1	80.1	53.6	57.6	72.2	66.1	53.4	55.1
PST-5TRN	72.6	89.3	77.4	78.7	84.7	79.2	73.0	70.4
PST-5GQ	72.6	84.0	89.5	75.3	81.4	73.3	59.4	71.3
PST-5MCMO	70.3	82.2	80.4	79.5	75.1	67.1	55.4	68.5
ProGold	78.6	76.2	80.7	67.8	71.3	69.8	66.4	68.6
PST-5E6	65.4	76.3	72.9	72.6	76.4	78.3	71.4	67.5
PST-5THM	61.5	84.7	63.9	76.8	82.6	72.2	65.8	72.0
PST-5BYOB	67.2	88.6	82.0	88.1	87.6	75.6	70.3	64.4
Lifeguard	46.4	71.6	78.4	60.0	65.3	59.5	46.8	60.8
PST-5MINK	72.0	78.0	75.1	65.5	73.2	69.3	46.9	60.1
Moondance	79.9	89.1	89.3	80.9	90.8	86.3	82.2	81.8
PST-5SQB	58.4	83.7	83.5	73.2	78.7	66.1	54.1	55.7
PST-5DZM	64.5	81.9	86.2	84.1	86.6	77.5	71.2	73.8
PST-5GLBS	71.3	82.6	69.5	65.0	80.5	73.7	68.3	67.7
PST-5DART	71.0	84.4	65.7	81.8	83.8	83.6	65.1	80.4
PST-5DC24	49.6	76.9	79.5	78.5	80.5	77.5	68.9	65.5
Tango	60.3	80.7	79.1	65.6	72.8	74.1	64.4	58.0
3N1	44.6	55.6	36.3	52.0	51.2	47.1	46.6	46.9
Bandit	57.4	78.0	78.3	75.1	79.1	65.7	52.6	52.3
Copious TF	77.3	90.0	83.8	78.6	80.8	79.4	66.8	66.4
Padre 2	71.3	90.2	88.2	77.0	81.7	77.2	69.3	76.4
Bravo 2	71.0	83.5	73.6	63.9	72.0	74.3	62.9	72.0
NAI-FQZ-17	44.0	57.6	62.1	52.8	52.0	51.0	37.9	49.9
DLFPS-321/3705	57.8	85.0	86.0	90.1	84.9	85.2	80.7	77.0
DLFPS-321/3706	24.6	42.9	58.4	41.8	39.8	39.1	37.4	29.6
DLFPS-321/3707	55.1	74.0	80.9	67.3	68.3	69.0	60.4	56.3
DLFPS-321/3708	16.4	56.1	64.1	48.0	50.8	43.4	33.3	33.1
BAR-TF-134	20.3	41.5	58.7	44.1	36.6	38.5	36.0	32.6
BAR-FA8230	48.8	58.0	62.4	47.9	56.0	55.9	42.7	46.2
AH1	28.1	29.5	26.0	29.6	21.2	27.7	23.3	27.4
PPG-TF-249	26.9	62.8	64.5	56.5	53.5	61.6	46.6	42.0
PPG-TF-262	4.8	26.8	32.1	19.5	15.0	12.7	12.7	14.3
PPG-TF-267	23.0	28.8	4.9	27.2	24.4	17.3	18.4	22.7
AH2	39.3	58.5	60.3	57.4	56.6	51.8	48.4	44.6
K18-RS6	14.7	48.7	34.6	39.7	39.5	40.9	32.4	30.2

*continued*

**Table 1. Percent green cover ratings for the tall fescue shade cultivar trial, 2021. *continued***

Cultivar	Percent green cover <sup>a</sup>							
	April	May	June	July	Aug	Sept	Oct	Nov
K18-WB1	46.9	56.6	46.6	41.6	57.4	48.6	45.7	47.6
RH1	58.8	71.7	54.1	77.5	81.8	73.7	65.2	63.0
RH3	66.9	83.6	70.0	88.9	92.3	84.8	64.1	52.8
JT 233	57.2	81.9	80.4	72.1	77.8	83.5	62.9	66.2
JT 268	70.6	86.0	89.2	83.7	83.9	80.8	60.2	61.7
PPG-TF 244	54.0	74.5	76.9	77.1	78.7	74.3	70.3	70.1
PPG-TF 305	48.1	90.0	90.0	89.2	93.6	85.1	71.6	70.0
PPG-TF 316	61.5	64.4	66.0	62.0	63.0	63.4	58.0	62.4
RC4	61.6	69.0	69.3	59.5	65.7	65.3	52.7	65.8
PPG-TF-257	72.7	85.2	79.4	82.8	86.4	84.8	80.1	83.0
PPG-TF-238	66.3	93.0	88.9	88.7	88.9	89.1	75.3	73.9
PPG-TF-254	61.0	73.3	68.2	65.8	66.7	65.9	60.2	59.7
PPG-TF-308	58.9	84.8	85.8	86.1	92.2	83.2	74.5	72.6
PPG-TF-255	53.2	63.0	92.7	66.0	67.0	63.5	56.2	57.6
PPG-TF-312	39.6	51.8	49.0	57.8	55.6	56.6	53.8	54.5
PPG-TF-315	49.1	68.3	68.1	53.6	61.7	55.6	53.0	58.9
PPG-TF-336	63.7	65.6	63.0	55.2	63.5	64.0	60.4	63.5
PPG-TF-337	35.0	36.0	72.4	36.1	34.4	36.1	34.8	38.4
ZRC1	44.1	76.7	75.4	71.6	74.6	69.1	64.0	61.3
PPG-TF-231	72.6	88.1	73.8	75.1	88.6	83.8	71.8	76.4
PPG-TF-306	70.7	84.7	79.8	78.4	82.3	78.3	59.4	60.8
PPG-TF-318	56.6	64.1	49.4	49.7	61.6	64.7	55.3	60.4
Bullseye	66.2	66.0	63.5	50.6	60.8	62.7	59.3	59.8
Firehawk SLT	36.2	52.0	52.7	51.1	49.5	51.2	43.4	34.4
Hemi	53.5	62.4	62.5	58.3	50.6	52.8	40.3	50.2
Bullseye LTZ	55.1	62.0	69.6	65.8	64.4	65.1	61.4	63.3
Turbo SS	75.4	85.7	84.6	85.2	90.0	80.4	57.8	64.8
Dragster	65.4	85.4	91.3	86.2	86.8	83.1	59.0	59.1
GO-RH20	67.4	75.7	79.8	73.8	72.2	70.4	61.5	69.9
Birmingham	75.1	89.7	86.5	76.6	79.9	76.6	57.7	65.9
GO-AOMK	37.9	35.4	38.0	35.5	33.1	30.8	17.7	30.1
NAI-3N2	64.2	80.0	73.7	68.7	74.9	65.4	52.8	62.1
NAI-ROS4	60.3	87.0	78.0	78.9	84.3	80.5	66.1	69.0
NAI-TUE	48.8	76.5	85.6	65.9	70.4	69.9	48.6	50.3
NAI-ST5	39.0	58.2	62.8	44.6	47.2	38.5	31.6	34.0
SE5302	34.5	48.8	57.9	45.9	38.9	35.3	29.2	34.5
SE5STAR	35.9	37.5	53.4	36.6	35.4	30.9	20.3	30.1
SE5CR1	61.2	76.8	60.8	57.4	49.9	52.9	47.7	53.1
SETF104	58.9	85.6	62.2	68.7	81.6	80.4	66.6	74.2
SETFM2	58.5	59.7	55.4	49.6	49.8	54.1	48.8	49.7
SETFM3	43.9	63.0	69.6	49.9	51.4	63.8	53.9	53.5
3B2	49.7	56.4	54.0	57.0	63.8	60.4	50.4	54.5
RAD--TF105	63.1	83.3	84.6	60.7	70.0	78.0	67.1	71.8
RAD-TF0.0	57.1	53.8	60.4	45.8	50.5	57.9	55.7	59.5
RHL2	37.2	65.6	50.7	60.1	66.3	63.7	51.8	54.8
Raptor III	29.4	56.5	51.4	59.1	52.1	57.7	52.1	44.1
RHF	38.6	61.0	47.8	46.2	53.4	61.5	49.8	56.3
PPG-TF-313	19.7	57.1	57.4	54.9	55.1	54.7	47.7	41.5
PPG-TF-320	29.7	52.1	50.0	47.1	43.3	45.1	40.5	43.6
PPG-TF-323	28.8	37.0	47.4	36.1	39.9	39.8	30.3	9.6
PPG-TF-338	28.8	31.4	25.9	29.8	37.0	37.7	30.7	33.9
Estrena	41.3	50.9	51.3	39.7	40.7	48.2	40.7	41.6
AST8118LM	33.7	36.7	28.0	25.7	26.0	33.2	28.8	32.3
AST8218LM	24.9	27.1	16.3	32.7	22.1	22.2	17.6	22.0
A-TF31	46.8	59.3	62.6	55.3	61.8	53.7	52.0	49.8
Palomar	4.4	24.5	34.9	25.8	21.1	19.5	16.1	17.1
Escalade	48.8	37.0	52.4	42.3	34.2	40.1	36.7	39.6
OG-WALK	8.3	14.5	32.7	35.8	22.0	28.4	18.8	17.2
TF445	67.4	68.6	68.5	64.1	66.6	65.5	56.2	59.0
TF456	51.7	54.4	58.1	54.6	60.2	67.5	67.3	68.4
FC15-01P	43.4	56.7	61.2	51.1	50.8	62.1	50.5	56.0
Kentucky-31	47.6	50.3	66.8	52.2	42.0	46.8	44.7	46.5
LSD <sub>(0.05)</sub> <sup>b</sup>	46.7	48.8	49.2	44.9	48.3	44.9	41.8	44.2

<sup>a</sup>Percent green cover is the average quality rated monthly with digital image analysis on a 0-100 scale.

<sup>b</sup>Means were separated using Fisher's LSD.