Turfgrass Research 2017

2012 National Turfgrass Evaluation Program Tall Fescue Test: 2016 Data

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Summary. Research efforts to improve cultivar quality include selecting for stress tolerance and disease resistance 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 during the 2016 growing season.

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 stress tolerance and disease resistance, 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.

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 NPK/1000 ft². During 2016, we fertilized the

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plots with urea on March 17, June 6, and November 1 at 1.0 lb N/1000 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. During both months, there was a period of time 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. We irrigated when necessary to prevent turf stress or dormancy.

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%. 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. Quality ratings were influenced by degree of cover, weed infestation, and disease resistance, as well as turf color, texture, and density.

Results. We started the 2016 growing season by looking at spring greenup when the overall study visually appeared to be about 50% green. The varieties that broke dormancy the earliest were PPG-TF-156 (Avenger II), Regenerate, PPG-TF-169, Burl TF-2 (GTO), and T31 (Maestro) (Table 1). Throughout the growing season, which ran from March to October, we rated the turf monthly for quality. The average best performers for the year were PPG-TF-137 (Paramount), DZ1 (Temple), Pick-W43 (Rebounder), U43 (4th Millennium SRP), PPG-TF-172 (Valkyrie LS), and W45 (Traverse 2 SRP). At mid-August, we rated the plots for brown patch resistance and percent brown patch infestation. We found that Burl TF-136 (Hot Rod), LTP-FSD (Leonardo), PST-5RO5 (Swagger), U43 (4th Millennium SRP), PST-5EV2 (Embrace), and ATF 1754 showed the greatest resistance to brown patch.

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

Table 1. 2016 performance of tall fescue cultivars at Wichita, KS[1,2]

Cultivar/experimental number	Spring greenup March 22	Brown patch resistance August 23	Percent brown patch August 24	Quality average
*PPG-TF-137 (Paramount)[3]	5.7	5.7	13.3	6.2
*Pick-W43 (Rebounder)	6.0	5.0	15.0	6.0
*DZ1 (Temple)	5.3	5.7	11.7	6.0
*U43 (4th Millennium SRP)	6.0	6.0	11.7	6.0
*PPG-TF-172 (Valkyrie LS)	5.7	5.7	10.0	5.9
*W45 (Traverse 2 SRP)	5.7	5.7	13.3	5.9
*RZ2 (Technique)	5.7	5.0	13.3	5.9
*PPG-TF-157 (Thor)	6.0	5.0	16.7	5.9
Regenerate	6.3	5.3	16.7	5.9
*PPG-TF-156 (Avenger II)	6.3	5.7	11.7	5.9
*LTP-TWUU (Rockwell)	5.7	5.7	15.0	5.8
F711	5.7	5.7	15.0	5.8
*Burl TF-136 (Hot Rod)	6.0	6.7	10.0	5.8
IS-TF 308 SEL	5.0	4.7	20.0	5.8
PPG-TF-169	6.3	5.3	13.3	5.8
*PPG-TF-150 (Black Tail)	5.0	5.3	15.0	5.8
PPG-TF-138	5.7	5.7	16.7	5.8
MET 1	6.0	5.3	15.0	5.8
*LTP-F5DPDR (Michelangelo)	5.3	5.7	10.0	5.8
ATF 1612	5.3	4.7	18.3	5.7
*PPG-TF-105 (Firecracker SLS)	4.7	4.7	26.7	5.7
W41	5.3	5.0	18.3	5.7
IS-TF 311	5.3	5.7	15.0	5.7
*U45 (Reflection)	5.7	5.7	18.3	5.7
*LTP-FSD (Leonardo)	4.7	6.0	10.0	5.7
*PST-5RO5 (Swagger)	4.3	6.0	10.0	5.7
MET-3	5.7	5.0	16.7	5.7
*MET 6 SEL (Bloodhound)	6.0	5.3	13.3	5.7
*PSG-WE1 (Firewall)	5.7	5.3	18.3	5.7
PPG-TF-135	5.7	5.7	11.7	5.7

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PSG-PO1	5.7	5.7	11.7	5.7
*Hemi	6.0	5.7	13.3	5.7
Fesnova	5.3	5.7	13.3	5.7
*DB1 (Kingdom)	5.0	5.0	15.0	5.6
*CCR2 (Amity)	6.0	5.0	18.3	5.6
*Grande 3	6.0	5.3	15.0	5.6
*IS-TF 310 SEL (Crossfire)	5.0	5.3	15.0	5.6
*Falcon V	6.0	5.7	10.0	5.6
*PPG-TF-152 (Titanium 2LS)	5.3	4.7	20.0	5.6
JS 916	5.3	5.0	15.0	5.6
PSG-GSD	5.0	5.0	15.0	5.6
PST-5BRK	6.0	5.3	15.0	5.6
*Burl TF-69 (Hover)	5.0	5.3	16.7	5.6
*PPG-TF-170 (Supersonic)	5.7	5.3	16.7	5.6
*PST-5EV2 (Embrace)	4.7	6.0	13.3	5.6
PPG-TF-115	5.0	4.3	21.7	5.5
*S-TF 330 (Diablo)	5.0	4.7	21.7	5.5
BIZEM	5.0	5.3	11.7	5.5
*IS-TF 284 M2 (Foxhound)	4.7	5.3	13.3	5.5
*PST-5SALT (Saltillo)	4.7	5.3	13.3	5.5
*ZW 44 (Raptor III)	5.7	5.3	13.3	5.5
PST-5EX2	5.7	5.0	16.7	5.5
*PPG-TF-147 (Screamer LS)	6.0	5.3	15.0	5.5
PST-5MVD	5.3	5.3	15.0	5.5
Terrano	5.0	5.3	15.0	5.5
*Burl TF-2 (GTO)	6.3	5.3	16.7	5.5
*TD1 (Thunderstruck)	4.3	5.3	16.7	5.5
*T31 (Maestro)	6.3	5.3	18.3	5.5
*PPG-TF-145 (Dynamite LS)	4.3	5.7	15.0	5.5
*SRX-TPC (Rowdy)	4.3	4.7	23.3	5.5
*Falcon IV	5.0	5.3	13.3	5.5

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K12-MCD	5.0	5.3	13.3	5.5
PST-5BPO	5.7	5.3	20.0	5.4
ATF 1754	5.3	6.0	18.3	5.4
RAD-TF-92	5.3	4.7	20.0	5.4
*IS-TF 282 M2 (Turfway)	5.7	5.0	13.3	5.4
*Faith	5.3	5.0	18.3	5.4
ATF 1704	5.3	5.0	18.3	5.4
*IS-TF 289 (Unitus)	4.7	5.3	18.3	5.4
ATF 1736	4.7	5.7	20.0	5.4
*IS-TF 307 SEL (Houndog)	5.0	4.3	20.0	5.3
*PST-5SDT (Rain Dance)	4.7	5.0	30.0	5.3
*PPG-TF-151 (Wichita)	4.7	5.3	15.0	5.3
*Firebird 2	4.7	4.7	18.3	5.3
*TY 10 (Caesar)	5.0	4.7	18.3	5.3
PPG-TF-139 (Xtender)	5.0	4.7	20.0	5.3
*IS-TF 285 (Nightcrawler)	5.0	5.0	18.3	5.3
IS-TF 269 SEL	5.0	5.0	20.0	5.3
*PPG-TF-142 (Ares)	4.3	5.0	18.3	5.3
IS-TF 276 M2	5.0	4.3	25.0	5.2
BAR Fa 121089	5.3	4.7	18.3	5.2
PST-5DZP	5.0	5.0	16.7	5.2
TF-287	5.0	5.0	20.0	5.2
*PST-R5NW (Inspiration)	5.0	5.3	15.0	5.2
PST-5GRB (Meridan)	4.7	5.3	16.7	5.2
*GO-DFR (Memphis)	5.0	4.3	26.7	5.2
*LSD (Rhambler 2 SRP)	5.7	4.3	40.0	5.2
RAD-TF-83	5.0	4.7	20.0	5.2
*RAD-TF-88 (Olympus)	5.3	4.7	25.0	5.2
*IS-TF 291 (Fayette)	5.0	5.3	18.3	5.2
PSG-TT4	5.0	5.3	20.0	5.2
*Catalyst	5.7	3.7	33.3	5.1
B23	5.3	4.0	30.0	5.1

Cultivar/experimental number	Spring greenup March 22	Brown patch resistance August 23	Percent brown patch August 24	Quality average
RAD-TF-89	5.3	4.7	18.3	5.1
*IS-TF 305 SEL (Rhizing Moon)	4.7	4.7	23.3	5.1
*Aquaduct	4.7	5.0	16.7	5.1
*Exp TF-09 (Frontline)	5.0	4.0	30.0	5.1
IS-TF 272	4.7	4.7	16.7	5.1
JS 809	4.0	5.0	16.7	5.1
JS 819	4.3	4.3	26.7	5.0
PSG-8BP2	4.3	4.7	20.0	5.0
K12-05	4.7	4.7	25.0	5.0
BAR Fa 121095	4.0	4.0	25.0	5.0
*OR-21 (Temptation)	5.3	4.7	20.0	5.0
BAR Fa 121091	4.0	5.0	15.0	5.0
JS 818	4.3	4.7	23.3	4.9
*Bullseye	5.7	4.7	30.0	4.9
K12-13	4.0	4.3	25.0	4.8
*Annihilator	4.0	3.7	41.7	4.8
JS 825	4.3	4.7	28.3	4.8
*Warhawk	4.7	3.7	48.3	4.8
*Marauder	4.3	5.0	20.0	4.7
Comp. Res. SST	4.7	3.7	46.7	4.7
204 Res. Blk4	4.7	4.3	36.7	4.7
BAR Fa 120878	5.0	5.0	21.7	4.3
*Ky-31	5.0	5.0	16.7	3.3
LSD[4]	1.0	1.6	18.1	0.5

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

[2] Percent brown patch infestation was rated visually on a scale of 0 to 100%.

[3] Cultivars marked with "*" were commercially available in 2016.

[4] To 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.