

TURFGRASS RESEARCH 2018



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2012 National Turfgrass Evaluation Program Tall Fescue Test: 2012–2017 Summary Report

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Summary

Research efforts to improve cultivar quality include selecting for disease resistance and stress tolerance as well as finer leaf texture, a rich green color, and better sward density. Several cultivars included in the 2012 National Turfgrass Evaluation Program Tall Fescue Test performed well and showed good brown patch resistance in south central Kansas throughout the course of the study.

Rationale

The National Turfgrass Evaluation Program (NTEP) locates studies nationwide to evaluate cultivars of a variety of turfgrass species under all types of environmental conditions. Wichita, KS, was selected for an ancillary trial of the 2012 National Tall Fescue Test, emphasizing brown patch resistance. Tall fescue is the best-adapted cool-season turfgrass for Kansas's transition zone because it is drought and heat tolerant and has few serious insect and disease problems. Efforts to improve cultivar quality include selecting for disease resistance and stress tolerance, as well as finer leaf texture, a rich green color, and better sward density.

Objective

The objective of this research was to evaluate tall fescue cultivars for brown patch resistance and general quality under south central Kansas growing conditions and submit data collected to the National Turfgrass Evaluation Program.

View all turfgrass research reports online at: <http://newprairiepress.org/kaesrr>



Study Description

On September 11, 2012, we seeded 116 tall fescue cultivars and experimental lines at the John C. Pair Horticultural Center in Wichita, KS. The study was established in a randomized complete block design with three replications that comprised 348 individual plots measuring 5×5 feet. Before seeding, we incorporated nitrogen (N), phosphorus (P), and potassium (K) as a 13-13-13 fertilizer into the study plots at a rate of 1 lb of N-P-K/1,000 ft².

Treatments

In 2013, we maintained fertility of the plots at 0.25 lb of N/1,000 ft² per growing month and irrigated as necessary to prevent turf stress. We mowed the plots weekly during the growing season at 3.5 inches and removed clippings.

In 2014, we applied fertilizer to the study plots three times: 1.0 lb of N/1,000 ft² on April 7 and September 15, and 1.4 lb of N/1,000 ft² on October 21. We mowed 1–2 times weekly during the summer, dropped clippings, and gradually decreased mowing height from the 3.5 inches we used the year before to 3.0 inches by mid-summer to 2.75 inches by fall.

In 2015, we applied urea to the study plots at a rate of 1.0 lb of N/1,000 ft² on April 9 and 1.2 lb of N/1,000 ft² on October 13. During the summer, we mowed weekly at a mowing height of 2.75 to 3.00 inches and dropped clippings.

In 2016, we fertilized the plots with urea on March 17, June 6, and November 1 at 1.0 lb of N/1,000 ft². We applied Prodiamine pre-emergent herbicide on March 10, Triplet herbicide on April 19 for white clover, and Dylox insecticide on August 11 for white grubs. We received 11.93 inches of rain in August and 15.56 in September with a period in both months within which the plots were under water for more than 12 hours. The rain caused infrequent mowing and at a slightly higher setting than we had hoped for. We mowed weekly, when possible, at a mowing height of 3.0 to 3.5 inches and dropped clippings.

In 2017, we fertilized the plots with urea on March 9 and October 2 at 1.0 lb of N/1,000 ft². We applied a Prodiamine and Pendimethalin tank mix pre-emergent herbicide on March 20 and Dylox insecticide for white grubs on July 20. We mowed weekly during the growing season at a mowing height of 3.0 to 3.5 inches and dropped clippings. Throughout the study, we irrigated when necessary to prevent turf stress or dormancy.

Data Collection

We rated the study visually on a scale of 1 to 9 with 1 = poorest measure, 6 = acceptable, and 9 = optimum measure. We rated percent brown patch infestation visually on a scale of 0 to 100%. Following seeding, we collected establishment data on October 2, 2012.

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During the 2013 growing season, we rated brown patch resistance on August 19, color on September 17, and fall color retention on November 20. We rated overall quality on April 25, May 30, July 2, August 6, September 4, and October 10.

During 2014, we collected data on spring green up on April 16, brown patch resistance on July 31, percent brown patch infestation on July 31, and genetic color on November 4. We rated overall quality on April 30, May 22, June 25, July 23, August 20, September 30, and October 29.

During 2015, we collected data on spring green up on April 7, brown patch resistance on August 12, percent brown patch infestation on August 13, genetic color on September 24, leaf texture on November 19, and fall color retention on December 31. We rated overall quality on April 23, May 26, June 24, July 31, August 26, September 24, and October 29.

During 2016, we collected data on spring green up on March 22, brown patch resistance on August 23, and percent brown patch infestation on August 24. We rated overall quality on March 31, April 26, May 26, June 28, July 25, August 30, September 29, and October 25.

During 2017, we collected data on spring green up on March 31, leaf texture on June 6, brown patch resistance on August 22, percent brown patch infestation on August 23, and fall color retention on November 30. We rated overall quality on April 25, May 30, June 28, July 18, August 29, September 28, and October 25. Quality ratings throughout the study were influenced by degree of cover, disease resistance, and weed infestation as well as turf color, texture, and density.

Results

We began collecting data on this study by looking at percent cover as a measure of cultivar establishment. By the end of the 2012 growing season, Ky-31, LSD (Rhambler 2 SRP), and B23 were the best established (Table 1). We started the 2014–2017 growing seasons by looking at spring green up when the overall study visually appeared to be about 50% green. On average, the varieties that broke dormancy the earliest were MET 1, Pick-W43 (Rebounder), PST-5EX2, and T31 (Maestro). Throughout the 2013–2017 growing seasons, which started at the end of March for 2016 but normally ran from April–October, we rated the turf monthly for quality. IS-TF 308 SEL, Pick-W43 (Rebounder), LTP-F5DPDR (Michelangelo), PPG-TF-135, W45 (Traverse 2 SRP), PPG-TF-150 (Black Tail), and U45 (Reflection) were the average best performers for the study. See Table 2 for monthly and overall average quality ratings. Usually about mid-August throughout the study, we rated the plots for brown patch resistance and percent brown patch infestation and found that no turf cultivar was completely immune. Instead, infestation ranged from lightly scattered throughout a study plot (Figure 1) to large patches of the disease (Figure 2). PPG-TF-135, PST-5RO5 (Swagger), LTP-FSD (Leonardo), Ky-31, PPG-TF-137

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(Paramount), LTP-TWUU (Rockwell), ATF 1736, and U45 (Reflection) rated the highest for brown patch resistance (Table 1). Of those PPG-TF-135, PST-5RO5 (Swagger), LTP-FSD (Leonardo), and Ky-31 showed on average the smallest percent infestation of the disease. During the summers of 2013–2015, we looked at genetic color and found that IS-TF 272 and OR-21 (Temptation) had the darkest green color. We looked at turf texture during the summers of 2015 and 2017 and found that Burl TF-136 (Hot Rod), Pick-W43 (Rebounder), PPG-TF-147 (Screamer LS), and PPG-TF-150 (Black Tail) had the finest texture. At the end of the 2013, 2015, and 2017 growing seasons, when the overall study visually appeared to still be about 50% green, we looked at turf color for fall color retention. We found that PPG-TF-157 (Thor), DZ1 (Temple), Falcon V, Grande 3, MET 1, Regenerate, and U45 (Reflection) on average were among the last to lose their color.

Complete 2012 National Tall Fescue Test results and more information on NTEP can be found online at: <http://www.ntep.org/>.

Acknowledgment

This research was sponsored by a grant from the National Turfgrass Evaluation Program.

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Table 1. 2012 establishment and summary performance for 2013–2017 of tall fescue cultivars at Wichita, KS^{1,2}

Cultivar/ experimental number	Establishment	Spring green up	Genetic color	Leaf texture	Brown patch resistance	% Brown patch	Fall color retention
IS-TF 308 SEL	60.0	5.2	6.3	6.7	6.4	15.1	5.3
*Pick-W43 (Rebounder) ³	75.0	5.8	6.4	7.2	6.3	15.5	5.4
*LTP-F5DPDR (Michelangelo)	70.0	5.3	5.8	6.2	6.3	13.8	5.3
PPG-TF-135	71.7	5.3	6.4	6.3	6.9	10.9	5.3
*W45 (Traverse 2 SRP)	71.7	5.3	6.4	7.0	6.3	15.0	5.0
*PPG-TF-150 (Black Tail)	66.7	5.3	5.7	7.2	6.3	15.8	4.9
*U45 (Reflection)	61.7	5.4	6.2	6.5	6.5	16.8	5.7
*Burl TF-2 (GTO)	73.3	5.4	5.9	6.5	6.1	17.5	5.1
*PPG-TF-157 (Thor)	61.7	5.5	6.8	6.3	5.9	19.6	5.8
*PPG-TF-137 (Paramount)	65.0	5.1	6.1	6.7	6.5	13.8	5.3
*DZ1 (Temple)	66.7	4.9	6.2	6.5	6.3	14.6	5.7
*PPG-TF-172 (Valkyrie LS)	71.7	5.4	6.1	6.7	6.1	15.8	5.2
*PPG-TF-156 (Avenger II)	66.7	5.6	6.2	6.5	6.2	16.1	5.1
F711	76.7	5.5	5.8	6.3	6.3	15.9	5.3
MET 1	75.0	5.8	6.1	6.8	6.1	18.0	5.7
*RZ2 (Technique)	66.7	5.1	5.7	7.0	6.2	16.7	5.1
*U43 (4th Millennium SRP)	73.3	5.2	6.2	6.7	6.3	15.4	4.9
*LTP-TWUU (Rockwell)	71.7	5.5	6.2	6.3	6.5	14.6	5.3
*PPG-TF-152 (Titanium 2LS)	63.3	5.0	6.3	6.3	5.9	19.6	5.1
*SRX-TPC (Rowdy)	70.0	4.6	6.1	6.2	6.0	17.9	5.0
Regenerate	75.0	5.5	6.3	6.7	6.1	19.6	5.7
*LTP-FSD (Leonardo)	73.3	5.0	5.8	5.8	6.5	13.0	5.2
*Falcon V	73.3	5.3	5.9	6.0	6.1	17.1	5.7
BIZEM	63.3	5.1	5.9	6.5	6.3	15.2	4.8
*Firebird 2	63.3	5.2	6.4	6.0	5.9	19.6	4.9
Terrano	68.3	5.1	5.8	6.0	6.1	16.3	5.0
*T31 (Maestro)	63.3	5.8	6.0	6.3	6.2	17.5	5.3
PPG-TF-138	63.3	4.8	6.1	6.3	5.9	20.0	5.2
*Grande 3	71.7	5.3	5.9	6.5	6.3	15.5	5.7
PPG-TF-169	73.3	5.6	5.8	6.5	6.3	15.4	5.6
ATF 1612	70.0	5.1	6.0	7.0	6.1	19.2	5.0
*MET 6 SEL (Bloodhound)	70.0	5.5	5.1	6.8	5.9	21.7	5.1
*Burl TF-136 (Hot Rod)	68.3	5.2	6.0	7.3	6.1	14.4	5.2
PPG-TF-115	70.0	4.8	6.2	5.3	5.8	18.8	5.3
MET-3	68.3	5.3	5.8	6.3	5.9	19.6	5.0

continued

Table 1. 2012 establishment and summary performance for 2013–2017 of tall fescue cultivars at Wichita, KS^{1,2}

Cultivar/ experimental number	Establishment	Spring green up	Genetic color	Leaf texture	Brown patch resistance	% Brown patch	Fall color retention
*PPG-TF-105 (Firecracker SLS)	68.3	5.2	6.6	5.8	6.1	17.3	5.0
PST-5MVD	71.7	5.1	5.2	5.8	6.2	14.4	4.7
PSG-PO1	68.3	5.3	6.1	6.8	6.3	16.3	4.9
JS 916	56.7	5.3	6.2	6.2	5.9	17.5	5.1
*ZW 44 (Raptor III)	66.7	5.6	6.0	6.7	6.0	16.3	5.1
*CCR2 (Amity)	71.7	5.5	6.1	7.0	6.1	18.8	5.3
*DB1 (Kingdom)	68.3	4.7	7.0	6.0	5.9	17.6	5.3
*IS-TF 307 SEL (Houndog8)	61.7	5.0	6.6	6.7	5.8	18.3	4.9
*Hemi	68.3	4.9	6.2	6.7	6.2	16.5	5.2
*PPG-TF-170 (Supersonic)	73.3	5.5	6.3	6.0	5.7	22.2	5.1
*PPG-TF-147 (Screamer LS)	66.7	5.3	5.7	7.2	6.3	15.9	5.1
*LSD (Rhambler 2 SRP)	78.3	4.8	6.0	6.5	5.6	27.2	5.0
*PPG-TF-151 (Wichita)	66.7	5.3	6.1	6.2	5.9	17.8	4.9
*PSG-WE1 (Firewall)	65.0	5.3	6.7	6.8	6.0	17.5	5.0
*PPG-TF-145 (Dynamite LS)	65.0	4.6	7.2	6.0	6.1	16.3	4.9
W41	68.3	5.2	6.4	6.5	5.9	18.8	5.6
ATF 1754	63.3	5.1	5.6	6.7	6.1	17.9	5.1
PST-5EV2 (Embrace)	68.3	4.8	5.4	6.8	6.3	16.3	4.6
*IS-TF 310 SEL (Crossfire 4)	65.0	4.8	6.7	6.5	5.9	19.6	5.0
PST-5BRK	71.7	5.4	5.0	6.2	6.1	18.3	4.6
ATF 1704	66.7	5.4	5.3	6.0	5.9	18.3	5.3
PST-5BPO	61.7	5.4	5.2	5.8	6.3	18.3	4.6
*PST-5SALT (Saltillo)	65.0	4.8	5.3	5.8	6.1	17.8	4.6
*PST-5RO5 (Swagger)	71.7	4.8	5.3	5.8	6.5	12.5	4.4
IS-TF 311	61.7	5.1	6.2	6.2	6.2	16.7	4.8
PSG-GSD	75.0	5.2	5.4	6.0	6.0	17.5	4.8
*IS-TF 284 M2 (Foxhound)	51.7	4.4	7.3	6.5	5.9	20.0	4.7
B23	78.3	4.9	6.4	6.7	5.7	23.3	4.8
*Burl TF-69 (Hover)	70.0	4.8	6.2	6.5	6.1	18.3	4.7
*IS-TF 291 (Fayette)	71.7	4.8	7.0	6.5	5.8	23.3	5.1
*S-TF 330 (Diablo)	61.7	4.8	6.9	6.3	5.9	18.3	4.8
Fesnova	70.0	5.3	5.7	6.2	5.9	20.4	5.2
*Faith	75.0	5.4	6.2	6.0	5.8	18.8	4.8
IS-TF 276 M2	70.0	5.1	6.1	6.0	5.4	24.6	4.9
*Catalyst	71.7	5.3	5.8	6.3	5.3	27.9	4.7

continued

Table 1. 2012 establishment and summary performance for 2013–2017 of tall fescue cultivars at Wichita, KS^{1,2}

Cultivar/ experimental number	Establishment	Spring green up	Genetic color	Leaf texture	Brown patch resistance	% Brown patch	Fall color retention
*IS-TF 282 M2 (Turfway)	60.0	5.1	7.3	6.2	5.9	17.1	4.6
ATF 1736	68.3	4.8	5.9	5.7	6.5	16.7	4.6
PST-5EX2	75.0	5.8	4.7	5.2	6.3	13.3	4.4
K12-MCD	75.0	4.9	5.6	6.7	5.8	18.3	4.7
PST-5GRB (Meridan)	70.0	4.5	5.2	6.8	6.3	16.3	4.3
TF-287	76.7	4.9	6.6	6.2	6.1	16.7	4.4
IS-TF 269 SEL	65.0	4.8	6.7	6.5	5.5	22.5	5.0
RAD-TF-89	63.3	4.8	6.6	6.0	5.9	17.9	4.8
*IS-TF 305 SEL (Rhizing Moon)	65.0	4.6	7.0	6.0	5.7	22.1	4.6
*Falcon IV	73.3	4.8	5.7	5.5	5.7	20.0	4.6
PPG-TF-139 (Xtender)	61.7	5.2	6.6	6.3	5.9	20.4	4.8
*RAD-TF-88 (Olympus)	60.0	4.8	6.3	6.5	5.3	25.0	5.2
*PPG-TF-142 (Ares)	66.7	4.5	7.3	6.0	5.7	19.2	4.9
*TY 10 (Caesar)	76.7	5.2	7.1	5.8	5.5	22.1	5.1
*IS-TF 285 (Nightcrawler)	70.0	4.8	7.0	6.3	5.6	27.5	4.6
*TD1 (Thunderstruck)	68.3	4.8	6.8	6.0	5.3	23.0	5.0
RAD-TF-92	70.0	5.1	6.1	6.3	5.3	24.2	5.0
*Bullseye	71.7	5.2	6.1	6.2	5.4	26.3	4.6
BAR Fa 121089	66.7	4.8	6.1	5.7	5.7	20.0	4.7
*Exp TF-09 (Frontline)	70.0	5.3	7.2	6.0	5.3	28.3	4.4
*IS-TF 289 (Unitus)	70.0	4.2	6.9	6.3	5.3	26.3	4.9
PSG-TT4	68.3	4.7	5.6	6.0	5.5	24.2	4.3
*PST-R5NW (Inspiration)	66.7	4.8	5.9	5.0	6.1	16.3	4.4
RAD-TF-83	70.0	4.8	6.9	6.2	5.3	25.4	4.8
K12-05	60.0	4.5	6.8	6.2	5.7	21.3	4.0
PST-5DZP	60.0	4.4	6.1	6.0	5.7	20.8	4.3
PSG-8BP2	70.0	4.6	6.0	6.2	5.5	25.4	4.0
JS 819	70.0	4.7	6.4	5.7	5.3	25.4	4.2
JS 818	76.7	4.6	6.6	6.2	5.3	25.0	4.1
*GO-DFR (Memphis)	65.0	4.7	6.6	5.8	5.0	31.7	4.9
BAR Fa 121091	65.0	4.3	7.2	5.5	5.7	16.3	4.0
*PST-5SDT (Rain Dance)	68.3	5.0	5.6	5.0	5.5	26.7	4.3
*OR-21 (Temptation)	70.0	4.7	7.6	5.5	5.5	27.5	4.9
*Aqueduct	73.3	4.5	5.6	5.0	5.7	21.3	4.3
IS-TF 272	61.7	4.4	7.6	6.7	5.4	24.2	4.8

continued

Table 1. 2012 establishment and summary performance for 2013–2017 of tall fescue cultivars at Wichita, KS^{1,2}

Cultivar/ experimental number	Establishment	Spring green up	Genetic color	Leaf texture	Brown patch resistance	% Brown patch	Fall color retention
JS 825	66.7	4.5	5.9	5.5	4.6	34.2	4.0
BAR Fa 121095	65.0	4.2	6.2	6.0	5.1	28.8	4.0
K12-13	55.0	3.8	6.9	6.0	5.5	29.6	4.0
JS 809	76.7	4.0	6.6	6.0	5.0	26.3	3.8
Comp. Res. SST	65.0	4.5	5.9	6.7	4.6	35.8	4.3
*Marauder	66.7	4.0	5.6	6.0	4.5	27.9	3.8
*Warhawk	68.3	4.3	6.3	6.3	4.8	32.5	4.4
*Annihilator	73.3	4.3	6.1	6.2	4.7	39.2	3.9
204 Res. Blk4	65.0	4.5	5.8	6.8	4.9	35.4	4.2
BAR Fa 120878	68.3	4.5	4.4	4.5	5.9	17.6	4.2
*Ky-31	84.7	5.3	3.0	3.2	6.5	13.3	3.9
LSD ⁴	9.3	0.5	0.5	0.7	0.8	10.1	0.6

¹Visual ratings based on a scale of 1 to 9 (1 = poorest, 6 = acceptable, and 9 = optimum measure).

²Establishment and percent brown patch infestation rated visually on a scale of 0 to 100%.

³Cultivars marked with "*" were commercially available in 2017.

⁴To determine statistical differences among entries, subtract one entry's mean from another's. If the result is larger than the corresponding least significant difference (LSD) value, the two are statistically different.

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Table 2. Summary quality ratings of tall fescue cultivars at Wichita, Kansas for April–October 2013–2017 and March 2016¹

Cultivar/ experimental number	Quality								
	Mar. 2016	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Avg.
IS-TF 308 SEL	5.7	5.9	6.4	6.2	6.1	5.9	5.9	5.5	6.0
*Pick-W43 (Rebounder) ²	5.7	6.3	6.3	6.4	5.8	5.5	5.5	6.2	6.0
*LTP-F5DPDR (Michelangelo)	5.3	5.9	6.6	6.0	5.7	5.7	5.4	5.8	5.9
PPG-TF-135	5.3	5.5	6.1	6.0	6.1	6.1	5.8	5.8	5.9
*W45 (Traverse 2 SRP)	5.3	5.9	6.5	6.1	6.2	5.6	5.3	5.9	5.9
*PPG-TF-150 (Black Tail)	5.7	6.1	6.3	6.1	5.8	5.5	5.6	5.6	5.9
*U45 (Reflection)	5.0	6.1	6.3	6.0	5.7	5.5	5.6	5.5	5.9
*Burl TF-2 (GTO)	5.3	6.2	6.4	5.8	5.7	5.7	5.5	5.2	5.8
*PPG-TF-157 (Thor)	5.7	5.9	6.2	6.1	5.6	5.9	5.4	5.7	5.8
*PPG-TF-137 (Paramount)	5.7	5.6	6.5	6.0	5.9	5.7	5.2	5.8	5.8
*DZ1 (Temple)	5.3	5.7	6.1	5.9	5.7	5.9	5.7	5.9	5.8
*PPG-TF-172 (Valkyrie LS)	5.3	5.9	6.5	6.1	5.6	5.4	5.5	6.0	5.8
*PPG-TF-156 (Avenger II)	5.7	5.8	6.1	5.7	6.2	5.9	5.5	5.5	5.8
F711	5.3	6.1	6.6	6.1	5.8	5.5	5.1	5.6	5.8
MET 1	5.7	6.1	6.1	5.9	5.5	5.5	5.7	5.9	5.8
*RZ2 (Technique)	5.3	5.8	6.3	6.3	5.8	5.4	5.6	5.3	5.8
*U43 (4th Millennium SRP)	5.3	5.7	6.3	5.9	6.2	5.4	5.4	5.7	5.8
*LTP-TWUU (Rockwell)	5.3	6.0	6.5	6.1	5.7	5.4	5.1	5.9	5.8
*PPG-TF-152 (Titanium 2LS)	5.7	6.1	6.5	6.3	5.6	5.0	5.2	5.3	5.8
*SRX-TPC (Rowdy)	4.7	5.7	6.5	6.3	5.6	5.5	5.1	5.1	5.7
Regenerate	6.0	6.1	6.1	5.7	5.3	5.7	5.5	5.6	5.7
*LTP-FSD (Leonardo)	5.0	5.9	6.2	5.9	5.9	5.5	5.2	5.7	5.7
*Falcon V	5.3	5.9	6.1	5.9	5.8	5.7	5.3	5.2	5.7
BIZEM	5.0	5.7	6.1	6.1	5.8	5.5	5.3	5.5	5.7
*Firebird 2	5.3	5.7	6.5	5.9	5.3	5.6	5.7	4.7	5.7
Terrano	5.0	6.1	6.3	6.2	5.7	5.2	5.1	4.9	5.7
*T31 (Maestro)	5.3	6.1	6.2	5.9	5.9	4.9	5.4	5.9	5.7
PPG-TF-138	6.0	5.8	6.2	5.9	5.7	5.7	4.9	5.4	5.7
*Grande 3	5.0	5.7	6.1	5.8	5.8	5.7	5.5	5.2	5.7
PPG-TF-169	5.7	5.9	5.9	5.6	5.3	5.2	5.9	6.1	5.7
ATF 1612	5.7	6.0	6.1	5.9	6.0	5.4	5.3	5.5	5.7
*MET 6 SEL (Bloodhound)	5.3	5.9	6.4	5.6	5.6	5.2	5.5	6.0	5.7
*Burl TF-136 (Hot Rod)	5.7	5.8	6.0	5.9	5.5	5.2	5.3	6.0	5.7
PPG-TF-115	5.0	5.9	6.7	6.1	5.7	5.1	4.9	5.2	5.7

continued



Table 2. Summary quality ratings of tall fescue cultivars at Wichita, Kansas for April–October 2013–2017 and March 2016¹

Cultivar/ experimental number	Quality								
	Mar. 2016	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Avg.
MET-3	5.0	5.9	6.1	5.7	5.7	5.6	5.3	5.5	5.7
*PPG-TF-105 (Firecracker SLS)	5.3	5.6	6.5	5.9	5.9	4.8	5.1	5.5	5.6
PST-5MVD	4.7	5.8	6.4	5.7	5.6	5.3	5.2	5.5	5.6
PSG-PO1	5.3	5.6	6.0	5.9	5.5	5.4	5.5	5.5	5.6
JS 916	5.3	5.8	5.9	5.7	5.6	5.5	5.4	5.4	5.6
*ZW 44 (Raptor III)	5.7	5.7	6.2	6.2	5.6	5.1	4.9	5.3	5.6
*CCR2 (Amity)	5.3	5.7	6.4	5.9	5.6	5.3	5.1	5.2	5.6
*DB1 (Kingdom)	4.7	5.9	6.6	5.9	5.2	5.1	5.3	5.5	5.6
*IS-TF 307 SEL (Houndog8)	5.0	5.9	6.3	5.9	5.9	4.9	5.2	5.1	5.6
*Hemi	5.0	5.5	6.1	5.7	5.8	5.6	5.1	5.6	5.6
*PPG-TF-170 (Supersonic)	5.7	5.9	6.1	5.8	5.6	5.1	4.9	5.6	5.6
*PPG-TF-147 (Screamer LS)	5.3	5.7	5.9	5.7	5.6	5.3	5.3	5.5	5.6
*LSD (Rhambler 2 SRP)	5.3	5.9	6.5	5.7	5.2	4.9	5.1	5.1	5.6
*PPG-TF-151 (Wichita)	4.7	6.0	6.0	5.8	5.3	5.4	5.1	5.5	5.6
*PSG-WE1 (Firewall)	5.3	5.7	6.2	5.9	5.3	5.3	5.1	5.7	5.6
*PPG-TF-145 (Dynamite LS)	5.0	5.9	6.1	5.8	5.5	5.0	5.1	5.1	5.6
W41	5.3	5.7	6.0	5.7	4.9	5.5	5.4	6.0	5.6
ATF 1754	5.3	5.9	5.9	5.7	5.5	5.1	5.3	4.9	5.6
PST-5EV2 (Embrace)	5.3	5.7	5.9	5.6	5.5	5.3	5.4	5.2	5.6
*IS-TF 310 SEL (Crossfire 4)	5.3	5.7	6.2	5.9	5.3	5.1	5.2	5.3	5.6
PST-5BRK	5.3	5.8	6.1	5.7	5.3	5.3	5.3	5.3	5.5
ATF 1704	5.3	5.7	5.8	5.7	5.5	5.1	5.5	5.6	5.5
PST-5BPO	5.3	6.1	6.1	5.7	5.7	4.8	5.1	5.6	5.5
*PST-5SALT (Saltillo)	5.0	5.7	6.1	5.7	5.5	5.5	4.9	5.4	5.5
*PST-5RO5 (Swagger)	5.0	5.5	5.9	5.6	5.7	5.5	5.1	5.3	5.5
IS-TF 311	5.0	5.7	5.9	5.6	5.5	5.7	4.9	5.0	5.5
PSG-GSD	5.0	6.0	6.3	5.7	5.8	5.3	4.5	4.9	5.5
*IS-TF 284 M2 (Foxhound)	5.0	5.6	6.4	5.5	5.3	5.2	5.0	5.1	5.5
B23	5.3	5.8	6.6	5.6	5.6	4.9	4.7	4.9	5.5
*Burl TF-69 (Hover)	5.0	5.7	6.3	5.9	5.4	5.2	4.9	4.9	5.5
*IS-TF 291 (Fayette)	5.0	5.7	6.1	5.7	5.3	4.9	5.2	5.1	5.5
*S-TF 330 (Diablo)	5.3	5.6	6.2	5.8	5.8	5.1	4.7	4.9	5.5
Fesnova	5.3	5.5	6.3	5.6	5.5	4.6	5.1	5.7	5.5
*Faith	5.3	5.9	6.1	5.4	5.4	5.3	4.7	5.2	5.4

continued



Table 2. Summary quality ratings of tall fescue cultivars at Wichita, Kansas for April–October 2013–2017 and March 2016¹

Cultivar/ experimental number	Quality								
	Mar. 2016	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Avg.
IS-TF 276 M2	5.0	6.4	6.0	5.7	5.2	4.5	4.9	5.1	5.4
*Catalyst	5.3	5.7	6.4	6.1	4.9	4.7	4.9	4.7	5.4
*IS-TF 282 M2 (Turfway)	5.0	5.4	6.0	5.7	5.6	5.0	5.0	5.2	5.4
ATF 1736	5.0	5.6	5.9	5.6	5.5	5.3	4.8	5.3	5.4
PST-5EX2	5.0	5.9	5.7	5.4	5.8	5.0	5.2	5.2	5.4
K12-MCD	4.7	5.7	6.1	5.7	5.3	5.1	4.7	5.3	5.4
PST-5GRB (Meridan)	4.3	5.1	6.1	5.5	5.5	5.3	5.1	5.2	5.4
TF-287	4.7	5.8	5.9	5.6	5.6	4.8	4.9	5.3	5.4
IS-TF 269 SEL	4.7	5.6	6.3	5.7	5.3	4.5	5.0	5.1	5.4
RAD-TF-89	5.0	5.2	6.0	5.7	5.4	4.9	5.2	5.0	5.4
*IS-TF 305 SEL (Rhizing Moon)	5.0	5.7	6.1	5.8	4.8	4.7	4.8	5.3	5.3
*Falcon IV	5.3	5.9	5.9	5.6	5.6	4.9	4.6	4.8	5.3
PPG-TF-139 (Xtender)	5.3	5.5	6.3	5.6	5.6	4.5	4.5	5.2	5.3
*RAD-TF-88 (Olympus)	5.0	5.5	6.3	5.7	5.0	4.7	5.0	4.7	5.3
*PPG-TF-142 (Ares)	4.7	5.5	6.1	6.0	5.5	4.7	4.6	4.8	5.3
*TY 10 (Caesar)	5.0	6.0	5.9	5.7	5.1	4.6	4.7	5.0	5.3
*IS-TF 285 (Nightcrawler)	5.3	5.4	6.4	6.0	5.3	4.6	4.3	4.7	5.3
*TD1 (Thunderstruck)	5.0	5.8	6.4	5.8	4.9	4.3	4.3	5.5	5.3
RAD-TF-92	5.0	5.7	5.9	5.5	5.1	4.5	5.1	4.9	5.3
*Bullseye	5.3	5.7	6.1	5.9	5.1	4.6	4.3	4.7	5.3
BAR Fa 121089	5.0	5.9	6.0	5.5	5.3	4.8	4.3	4.6	5.3
*Exp TF-09 (Frontline)	5.0	6.0	6.5	5.5	5.3	4.3	4.4	4.9	5.2
*IS-TF 289 (Unitus)	5.0	5.5	6.2	5.8	4.9	4.4	4.9	4.9	5.2
PSG-TT4	5.3	5.7	5.8	5.4	5.1	4.6	5.1	4.9	5.2
*PST-R5NW (Inspiration)	5.0	5.4	5.8	5.6	5.4	4.8	4.6	4.7	5.2
RAD-TF-83	5.0	5.5	5.9	5.5	5.1	4.4	4.9	5.1	5.2
K12-05	5.0	5.1	6.4	5.7	4.8	4.3	4.8	5.0	5.2
PST-5DZP	5.0	5.5	6.1	5.6	5.0	4.6	4.4	4.9	5.2
PSG-8BP2	4.7	5.5	5.9	5.5	5.4	4.5	4.7	4.5	5.2
JS 819	5.0	5.5	6.2	5.6	4.7	4.7	4.2	4.9	5.1
JS 818	4.3	5.8	6.1	5.4	5.3	4.4	4.3	4.4	5.1
*GO-DFR (Memphis)	4.7	5.6	5.9	5.5	5.0	4.4	4.6	4.9	5.1
BAR Fa 121091	4.7	5.5	5.9	5.5	5.3	4.6	4.3	4.3	5.1
*PST-5SDT (Rain Dance)	5.0	5.7	5.7	5.5	4.9	4.4	4.7	4.9	5.1

continued



Table 2. Summary quality ratings of tall fescue cultivars at Wichita, Kansas for April–October 2013–2017 and March 2016¹

Cultivar/ experimental number	Quality								
	Mar. 2016	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Avg.
*OR-21 (Temptation)	4.7	5.2	5.9	5.7	4.9	4.3	4.5	4.6	5.1
*Aquaduct	5.0	5.5	5.5	5.3	5.8	4.5	4.1	4.6	5.0
IS-TF 272	5.0	5.4	6.0	5.6	5.1	4.1	4.1	4.7	5.0
JS 825	4.3	5.5	6.0	5.3	4.7	4.0	4.3	4.7	4.9
BAR Fa 121095	4.0	5.2	5.8	5.5	4.9	4.0	4.5	4.5	4.9
K12-13	4.3	4.9	5.9	5.5	4.7	4.2	4.4	4.4	4.9
JS 809	4.3	5.5	6.0	5.2	4.8	4.3	3.7	4.3	4.8
Comp. Res. SST	5.0	5.7	5.9	4.9	4.8	3.9	4.1	4.4	4.8
*Marauder	5.3	5.3	5.7	5.1	4.6	4.1	4.0	4.3	4.8
*Warhawk	5.3	5.6	5.5	4.9	4.4	3.7	3.9	4.5	4.7
*Annihilator	5.0	5.3	5.5	4.9	4.5	4.2	3.9	4.3	4.7
204 Res. Blk4	4.7	5.4	5.9	4.7	4.5	3.9	3.6	4.6	4.6
BAR Fa 120878	4.3	5.1	4.6	4.7	4.4	4.3	4.1	4.3	4.5
*Ky-31	4.0	3.6	3.5	3.5	3.5	3.0	3.4	3.3	3.4
LSD ³	1.1	0.6	0.4	0.5	0.6	0.9	0.7	0.7	0.3

¹Visual ratings based on a scale of 1 to 9 (1 = poorest, 6 = acceptable, and 9 = optimum measure).

²Cultivars marked with “*” were commercially available in 2017.

³To determine statistical differences among entries, subtract one entry’s mean from another’s. If the result is larger than the corresponding least significant difference (LSD) value, the two are statistically different.

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Figure 1. Brown patch in a plot of PST-5RO5 (Swagger), one of the study's most disease resistant cultivars, on August 23, 2017.





Figure 2. Brown patch in a plot of 204 Res. Blk4, one of the least disease resistant cultivars in the study, on August 23, 2017.

