



Tall Fescue Simulated Traffic Cultivar Evaluation Trial

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This is the 2021 data from tall fescue subjected to simulated athletic field traffic conditions during August and early September. 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. 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 1000 ft.². Fertility was applied at 0.5 lb. N per 1000 ft.² monthly (April-October) using a 28-0-3 granular fertilizer. The mowing height is 3 in. Simulate athletic field traffic will be applied in three of the five years the study is being conducted. A modified Baldree Athletic Field Traffic Simulator was used to simulate athletic field traffic.

Digital images were taken monthly April to 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 all rating dates. Those in August and September are under simulated traffic, and those in October and November are for recovery from traffic.

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. Special appreciation also is given to Ethan DenBeste, Simon Midtbo, and Thomas Donelan for their help on plot maintenance, traffic simulation, and data collection.

Table 1. Monthly percent green cover ratings for tall fescue cultivars subjected to fall simulated athletic field traffic, 2021.

Cultivar	Percentage green cover ^a							
	April	May	June	July	Aug	Sept	Oct	Nov
Naturally Green	86.5	90.4	63.9	82.9	62.3	46.5	90.5	91.7
Paramount	91.4	93.8	72.3	91.7	82.1	49.5	94.5	92.7
DLFPS-321/3693	89.8	96.6	71.1	85.4	71.7	44.4	92.4	92.1
DLFPS-321/3694	89.5	94.5	64.9	89.8	81.7	56.3	91.5	91.9
DLFPS-321/3695	93.6	93.2	79.4	96.1	82.4	62.2	89.7	93.7
TMT1	81.2	95.7	69.7	89.9	77.6	55.4	91.4	91.7
ATF2116	90.9	94.4	52.6	87.3	74.7	50.6	89.8	86.8
NT-3	88.3	95.4	60.9	87.0	82.0	63.5	97.5	95.7
RS1	93.4	95.9	76.7	91.0	84.8	51.8	84.4	89.7
5LSS	85.9	97.2	72.7	94.7	60.6	37.8	88.3	86.6
BGR-TF3	89.9	94.0	75.5	85.4	79.2	62.5	86.9	88.0
ATF 1768	83.5	91.8	75.8	92.3	82.7	59.4	95.7	90.6
DLFPS-TF/3550	78.8	95.0	60.5	89.1	57.3	37.3	73.0	82.1
DLFPS-TF/3552	89.6	95.4	68.2	92.1	80.3	53.9	86.6	89.8
DLFPS-TF/3553	88.0	94.5	68.6	89.3	84.7	53.1	92.8	91.1
DLFPS-321/3679	89.3	94.0	71.6	88.8	77.5	59.5	94.5	88.5
LBF	88.1	94.6	56.8	88.2	61.0	50.5	90.6	89.0
TD2	93.3	96.0	60.1	88.3	75.3	55.2	94.4	93.8
DLFPS-321/3696	84.7	93.8	76.6	89.9	85.4	68.9	97.5	93.8
DLFPS-321/3699	90.8	96.0	70.3	94.2	83.5	54.9	95.6	91.1
Grande 3	84.7	93.9	84.1	90.6	79.7	51.2	91.5	93.4
Fayette	90.3	94.9	72.2	86.7	82.7	60.6	96.5	90.8
JT-517	79.6	92.0	75.9	94.0	62.8	41.9	83.5	85.6
JS-DTT	78.5	96.0	73.4	90.6	85.4	51.9	93.6	89.0
RDC	80.2	93.1	77.7	95.1	84.8	54.5	89.8	91.7
BAR 9FE MAS	85.0	84.9	60.8	79.6	61.2	46.8	85.1	85.0
BAR FA 8228	86.0	87.0	66.3	91.2	86.7	65.3	96.9	91.8
COL-TF-148	86.4	96.6	71.5	90.8	74.7	48.7	91.9	93.9
LTP-TF-122	90.7	95.3	73.8	93.2	79.0	51.0	95.7	92.2
LTP-TF-111	90.9	95.3	58.5	95.0	89.5	55.8	96.5	95.2
K18-ROE	89.1	91.2	74.5	95.4	77.9	53.0	94.5	94.0
K18-NSE	80.5	88.0	65.1	93.4	74.7	40.6	84.9	88.0
BY-TF-169	86.7	96.4	82.5	94.4	78.4	56.0	96.4	92.6
DLFPS-321/3701	81.3	90.5	60.4	81.8	68.8	52.0	91.9	87.6
DLFPS-321/3702	88.2	94.5	64.2	88.9	74.5	64.7	94.5	92.0
DLFPS-321/3703	91.7	92.8	76.9	87.8	86.2	68.4	96.1	94.2
PST-5TRN	83.5	95.9	75.6	91.1	76.8	55.5	94.7	87.5
PST-5GQ	90.4	95.1	59.0	85.9	77.4	54.9	91.4	87.3
PST-5MCMO	86.3	90.8	79.3	93.8	67.5	39.3	90.8	89.7
ProGold	94.4	96.3	75.3	92.8	80.7	65.9	94.9	93.1
PST-5E6	85.0	95.7	77.1	94.4	82.8	54.5	91.4	89.8
PST-5THM	90.8	94.3	52.5	90.5	73.5	56.8	92.9	92.4
PST-5BYOB	84.6	95.8	82.7	95.3	68.0	50.0	94.8	92.2
Lifeguard	94.0	95.1	69.1	92.7	80.3	55.6	97.2	93.1
PST-5MINK	82.2	95.1	65.1	85.3	72.1	49.4	91.8	86.1
Moondance	88.1	94.0	85.5	93.1	78.9	56.8	90.3	89.5
PST-5SQB	75.1	88.7	68.2	90.7	84.8	63.8	94.6	87.1
PST-5DZM	81.7	92.9	74.1	92.8	83.8	52.2	89.9	88.5
PST-5GLBS	90.7	95.6	69.1	89.5	81.9	71.1	97.0	93.3
PST-5DART	89.7	96.8	75.5	94.4	82.1	70.1	94.6	90.3
PST-5DC24	79.4	92.2	65.3	87.9	76.5	55.4	91.4	87.1
Tango	89.8	95.9	70.5	89.9	73.4	42.9	89.2	87.1
N1	91.8	87.9	61.0	88.3	77.6	51.4	95.0	94.2
Bandit	79.9	93.0	68.3	89.6	73.5	53.4	89.1	87.9
Copious TF	82.0	90.0	66.5	87.3	80.8	54.9	91.6	86.2
Padre 2	93.7	94.3	79.0	92.7	84.7	75.9	98.0	92.5
Bravo 2	83.0	90.7	66.3	80.3	64.3	42.1	83.2	86.2
NAI-FQZ-17	87.7	93.6	65.1	72.2	63.2	46.8	81.8	88.9
DLFPS-321/3705	87.9	95.8	77.7	92.1	89.3	76.8	98.3	95.2
DLFPS-321/3706	90.4	96.6	72.8	92.4	67.9	47.9	92.6	93.8
DLFPS-321/3707	87.0	94.8	84.8	92.7	72.9	54.7	90.0	91.7
DLFPS-321/3708	88.6	93.6	67.7	80.6	65.6	48.5	94.6	89.7
3BAR-TF-134	89.3	95.0	80.8	94.3	81.1	61.7	92.8	91.5
BAR-FA8230	95.9	95.7	87.1	92.2	84.7	68.3	93.6	89.3

continued

Table 1. Monthly percent green cover ratings for tall fescue cultivars subjected to fall simulated athletic field traffic, 2021. *continued*

Cultivar	Percentage green cover ^a							
	April	May	June	July	Aug	Sept	Oct	Nov
AH1	88.6	91.8	83.1	89.4	81.6	60.7	95.6	92.1
PPG-TF-249	91.4	96.4	81.9	91.9	76.0	57.9	94.0	87.6
PPG-TF-262	90.5	94.8	79.0	94.8	85.6	58.8	93.1	91.5
PPG-TF-267	80.2	93.4	88.6	93.9	74.3	48.1	86.8	84.2
AH2	91.4	93.9	72.5	93.3	81.5	56.8	91.4	92.5
K18-RS6	90.7	95.5	76.7	90.3	84.2	63.9	95.1	94.5
K18-WB1	89.1	93.2	80.0	93.9	82.4	57.8	95.2	91.9
RH1	90.0	95.3	82.3	95.6	85.0	67.0	93.2	93.1
RH3	83.5	96.0	68.8	92.2	81.0	48.1	93.7	91.6
JT 233	86.6	97.3	88.8	87.8	74.1	59.3	95.0	89.8
JT 268	88.7	95.4	69.0	89.0	75.4	61.3	96.6	91.5
PPG-TF 244	82.1	88.0	67.6	94.4	77.9	55.5	96.7	91.9
PPG-TF 305	76.2	94.5	75.2	86.6	74.3	56.7	90.1	84.2
PPG-TF 316	77.8	92.0	65.5	92.0	73.8	51.3	93.2	89.6
RC4	85.8	90.6	82.2	92.7	80.1	55.0	95.3	91.5
PPG-TF-257	86.5	91.7	77.0	92.6	86.0	62.2	96.0	91.0
PPG-TF-238	81.4	94.7	86.5	95.7	84.2	51.5	90.4	90.6
PPG-TF-254	88.5	97.0	80.9	91.9	81.7	62.0	97.7	93.9
PPG-TF-308	91.6	94.4	68.3	92.1	83.7	61.7	97.1	94.4
PPG-TF-255	91.1	95.6	65.2	93.0	86.7	58.5	96.3	91.1
PPG-TF-312	92.1	95.3	76.2	90.6	82.6	57.1	94.1	94.1
PPG-TF-315	91.3	94.9	79.6	93.9	85.9	67.6	93.8	91.7
PPG-TF-336	86.5	95.2	79.2	94.5	84.9	44.5	94.0	95.1
PPG-TF-337	84.1	95.5	75.6	95.2	73.4	47.5	86.8	85.3
ZRC1	90.1	95.1	89.5	94.8	91.0	63.0	96.4	93.7
PPG-TF-231	84.5	94.6	84.5	88.9	82.6	57.1	93.1	93.1
PPG-TF-306	89.8	96.3	54.7	90.2	78.3	62.7	96.0	91.7
PPG-TF-318	90.6	92.9	72.8	92.9	87.7	71.5	95.9	93.8
Bullseye	93.2	94.2	82.4	88.9	74.3	63.7	94.1	85.7
Firehawk SLT	93.0	91.5	70.2	92.7	75.0	57.8	92.9	93.6
Hemi	85.7	96.7	79.6	89.6	90.5	66.6	96.5	88.2
Bullseye LTZ	91.1	96.8	83.2	86.9	86.2	63.9	91.8	89.3
Turbo SS	81.0	90.9	59.2	77.5	68.6	52.9	92.8	88.1
Dragster	77.7	91.4	67.6	93.7	78.3	49.9	88.0	89.0
GO-RH20	95.6	93.3	84.2	95.2	87.6	73.8	97.3	93.3
Birmingham	91.7	92.4	57.0	80.8	64.7	55.2	96.6	90.6
GO-AOMK	85.9	93.9	61.5	83.8	65.4	46.5	85.8	83.2
NAI-3N2	92.0	94.6	63.0	93.6	79.5	61.3	95.1	92.9
NAI-ROS4	89.1	94.6	59.3	90.6	75.7	57.6	90.5	92.4
NAI-TUE	88.5	95.3	73.3	91.8	80.7	54.9	92.6	88.2
NAI-ST5	87.2	93.2	66.9	90.5	66.0	46.7	92.4	91.7
SE5302	90.2	90.5	55.6	94.3	87.0	66.6	98.0	91.5
SE5STAR	93.3	92.6	82.4	89.5	90.2	75.4	98.3	90.1
SE5CR1	75.3	90.5	85.4	94.5	77.8	51.0	91.6	90.9
SETF104	85.0	93.1	73.8	93.1	78.5	52.8	89.5	88.2
SETFM2	86.8	96.0	84.9	82.4	79.9	59.0	91.7	83.9
SETFM3	83.5	94.3	62.9	77.2	73.1	52.0	89.3	83.6
3B2	81.9	92.7	56.9	84.5	70.9	48.4	92.6	93.1
RAD--TF105	86.1	94.9	68.4	81.5	78.3	62.4	92.5	89.5
RAD-TF0.0	81.7	91.6	79.5	83.7	85.4	57.7	90.6	83.4
RHL2	87.7	94.8	80.9	88.9	76.9	48.8	94.7	91.3
Raptor III	89.4	96.8	84.5	87.4	80.7	59.7	95.3	93.2
RHF	93.4	97.6	78.6	92.0	92.8	72.4	97.2	92.4
PPG-TF-313	84.8	95.5	49.3	89.4	73.6	56.1	94.5	93.8
PPG-TF-320	95.0	96.1	62.2	89.1	80.5	69.5	97.8	94.1
PPG-TF-323	80.5	94.7	64.9	79.8	78.2	50.1	92.6	90.5
PPG-TF-338	94.5	96.4	67.9	92.3	86.7	69.4	97.5	92.9
Estrena	86.0	95.2	62.6	92.2	63.6	43.8	84.7	86.2
AST8118LM	89.9	95.0	71.7	85.7	75.0	61.0	94.9	86.5
AST8218LM	86.0	93.2	49.1	86.9	69.9	46.5	88.5	83.9
A-TF31	83.6	91.3	61.1	87.2	69.4	58.5	88.6	84.9
Palomar	90.6	94.9	67.9	90.4	71.0	59.8	89.9	85.3
Escalade	87.1	95.4	44.4	79.4	68.1	52.1	94.6	94.1
OG-WALK	90.4	93.8	69.1	88.4	79.2	69.4	97.1	91.0
TF445	88.7	95.6	71.8	90.6	84.9	62.0	91.8	89.1
TF456	91.0	95.7	77.3	91.3	89.3	63.8	95.3	94.5
FC15-01P	88.6	92.7	82.7	87.7	83.4	63.9	96.2	88.2
Kentucky-31	87.2	97.0	81.1	94.8	78.1	47.4	88.9	83.8
LSD _(0.05) ^b	13.7	5.4	26.0	10.0	18.0	21.0	11.0	7.7

^aPercent green cover is the average quality rated monthly with digital image analysis on a 0-100 scale.

^bMeans were separated using Fisher's LSD.