



RUTGERS

New Jersey Agricultural
Experiment Station

2021

Turfgrass Proceedings

The New Jersey Turfgrass Association

In Cooperation with
Rutgers Center for Turfgrass Science
Rutgers Cooperative Extension

2021 RUTGERS TURFGRASS PROCEEDINGS

of the

GREEN EXPO Turf and Landscape Conference

December 7-9, 2021

Borgata Hotel

Atlantic City, New Jersey

The Rutgers Turfgrass Proceedings is published yearly by the Rutgers Center for Turfgrass Science, Rutgers Cooperative Extension, and the New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey in cooperation with the New Jersey Turfgrass Association. The purpose of this document is to provide a forum for the dissemination of information and the exchange of ideas and knowledge. The proceedings provide turfgrass managers, research scientists, extension specialists, and industry personnel with opportunities to communicate with co-workers. Through this forum, these professionals also reach a more general audience, which includes the public.

This publication includes lecture notes of papers presented at the 2021 GREEN EXPO Turf and Landscape Conference. Publication of these lectures provides a readily available source of information

covering a wide range of topics and includes technical and popular presentations of importance to the turfgrass industry.

This proceedings also includes research papers that contain original research findings and reviews of selected subjects in turfgrass science. These papers are presented primarily to facilitate the timely dissemination of original turfgrass research for use by the turfgrass industry.

Special thanks are given to those who have submitted papers for this proceedings, to the New Jersey Turfgrass Association for financial assistance, and to Anne Diglio and Barbara Fitzgerald for administrative support.

Deborah Spinella, Proceedings Layout Editor
Dr. James A. Murphy, Coordinator

PERFORMANCE OF TALL FESCUE CULTIVARS AND SELECTIONS IN NEW JERSEY TURF TRIALS, 2021

Eric W. MacPherson, Ronald F. Bara, Dirk A. Smith, Eric Weibel, Ryan Daddio,
Jennifer Halterman, Olivia Wright, Phillip L. Vines, William A. Meyer and Stacy A. Bonos¹

INTRODUCTION

Tall fescue (*Festuca arundinacea*), a cool-season grass that is native to Europe and some parts of Africa (Buckner et al., 1979), was introduced to the United States in the 1600s (Beard, 2013). Tall fescue gained popularity after the release of the first commercial cultivar 'Kentucky-31' in 1940, which enhanced forage production in the US. The first turf-type tall fescue cultivar, 'Rebel', was released in 1979 (Funk et al., 1981), and since then, tall fescue has become one of the major cool-season turf species used in the United States. Tall fescue has many attributes that have increased the popularity of this species including winter hardiness, adaptability to a wide range of soils, persistence (especially under low maintenance conditions), and tolerance to shade and drought. Tall fescue has a deep root system that enhances drought tolerance and allows the plant to maintain green color in dry conditions. Tall fescue also has among the best heat tolerance of the cool-season grasses. These qualities have increased the use of tall fescue in home lawns, sports fields, golf courses roughs, recreational fields, sod farms, and roadsides.

The Rutgers University tall fescue breeding program, over the years, has focused on enhanced turf quality characteristics (color, uniformity, texture, and density), disease resistance, wear tolerance, improved winter performance, and the presence of endophytes. Endophytic fungi live symbiotically inside the turfgrass stem and leaf tissue (intercellular areas) and produce alkaloids that enhance tolerance to above-ground insect feeding (Funk et al., 1993). The incorporation of endophytic fungi in tall fescue has been a major breeding objective for many years.

One of the major limitations of tall fescue is its susceptibility to brown patch (caused by *Rhizoctonia solani*), which is a soilborne disease of both cool-and

warm-season turfgrasses that occurs during warm and humid weather conditions. Brown patch symptoms include blighted, circular to irregularly-shaped patches in the turf canopy, which quickly fade to a light brown color. Gray leaf spot (caused by *Pyricularia oryzae*) is another disease of increasing significance in tall fescue. This disease is common on annual and perennial ryegrasses, and in recent years has become problematic in tall fescue throughout the Northeast region, particularly on young establishing plants. Gray leaf spot has been evaluated in previous years in the 2018 tall fescue test (Table 1), and in the 2018 NTEP tall fescue test (Table 2). Breeding for disease resistance continues to be one of the main objectives of the Rutgers breeding program. The demand for disease resistant cultivars with enhanced turf quality and superior performance is high among consumers.

Another major objective of the Rutgers turfgrass breeding program is to improve drought tolerance in tall fescue. The program utilizes an automated rainout shelter to screen for drought tolerance in tall fescue during the summer months. As a result, drought tolerance in tall fescue has greatly improved. The Rutgers turfgrass breeding program has continued to develop improved tall fescue cultivars for the above-mentioned traits. At present, thousands of germplasm sources have gone through numerous cycles of selection and hybridization to improve turf quality, disease and insect resistance, and wear, and drought tolerance. To achieve these objectives, collected germplasm has also been incorporated in the breeding program to introduce beneficial genes into tall fescue populations.

PROCEDURES

Four tall fescue trials were established at the Rutgers Plant Biology Research and Extension Farm at Adelphia, NJ between 2018 and 2020 (Tables 1 to

¹Graduate Student, Laboratory Researcher II, Principal Laboratory Technician, Field Researcher III, Field Researcher IV, Field Researcher IV, Field Researcher IV, Assistant Research Professor, Research Professor, and Research Professor, respectively, New Jersey Agricultural Experiment Station, School of Environmental and Biological Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ. 08901-8520

4). All tests were established by hand sowing 1.41 oz of seed per 3x5 ft plot (5.9 lb per 1000 ft²), except the 2018 NTEP test which was sown at the rate of 2.29 oz of seed per 4x6 ft plot (5.9 lb per 1000 ft²). Tests were sown during the month of July (Table 4), August (Table 3), and September (Tables 1 & 2). All tests were arranged in randomized complete block designs with three replications, and a 6-inch unseeded border was placed between plots to limit contamination.

Dimension (dithiopyr) was used on all tall fescue trials for preemergent control of annual grass and broadleaf weeds. Weeder 64 (2,4-D) and Lontrel (clopyralid) were used to control broadleaf weeds as needed. Criterion (imidacloprid) was used to control grubs in June on all trials. Segway (cyazofamid) was used after seedling emergence to control pythium disease when conditions were favorable for the pathogen. The annual rate of nitrogen and mowing height for each trial are represented in (Table 5). Single fertilizer applications did not exceed 1.0 lb N/1000 ft². The trials were maintained to encourage biotic and abiotic stresses but were mowed regularly to 2.5" in height in 2020 and 2021, except for the 2018 NTEP trial (Table 1) where the mowing height was 1.5" through the 2021 growing season to promote brown patch disease.

Tall fescue trials were evaluated monthly during the growing season for turf quality and when differences were evident for establishment, genetic color, brown patch, and gray leaf spot. All turf plots were rated by multiple evaluators to limit personal biases toward more subjective traits. All ratings, except those for ground cover, were based on a 1 to 9 scale, with 9 representing the most desirable turf characteristics. Ground cover ratings were based on a 0 to 100 scale, with 100 representing complete cover. Data was summarized and subjected to an analysis of variance (ANOVA), and means were separated using Fishers' protected least significant difference (LSD) mean separation test.

RESULTS AND DISCUSSION

Results for the tall fescue trials were ranked by overall turf quality. High turf quality averages indicate good disease resistance, dark-green color, high shoot density and uniformity, fine leaf texture, low growth habit, good mowing quality, and minimal damage from insects. Turf trials are further ranked using additional parameters (i.e., establishment, ground cover, disease rating, uniformity, density, etc.) to distinguish cultivars or selections that were

equally ranked based on turf quality ratings. In addition to data collected in 2021, data from previous years are also included in the tables. These data have been discussed in prior proceedings articles and are included here for viewer convenience.

Turf Quality

Improvements in turf quality including finer leaf texture and higher shoot density have increased the use of tall fescue in athletic fields, parks, recreational areas, golf courses, and home lawns. In the 2018 tall fescue test (Table 1), PVF-RW2 had the highest turf quality rating followed by Clash, RW1, Daybreak, TD2, K18-NSE, and PPG TF 235. GO-FNKY and ORTF-16-1 had the lowest turf quality ratings. In the 2018 NTEP tall fescue test (Table 2), Daybreak, Clash, and Bonfire had the highest turf quality rating, and BAR FA 8228 and Kentucky-31 had the lowest turf quality rating. In the 2019 tall fescue test (Table 3), PK3, PN1, and PPG-TF 347 had the highest turf quality, while GO-FNKY and PST-5SLF had the lowest turf quality. In the 2020 tall fescue test (Table 4), 20TF20, PPG-TF 262, and 20TF13 had the highest turf quality ratings, while Armani, PST-5FDR, and Falcon H20 had the lowest turf quality rating.

Brown Patch

Brown patch, a major disease of tall fescue, causes significant damage during humid and warm weather. Tall fescues infected with brown patch will begin to develop brown lesions with a dark border that will enlarge creating large unsightly patches of yellow/brown grass. In the 2019 tall fescue test (Table 3), ROS4-19H and PPG-TF 354 were the most brown patch resistant. Bandit and Crossfire 3, exhibited the most brown patch.

Wear Tolerance

Tall fescue is a popular grass chosen for lawns, recreational areas, and sports fields and as such is exposed to various amounts of foot traffic. Tall fescues exhibit a wide range of wear tolerance, with improvements in both turf quality and wear stress having been developed. Wear stress was applied to plants in the field using the Rutgers Wear Simulator. In the 2018 tall fescue test (Table 1), PVF-RW2, Clash, and K18-NSE demonstrated the best wear tolerance. ORTF-16-1 and Palomar, exhibited the least wear tolerance.

SUMMARY

At Rutgers, turfgrass breeders are continuing to make progress in improving tall fescue to extend its acceptance in the turfgrass industry and among consumers. Resistance to brown patch and gray leaf spot diseases, rapid establishment, and higher turf quality are among the primary goals of tall fescue breeding programs. Ongoing evaluation of cultivars and germplasm helps to identify superior lines that can be used by breeders to develop new cultivars. Efforts to collect germplasm and incorporate endophytes in tall fescue may lead to increased persistence and tolerance to aboveground insect feeding. Therefore, the efforts to improve tall fescue would extend its utility to areas where it has not been used before and would be suitable to different regions in the United States.

ACKNOWLEDGEMENTS

This research was supported by the New Jersey Agricultural Experiment Station, State and Hatch Act funds, Rutgers Center for Turfgrass Science, other grants, and gifts. Additional support was received from the United States Golf Association and the New Jersey Turfgrass Association.

REFERENCES

- Beard, J.B. 2013. Origins of North American turfgrasses In: Turfgrass: Biology, Use, and Management. J.C. Stier, B.P. Horgan, and S.A. Bonos, eds. Agronomy Monograph 56. ASA, CSSA, and SSSA, Madison, WI. p. 1-35.
- Buckner, R.C., J.B. Powell, and R.V. Frakes. 1979. Historical development. In: Tall Fescue. R.C. Buckner and L.P. Bush, eds. Agronomy Monograph 20. ASA, CSSA, and SSSA, Madison, WI. p. 1-8.
- Funk, C.R., R.E. Engel, W.K. Dickson, and R.H. Hurlley. 1981. Registration of Rebel tall fescue. *Crop Science* 21:632.
- Funk, C.R., R.H. White, and J.P. Breen. 1993. Importance of Acremonium endophytes in turfgrass breeding and management. *Agriculture, Ecosystems, and Environment* 44:215-232.

Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establish- ment ²	Gray Leaf Spot ³	Brown Patch ⁴				Wear ⁵		
	2019-21 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Oct 2018 Avg.	Oct 2018 Avg.	Jul 22 2019 Avg.	2020 Avg.	Jul 15 2020 Avg.	July 17 2020 Avg.	July 16 2021 Avg.	Sep 17 2021 Avg.	2021 Avg.
1 PVF-RW2	6.4	7.0	6.5	5.6	7.0	7.7	5.7	5.7	5.3	6.0	3.3	4.7	4.0
2 Clash	6.1	6.9	6.3	5.1	7.0	7.7	5.0	4.8	3.7	6.0	3.0	4.7	3.8
3 RW1	5.9	6.9	5.7	5.1	7.0	6.0	7.0	5.2	5.0	5.3	2.3	4.7	3.5
4 Daybreak	5.8	6.8	5.9	4.9	8.0	7.3	5.3	5.8	5.0	6.7	2.3	4.7	3.5
5 TD2	5.8	6.5	6.2	4.9	7.0	7.3	4.0	4.3	3.7	5.0	2.7	4.0	3.3
6 K18-NSE	5.8	6.5	5.9	5.1	6.7	7.0	6.3	5.2	5.0	5.3	2.7	5.0	3.8
7 PPG-TF 235	5.8	6.2	5.9	5.3	6.3	6.0	6.3	5.0	4.7	5.3	2.7	3.7	3.2
8 Bonfire	5.7	6.3	5.9	4.9	7.0	7.7	4.7	4.8	4.3	5.3	3.0	4.3	3.7
9 PPG-TF 310	5.7	6.1	6.1	4.9	6.3	7.0	4.0	5.3	4.7	6.0	2.0	4.3	3.2
10 PW3	5.7	6.4	5.7	5.1	6.0	7.7	6.0	5.0	5.3	4.7	2.0	4.3	3.2
11 FA20BSL-S1	5.7	6.9	5.6	4.7	7.0	6.7	6.7	5.3	4.7	6.0	2.0	4.0	3.0
12 Raptor LS	5.7	6.7	5.8	4.7	6.7	6.3	6.3	6.3	5.3	7.3	2.0	4.3	3.2
13 PPG-TF 317	5.7	6.5	5.7	4.9	6.7	7.0	5.0	5.5	5.0	6.0	2.3	4.3	3.3
14 Providence	5.6	6.0	5.9	4.9	6.7	6.3	4.0	4.8	4.3	5.3	2.7	4.3	3.5
15 PPG-TF 303	5.6	6.1	5.8	4.9	6.7	6.7	5.0	5.8	5.3	6.3	2.7	3.7	3.2
16 RS1	5.6	6.4	5.8	4.7	6.0	7.7	5.3	5.0	4.3	5.7	2.3	4.0	3.2
17 Technique	5.6	5.9	5.7	5.1	6.0	7.0	4.7	5.5	5.0	6.0	1.7	5.3	3.5
18 Maestro	5.6	6.1	6.0	4.6	7.0	7.7	4.3	4.5	4.0	5.0	2.7	4.7	3.7
19 PPG-TF 319	5.6	6.1	5.6	5.1	6.7	6.7	6.3	4.8	4.3	5.3	2.3	4.3	3.3
20 PW5	5.5	6.6	5.4	4.6	7.0	8.3	4.3	4.3	4.0	4.7	2.0	4.3	3.2

126

(Continued)

Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establish- ment ²	Gray Leaf Spot ³	Brown Patch ⁴				Wear ⁵		
	2019-21 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Oct 2018 Avg.	Oct 2018 Avg.	Jul 22 2019 Avg.	2020 Avg.	Jul 15 2020 Avg.	July 17 2020 Avg.	July 16 2021 Avg.	Sep 17 2021 Avg.	2021 Avg.
21 Grande 3	5.5	5.9	6.1	4.7	6.0	7.0	4.7	4.8	4.0	5.7	2.3	3.7	3.0
22 NAI-404-18	5.5	5.8	5.7	5.1	6.0	6.3	5.0	5.7	5.0	6.3	2.0	4.3	3.2
23 Bullseye LTZ	5.5	5.9	5.8	4.9	6.7	5.7	4.0	5.8	5.0	6.7	2.0	4.3	3.2
24 PPG-TF 304	5.5	6.0	5.9	4.6	6.3	7.3	4.7	4.0	3.7	4.3	2.3	4.3	3.3
25 GTO	5.5	6.2	5.6	4.7	7.3	7.3	6.0	3.8	3.7	4.0	1.7	4.7	3.2
26 PPG-TF 295	5.5	5.9	5.6	4.9	6.7	6.0	4.7	4.5	3.7	5.3	2.3	3.3	2.8
27 ENS	5.4	5.8	6.0	4.5	4.7	6.3	4.7	4.2	3.7	4.7	2.0	4.3	3.2
28 PPG-TF 266	5.4	5.8	5.6	4.9	6.0	7.0	5.0	3.7	3.3	4.0	2.7	3.3	3.0
29 PW4	5.4	6.1	5.4	4.8	5.3	7.0	5.7	4.5	4.3	4.7	2.7	3.0	2.8
30 PPG-TF 321	5.4	6.2	5.3	4.8	7.3	7.0	4.7	4.0	3.7	4.3	2.7	4.3	3.5
31 RS4	5.4	5.7	5.5	5.1	6.0	7.0	5.0	5.7	5.7	5.7	2.3	4.7	3.5
32 Valkyrie LS	5.4	5.3	5.6	5.3	6.7	6.7	4.0	4.8	4.3	5.3	2.3	4.3	3.3
33 PW1	5.4	6.3	5.2	4.6	6.7	8.3	4.0	4.2	4.0	4.3	2.0	4.3	3.2
34 PPG-TF 250	5.3	5.6	5.5	4.9	6.3	6.0	4.0	4.2	3.7	4.7	2.0	3.7	2.8
35 PW2	5.3	5.5	5.7	4.9	6.0	7.3	4.0	4.8	4.7	5.0	2.0	5.3	3.7
36 PST-5LSS	5.3	6.0	5.4	4.7	6.7	5.0	4.7	4.5	4.0	5.0	2.7	4.3	3.5
37 Witchita	5.3	6.2	5.1	4.6	6.0	6.7	4.7	4.5	3.7	5.3	2.0	3.0	2.5
38 Padre II	5.3	6.0	5.4	4.5	6.3	6.7	5.0	4.0	3.7	4.3	2.7	4.0	3.3
39 Paramount	5.3	5.9	5.5	4.4	6.7	6.7	5.7	5.3	4.7	6.0	2.0	4.0	3.0
40 RDC	5.2	5.7	5.4	4.6	6.3	5.3	4.0	4.5	4.7	4.3	2.0	3.3	2.7

127

(Continued)

Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establish- ment ²	Gray Leaf Spot ³	Brown Patch ⁴				Wear ⁵		
	2019-21 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Oct 2018 Avg.	Oct 2018 Avg.	Jul 22 2019 Avg.	2020 Avg.	Jul 15 2020 Avg.	July 17 2020 Avg.	July 16 2021 Avg.	Sep 17 2021 Avg.	2021 Avg.
41 Firecracker SLS	5.2	6.0	5.0	4.6	5.3	6.3	6.0	3.2	2.7	3.7	2.0	3.0	2.5
42 PPG-TF 307	5.2	5.7	5.2	4.7	6.3	7.7	4.0	4.3	3.3	5.3	2.7	4.3	3.5
43 PW6	5.2	5.5	5.4	4.6	6.3	7.7	4.3	4.3	4.0	4.7	2.3	4.7	3.5
44 Raptor III	5.2	5.2	5.2	5.1	5.7	4.7	4.0	4.0	3.0	5.0	2.0	4.3	3.2
45 Rockwell	5.2	5.7	5.4	4.5	5.3	6.0	5.3	4.5	4.3	4.7	1.7	4.0	2.8
46 Titanium 2LS	5.1	5.7	5.0	4.7	6.0	5.7	4.7	3.5	3.3	3.7	1.7	4.0	2.8
47 Rowdy	5.1	5.6	5.1	4.7	6.7	5.3	4.3	2.5	2.0	3.0	2.3	3.3	2.8
48 PPG-TF 232	5.1	5.6	5.1	4.5	7.7	6.7	4.7	4.8	4.0	5.7	2.7	3.0	2.8
49 NAI-ST6-18	5.1	5.5	5.3	4.5	5.3	6.3	4.0	5.3	4.0	6.7	2.0	3.7	2.8
50 Black Tail	5.1	5.5	4.6	5.1	6.3	7.0	4.7	3.8	3.3	4.3	2.3	4.0	3.2
51 Bullseye	5.1	5.4	5.6	4.3	6.3	5.7	5.0	4.0	3.3	4.7	1.7	2.3	2.0
52 PPG-TF KS	5.1	6.0	5.1	4.1	6.3	7.7	4.3	4.3	4.0	4.7	1.3	2.7	2.0
53 Traverse 2	5.0	5.4	5.3	4.4	6.0	4.7	4.7	3.5	3.7	3.3	1.7	4.3	3.0
54 Regenerate	5.0	5.4	5.0	4.6	6.0	6.3	4.3	3.2	3.0	3.3	3.0	4.3	3.7
55 Hot Rod	5.0	5.3	5.3	4.3	5.0	6.7	4.7	4.5	4.0	5.0	2.3	3.7	3.0
56 Avenger II	5.0	5.5	4.8	4.5	6.3	5.7	5.0	5.2	4.3	6.0	2.0	3.7	2.8
57 Thor	4.9	5.7	4.7	4.4	6.7	7.3	5.0	3.8	4.0	3.7	2.7	4.3	3.5
58 Supersonic	4.9	5.4	5.1	4.4	6.3	6.3	5.0	3.3	3.0	3.7	1.7	4.3	3.0
59 Trinity	4.9	5.3	5.0	4.5	5.3	6.7	4.0	4.0	3.3	4.7	2.7	3.7	3.2
60 Annapolis	4.9	5.1	4.8	4.9	6.7	5.3	5.0	3.8	3.3	4.3	2.3	4.0	3.2

128

(Continued)

Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establish- ment ² Oct 2018	Gray Leaf Spot ³ Oct 2018	Brown Patch ⁴				Wear ⁵			
	2019-21 Avg.	2019 Avg.	2020 Avg.	2021 Avg.			Jul 22 2019 Avg.	2020 Avg.	Jul 15 2020 Avg.	July 17 2020 Avg.	July 16 2021 Avg.	Sep 17 2021 Avg.	2021 Avg.	
61	PPG-TF 322	4.9	5.8	4.7	4.3	5.3	6.0	5.0	4.0	3.7	4.3	2.3	3.0	2.7
62	Rebounder	4.8	5.1	4.9	4.5	5.3	4.7	4.3	3.0	2.3	3.7	1.7	3.3	2.5
63	Crossfire 4	4.8	5.4	5.0	4.2	6.7	5.3	5.3	4.2	3.3	5.0	2.0	3.7	2.8
64	Firewall	4.8	5.1	4.7	4.6	6.3	6.0	4.7	4.7	4.0	5.3	2.0	3.3	2.7
65	Michelangelo	4.8	5.2	4.7	4.5	6.0	6.3	5.0	4.5	4.0	5.0	2.3	4.3	3.3
66	Embrace	4.8	5.2	4.7	4.6	6.0	6.7	3.7	4.3	4.0	4.7	3.3	4.0	3.7
67	PST-5FOE	4.8	5.5	4.4	4.3	7.7	7.3	2.7	4.8	4.0	5.7	1.7	3.3	2.5
68	Reflection	4.8	5.0	4.5	4.7	6.0	6.3	5.0	4.3	4.3	4.3	2.0	3.7	2.8
69	RH FN-Syn	4.7	5.0	4.8	4.4	5.3	7.0	3.7	4.8	4.0	5.7	2.0	2.7	2.3
70	Fayette	4.7	5.3	4.5	4.5	5.3	5.7	5.0	4.0	3.7	4.3	2.3	4.0	3.2
71	RAD-TF123	4.7	4.9	5.0	4.3	5.0	6.7	3.0	3.2	2.7	3.7	2.0	3.7	2.8
72	Diablo	4.7	5.2	4.5	4.3	5.7	7.3	4.7	4.2	3.7	4.7	2.7	3.3	3.0
73	Screamer LS	4.7	5.0	4.6	4.5	6.0	5.3	3.7	4.0	3.7	4.3	1.7	3.3	2.5
74	Maestro	4.7	5.1	4.7	4.3	6.3	6.7	4.0	4.7	5.0	4.3	3.0	4.3	3.7
75	Nightcrawler	4.6	5.7	4.3	3.9	6.7	7.7	5.0	4.0	3.0	5.0	1.7	2.7	2.2
76	4th Millennium	4.6	5.3	4.4	4.3	5.7	6.0	5.3	3.5	3.3	3.7	1.7	2.7	2.2
77	Bizem	4.6	5.4	4.2	4.1	6.3	5.3	4.3	4.7	3.7	5.7	2.0	2.3	2.2
78	Temple	4.6	5.0	4.6	4.2	6.0	5.7	5.0	4.5	4.0	5.0	2.3	4.0	3.2
79	Turfway	4.6	5.3	4.2	4.3	6.3	6.7	4.0	3.5	3.7	3.3	2.7	3.0	2.8
80	MET-3	4.6	5.0	4.6	4.1	6.0	6.0	4.0	4.0	3.7	4.3	1.3	3.3	2.3

129

(Continued)

Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establishment ² Oct 2018	Gray Leaf Spot ³ Oct 2018	Brown Patch ⁴				Wear ⁵		
	2019-21 Avg.	2019 Avg.	2020 Avg.	2021 Avg.			Jul 22 2019 Avg.	2020 Avg.	Jul 15 2020 Avg.	July 17 2020 Avg.	July 16 2021 Avg.	Sep 17 2021 Avg.	2021 Avg.
81 Xtender	4.5	5.0	4.3	4.3	6.3	5.7	4.3	3.3	2.7	4.0	2.3	4.0	3.2
82 Foxhound	4.5	5.2	4.4	4.0	5.7	6.7	5.0	3.3	3.0	3.7	2.3	4.0	3.2
83 PST-5ZRX	4.5	5.2	4.4	4.0	5.3	6.0	4.7	4.2	4.0	4.3	1.3	3.3	2.3
84 PST-5MINI	4.5	4.9	4.4	4.3	5.3	7.0	3.0	4.0	3.3	4.7	1.3	3.0	2.2
85 Spyder LS	4.5	5.2	4.0	4.2	5.3	5.7	3.7	2.7	2.3	3.0	1.3	3.0	2.2
86 SR 8650	4.4	5.0	4.0	4.3	5.7	4.3	4.0	3.0	2.3	3.7	1.7	2.7	2.2
87 Renegade DT	4.4	4.8	4.2	4.3	5.7	6.0	3.0	2.8	3.0	2.7	2.0	3.7	2.8
88 BAR FA 8268	4.4	5.1	4.4	3.8	6.7	4.7	3.3	4.8	4.3	5.3	1.7	3.3	2.5
89 Standout	4.4	4.6	4.7	3.9	5.3	6.0	3.0	3.7	3.3	4.0	1.7	3.3	2.5
90 PST-5ZIP	4.4	4.8	4.3	4.0	6.7	6.3	4.0	4.0	4.0	4.0	2.3	3.3	2.8
91 Birmingham	4.4	4.9	4.2	4.0	7.0	4.7	3.3	2.0	1.7	2.3	2.0	3.3	2.7
92 Mustang 4	4.3	4.8	4.3	4.0	5.0	4.3	3.7	4.2	3.3	5.0	1.3	2.7	2.0
93 Finelawn H2O	4.3	4.7	4.5	3.9	5.7	4.7	3.7	3.3	3.7	3.0	1.3	4.3	2.8
94 Copious TF	4.3	5.0	4.5	3.5	6.7	8.0	3.3	2.3	2.3	2.3	1.3	3.7	2.5
95 Escalade	4.3	4.6	4.2	4.2	6.0	3.0	4.3	3.2	3.0	3.3	1.7	2.3	2.0
96 Bloodhound	4.3	4.1	4.7	4.2	5.3	5.7	3.3	3.7	3.3	4.0	1.7	3.3	2.5
97 Meridian	4.3	4.4	4.2	4.4	6.0	5.3	3.0	2.8	2.7	3.0	1.7	4.3	3.0
98 Merida	4.3	4.9	4.1	3.9	5.7	4.3	3.0	3.8	3.7	4.0	2.3	2.7	2.5
99 Falcon IV	4.3	4.8	4.5	3.6	6.3	4.7	5.0	3.5	3.3	3.7	1.3	3.3	2.3
100 BAR FA 8269	4.3	4.9	4.1	3.8	4.3	4.3	3.3	3.5	3.7	3.3	1.7	3.0	2.3

130

(Continued)

Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establish- ment ²	Gray Leaf Spot ³	Brown Patch ⁴				Wear ⁵			
	2019-21 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Oct 2018 Avg.	Oct 2018 Avg.	Jul 22 2019 Avg.	2020 Avg.	Jul 15 2020 Avg.	July 17 2020 Avg.	July 16 2021 Avg.	Sep 17 2021 Avg.	2021 Avg.	
101	Crossfire 3	4.3	4.7	4.1	4.0	7.0	5.7	3.3	3.0	3.0	3.0	1.7	4.0	2.8
102	BAR FA 8223	4.2	4.7	3.8	4.2	6.7	6.3	2.7	2.5	2.3	2.7	2.3	3.0	2.7
103	RAD-TF99	4.2	4.1	4.4	4.1	5.7	4.7	2.0	3.0	3.0	3.0	1.7	3.0	2.3
104	Terrano	4.2	5.0	3.7	3.9	6.3	5.0	4.3	4.0	3.3	4.7	1.7	2.3	2.0
105	Firaces	4.2	4.6	4.2	3.7	6.0	6.3	3.0	3.5	3.3	3.7	1.7	3.7	2.7
106	RAD-TF103	4.2	3.6	4.8	4.1	4.7	3.3	2.3	3.7	3.3	4.0	2.0	3.3	2.7
107	Lafayette	4.2	4.4	4.3	3.8	4.7	6.3	3.0	3.3	3.0	3.7	1.3	3.0	2.2
108	PST-5T24	4.2	4.9	3.6	4.0	6.0	7.3	3.7	4.2	4.0	4.3	1.7	3.3	2.5
109	Fesnova	4.2	5.2	3.7	3.5	7.3	5.3	4.3	3.2	3.0	3.3	2.0	3.3	2.7
110	Dynamite LS	4.1	4.9	3.8	3.8	5.0	6.7	4.3	3.5	3.0	4.0	2.0	2.7	2.3
111	Memphis	4.1	4.6	4.1	3.7	6.0	4.3	4.0	3.3	2.7	4.0	2.0	2.7	2.3
112	Bravo 2	4.1	4.7	3.7	3.9	5.0	5.7	3.0	3.7	3.3	4.0	1.7	3.0	2.3
113	Unitus	4.0	4.4	4.1	3.7	5.7	7.3	3.3	3.5	3.7	3.3	2.7	3.3	3.0
114	RAD-TF113	4.0	3.9	4.7	3.5	5.0	4.3	2.0	2.7	2.0	3.3	1.3	4.3	2.8
115	Thunderstruck	4.0	4.5	4.0	3.5	6.7	6.3	3.0	2.8	2.7	3.0	1.7	3.0	2.3
116	RAD-TF90R	4.0	3.7	4.2	4.1	5.3	5.0	2.3	3.3	2.7	4.0	1.0	3.0	2.0
117	Leonardo	4.0	4.6	3.6	3.7	5.7	4.0	3.7	3.0	3.0	3.0	1.7	2.7	2.2
118	Persuasion	4.0	4.0	4.1	3.8	4.3	4.3	3.3	3.3	3.0	3.7	2.0	3.3	2.7
119	Rhizing Moon	4.0	4.8	3.8	3.3	5.0	6.3	3.0	3.8	3.7	4.0	1.3	3.0	2.2
120	Palomar	3.9	4.3	3.8	3.5	6.0	4.3	3.7	2.7	2.7	2.7	1.0	2.0	1.5

131

(Continued)

Table 1. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ.

Cultivar or Selection	Turf Quality ¹				Establish- ment ²	Gray Leaf Spot ³	Brown Patch ⁴				Wear ⁵		
	2019-21 Avg.	2019 Avg.	2020 Avg.	2021 Avg.	Oct 2018 Avg.	Oct 2018 Avg.	Jul 22 2019 Avg.	2020 Avg.	Jul 15 2020 Avg.	July 17 2020 Avg.	July 16 2021 Avg.	Sep 17 2021 Avg.	2021 Avg.
121 Escalante	3.8	4.2	3.6	3.8	5.0	4.0	3.7	3.3	3.3	3.3	1.7	3.0	2.3
122 RAD-TF112R	3.8	3.5	3.8	4.1	5.3	4.3	2.7	2.3	2.7	2.0	2.3	3.7	3.0
123 NAI-TF18-FWN12	3.8	3.4	4.1	3.9	5.0	4.7	1.7	3.3	2.7	4.0	1.3	3.3	2.3
124 Blade Runner II	3.8	4.2	3.5	3.7	6.3	4.0	3.0	4.3	4.0	4.7	1.3	2.7	2.0
125 Tribute II	3.8	4.8	3.3	3.3	6.7	4.7	3.0	3.2	3.0	3.3	1.7	2.0	1.8
126 LNSTF1	3.8	4.5	3.4	3.4	5.3	5.3	4.0	2.3	2.7	2.0	1.7	2.7	2.2
127 Talladega	3.7	4.3	3.4	3.5	5.7	4.0	3.7	2.5	2.7	2.3	1.7	2.7	2.2
128 06-WALK	3.7	4.0	3.6	3.6	6.7	3.3	3.0	3.3	3.0	3.7	1.7	2.3	2.0
129 Trending	3.7	4.1	3.5	3.5	5.0	6.3	2.3	3.7	4.0	3.3	1.3	2.7	2.0
130 GO-FNKY	3.4	3.4	3.6	3.4	4.7	3.7	2.0	2.5	2.3	2.7	1.3	3.3	2.3
131 ORTF-16-1	2.0	2.2	1.8	2.2	5.3	3.7	2.3	2.5	2.3	2.7	1.0	1.7	1.3
LSD @ 5%= CV=	0.6 7.3	0.8 8.9	0.8 10.5	0.8 11.3	1.5 15.0	1.4 14.2	1.7 25.5	1.5 24.0	1.6 27.5	1.9 27.0	1.3 33.3	1.1 22.6	0.9 19.3

132

¹9 = best turf quality
²9 = best establishment
³9 = least disease
⁴9 = least disease
⁵9 = best wear tolerance

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ. Includes all entries from the 2018 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹				Gray Leaf Spot ²		Cover ³				Color ⁴		Brown Patch ⁵	Texture ⁶	Uniformity ⁷	Density ⁸	Spring Green-up ⁹
	2018-21	2018-19	2020	2021	Oct 17		Sep 26	Oct 15	Nov 8	Oct 16	Nov 5	Aug 13	Nov 5	Nov 5	Nov 5	Mar 30	
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
1 Daybreak	7.4	7.5	7.1	7.7	7.3	78.3	65.0	91.7	99.0	7.3	5.0	8.7	8.0	9.0	8.7	4.3	
2 Clash	6.9	6.8	7.1	7.0	7.0	70.0	60.0	80.0	99.0	7.0	6.0	8.0	7.0	7.3	8.0	5.3	
3 Bonfire	6.8	7.3	6.6	6.6	7.3	75.8	60.0	91.7	99.0	6.7	5.3	6.7	6.0	7.3	7.3	1.7	
4 COL-TF-148	6.7	6.6	6.6	6.9	7.0	63.3	43.3	83.3	99.0	6.0	4.0	8.3	6.7	7.3	7.3	3.7	
5 K18-RS6	6.6	6.3	6.6	7.0	6.0	65.8	53.3	78.3	97.7	6.3	4.0	8.7	7.3	7.7	8.7	3.3	
6 Zion	6.5	6.3	6.5	6.7	6.3	69.2	55.0	83.3	99.0	5.7	4.7	7.7	7.7	7.3	9.0	3.3	
7 Capitan	6.5	5.9	6.5	7.0	5.7	66.7	51.7	81.7	99.0	7.0	4.0	8.7	6.0	6.7	6.7	4.0	
8 TMT1	6.4	6.8	6.3	6.3	6.3	76.7	63.3	90.0	97.7	8.3	5.7	7.7	5.7	6.3	5.7	1.7	
9 Spyder 2LS	6.4	6.1	6.5	6.8	5.0	69.2	51.7	86.7	95.0	6.0	4.0	8.0	7.7	7.7	8.3	3.0	
10 Titan GLX	6.3	6.2	6.0	6.7	5.7	62.5	51.7	73.3	97.7	5.7	6.0	7.7	6.0	8.0	7.3	2.0	
11 Firenze II	6.3	6.3	6.3	6.4	6.3	62.5	50.0	75.0	97.7	7.7	6.3	7.7	6.3	7.7	6.7	4.7	
12 Titanium G-LS	6.3	6.5	6.4	6.0	7.0	65.0	45.0	85.0	97.7	8.0	7.3	7.3	5.7	6.0	6.7	1.3	
13 Degas	6.2	6.4	6.1	6.1	6.7	58.3	41.7	75.0	96.3	7.3	5.3	8.0	6.0	7.0	8.0	3.7	
14 TD2	6.2	6.1	6.3	6.2	5.7	60.8	46.7	75.0	96.3	6.7	4.7	7.7	7.0	7.0	8.3	3.0	
15 Firecracker G-LS	6.2	6.5	6.0	6.0	6.7	63.3	45.0	81.7	97.7	7.3	6.3	8.3	6.3	5.7	7.0	2.0	
16 RS1	6.2	6.0	6.1	6.4	5.3	65.0	51.7	78.3	99.0	6.3	5.3	7.0	6.7	8.3	7.7	3.3	
17 RDC	6.1	6.2	5.9	6.3	5.7	70.8	61.7	80.0	97.7	6.7	3.3	7.3	6.3	7.0	6.3	3.7	
18 Essential 2	6.1	6.1	6.1	6.2	5.7	61.7	45.0	78.3	97.7	8.0	5.3	8.0	7.0	6.7	6.7	3.0	
19 Rowdier	6.1	6.7	6.2	5.4	7.3	70.8	53.3	88.3	96.3	8.3	6.7	7.3	6.0	6.0	6.7	2.3	
20 Raptor LS	6.1	5.6	6.0	6.7	5.0	65.0	60.0	70.0	96.3	7.0	4.7	8.7	7.0	7.0	7.7	3.0	

133

(Continued)

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ. Includes all entries from the 2018 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹				Gray Leaf Spot ²		Cover ³				Color ⁴		Brown Patch ⁵	Texture ⁶	Uniformity ⁷	Density ⁸	Spring Green-up ⁹
	2018-21	2018-19	2020	2021	Oct 17		Sep 26	Oct 15	Nov 8	Oct 16	Nov 5	Aug 13	Nov 5	Nov 5	Nov 5	Mar 30	
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
21 Dynamite G-LS	6.0	6.1	5.7	6.2	6.3	70.0	55.0	85.0	99.0	6.3	6.0	7.7	5.7	6.0	7.7	2.3	
22 DLFPS-321/3695	6.0	6.4	6.1	5.6	5.3	65.0	53.3	76.7	96.3	7.0	5.3	7.7	6.7	7.0	6.7	4.3	
23 NAI-ROS4	6.0	6.0	5.9	6.2	5.0	59.2	48.3	70.0	99.0	6.3	5.3	7.3	6.3	6.3	7.0	4.7	
24 RHF	6.0	5.6	6.1	6.3	5.7	66.7	50.0	83.3	97.7	6.0	4.7	7.7	7.3	7.3	8.0	2.7	
25 GLX ACED	6.0	6.5	5.6	6.0	7.0	70.0	56.7	83.3	97.7	6.3	4.0	8.0	4.7	6.7	6.3	3.0	
26 O'Keefe	6.0	6.1	6.0	5.9	6.3	52.5	31.7	73.3	97.7	7.0	5.0	7.0	6.3	6.7	7.7	3.3	
27 Gallardo	6.0	5.9	5.7	6.3	5.3	59.2	40.0	78.3	97.7	6.0	6.0	7.7	6.3	6.7	6.0	2.7	
28 PPG-TF 316	6.0	5.7	6.0	6.2	5.7	60.0	45.0	75.0	97.7	7.7	6.0	7.7	6.3	7.3	7.7	3.3	
29 PPG-TF-249	5.9	6.0	6.2	5.7	5.3	69.2	61.7	76.7	96.3	7.3	6.3	7.7	6.7	5.7	8.0	2.3	
30 Providence	5.9	5.2	6.3	6.2	5.0	58.3	45.0	71.7	99.0	8.0	6.3	8.3	6.0	7.0	8.3	4.3	
31 Dragster	5.9	6.0	5.9	5.9	6.7	60.0	46.7	73.3	97.7	7.0	4.3	7.7	6.3	6.0	7.7	3.3	
32 Genius	5.9	5.4	6.3	6.1	5.0	59.2	43.3	75.0	97.7	6.7	4.3	7.7	7.0	6.7	7.0	2.0	
33 DLFPS-321/3707	5.9	5.4	6.0	6.3	5.7	57.5	41.7	73.3	96.3	6.7	5.3	7.3	6.3	6.3	8.0	4.0	
34 DLFPS-321/3693	5.9	5.7	6.1	5.9	6.3	74.2	61.7	86.7	95.0	7.0	5.3	7.3	7.3	7.0	7.3	4.0	
35 Honeymoon	5.9	5.3	6.2	6.2	4.7	55.8	46.7	65.0	96.3	6.7	5.7	8.3	7.0	6.7	7.7	3.3	
36 5LSS	5.9	5.5	6.0	6.1	5.3	66.7	53.3	80.0	99.0	4.7	2.7	6.7	7.3	6.3	7.3	2.3	
37 NAI-ST5	5.8	5.9	5.7	5.8	6.0	59.2	46.7	71.7	99.0	7.7	5.7	8.3	5.7	7.0	7.0	3.0	
38 K18-NSE	5.8	5.5	6.1	5.9	5.3	55.8	40.0	71.7	96.3	5.3	4.3	7.7	7.7	7.7	8.7	3.7	
39 Valsetz	5.8	5.9	6.2	5.4	5.7	61.7	50.0	73.3	99.0	7.7	6.3	6.7	6.3	6.0	6.3	2.0	
40 PPG-TF-318	5.8	5.5	5.5	6.4	5.0	62.5	50.0	75.0	97.7	7.0	5.3	7.7	6.3	7.3	7.0	2.3	

134

(Continued)

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ. Includes all entries from the 2018 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹				Gray Leaf Spot ²		Cover ³				Color ⁴		Brown Patch ⁵	Texture ⁶	Uniformity ⁷	Density ⁸	Spring Green-up ⁹
	2018-21	2018-19	2020	2021	Oct 17		Sep 26	Oct 15	Nov 8	Oct 16	Nov 5	Aug 13	Nov 5	Nov 5	Nov 5	Mar 30	
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
41 RH3	5.8	5.2	5.9	6.3	5.0	60.0	48.3	71.7	96.3	5.7	4.0	7.7	5.0	6.7	7.3	3.7	
42 Rover	5.8	5.8	6.0	5.6	6.0	60.0	43.3	76.7	97.7	7.0	7.0	7.7	7.0	7.0	7.3	2.0	
43 BY-TF-169	5.8	5.4	5.8	6.1	5.0	53.3	36.7	70.0	99.0	7.0	4.3	7.7	7.0	7.7	7.3	3.0	
44 Stealth	5.8	5.4	6.0	5.9	5.0	58.3	48.3	68.3	99.0	5.7	5.3	8.3	6.0	7.0	6.7	2.0	
45 Xanadu	5.7	5.3	5.8	6.1	5.7	59.2	43.3	75.0	99.0	7.7	6.7	8.0	5.7	6.3	5.7	2.7	
46 Symphony	5.7	5.2	6.0	6.0	4.3	60.0	55.0	65.0	96.3	7.3	6.7	7.3	6.3	7.3	7.0	2.3	
47 Serenade	5.7	5.2	5.7	6.3	5.0	59.2	48.3	70.0	97.7	7.0	5.7	8.3	5.7	6.0	6.3	1.7	
48 Teacher	5.7	5.2	6.1	6.0	5.3	61.7	46.7	76.7	99.0	6.3	4.3	8.0	7.7	7.0	8.3	3.3	
49 DLFPS-321/3694	5.7	5.7	6.1	5.4	4.0	65.8	55.0	76.7	97.7	8.0	6.0	7.7	6.3	5.7	7.0	3.7	
50 Triad	5.7	5.5	6.0	5.7	6.7	64.2	45.0	83.3	97.7	7.3	7.0	8.7	5.3	6.0	6.7	1.3	
51 PPG-TF-312	5.7	4.8	6.0	6.3	5.0	55.8	40.0	71.7	99.0	5.7	3.0	8.3	7.3	6.3	8.0	4.7	
52 PPG-TF-262	5.7	4.9	6.0	6.2	3.7	50.8	40.0	61.7	97.7	7.3	6.7	8.0	6.7	7.0	7.7	3.3	
53 Avenger III	5.7	5.5	5.8	5.9	6.0	68.3	58.3	78.3	97.7	7.3	6.0	7.0	6.0	5.7	6.3	3.7	
54 Manzanita	5.7	5.9	5.5	5.7	6.0	62.5	46.7	78.3	99.0	6.7	7.0	7.3	6.3	6.0	7.0	2.7	
55 Raceway	5.6	6.6	5.3	5.0	6.3	70.8	58.3	83.3	99.0	7.0	7.0	6.3	5.0	4.3	5.0	2.0	
56 Grande 3	5.6	6.0	5.6	5.3	6.7	69.2	50.0	88.3	97.7	6.0	5.7	8.0	5.7	7.3	7.3	5.3	
57 RH1	5.6	5.6	5.7	5.4	5.7	58.3	43.3	73.3	97.7	6.7	6.3	7.0	5.7	6.3	7.7	4.0	
58 NT-3	5.6	4.7	6.1	6.0	3.7	53.3	45.0	61.7	99.0	7.3	5.7	6.7	6.3	6.7	5.7	1.3	
59 Galactic	5.6	4.4	5.7	6.6	4.0	46.7	36.7	56.7	96.3	5.7	5.0	7.3	6.7	7.7	7.7	4.0	
60 Talladega II	5.6	6.0	5.7	5.1	6.3	69.2	61.7	76.7	99.0	6.3	6.3	6.3	5.7	6.0	5.7	3.3	

135

(Continued)

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ. Includes all entries from the 2018 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹				Gray Leaf	Cover ³				Color ⁴		Brown	Texture ⁶	Uniformity ⁷	Density ⁸	Spring
					Spot ²							Patch ⁵				Green-up ⁹
	2018-21	2018-19	2020	2021	Oct 17	Sep 26	Oct 15	Nov 8	Oct 16	Nov 5	Aug 13	Nov 5	Nov 5	Nov 5	Nov 5	Mar 30
Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
61 Titan Max	5.6	5.4	5.6	5.7	5.3	65.8	50.0	81.7	97.7	5.7	5.3	7.3	5.3	7.0	6.7	3.0
62 Tank	5.5	5.8	5.5	5.3	6.3	67.5	48.3	86.7	96.3	7.0	6.3	7.3	6.3	4.7	6.0	2.0
63 DLFPS-321/3708	5.5	5.2	5.6	5.8	6.0	60.0	46.7	73.3	97.7	7.3	7.7	7.3	6.7	6.0	7.0	1.7
64 PST-5MCMO	5.5	6.0	5.2	5.3	6.3	61.7	50.0	73.3	99.0	6.0	4.0	7.3	5.0	6.0	6.3	3.3
65 K18-WB1	5.5	4.7	5.7	6.0	4.3	52.5	43.3	61.7	99.0	6.7	5.0	7.0	7.0	6.7	8.3	6.0
66 PPG-TF-337	5.4	5.1	5.9	5.4	5.3	60.8	46.7	75.0	97.7	7.3	6.0	7.3	6.7	5.0	7.0	2.7
67 Bullseye LTZ	5.4	5.4	5.3	5.6	5.7	62.5	48.3	76.7	97.7	7.0	5.3	7.0	5.3	5.7	6.7	1.3
68 PST-5GLBS	5.4	5.8	4.9	5.4	5.7	58.3	41.7	75.0	99.0	6.3	4.7	7.3	4.3	6.7	5.3	2.7
69 DLFPS-321/3706	5.4	4.6	6.0	5.5	4.3	49.2	36.7	61.7	96.3	6.3	3.3	7.7	7.3	6.0	7.7	4.3
70 DLFPS-TF/3553	5.3	5.1	5.5	5.4	5.0	60.0	43.3	76.7	96.3	7.0	6.3	7.7	5.7	6.0	7.3	2.0
71 Tough	5.2	5.7	5.5	4.5	6.0	65.0	56.7	73.3	99.0	8.3	7.0	7.3	4.7	5.3	5.7	2.0
72 PPG-TF-231	5.2	5.7	5.3	4.7	4.7	62.5	51.7	73.3	97.7	6.7	7.3	7.3	6.0	5.7	7.0	3.0
73 PST-5TRN	5.2	5.4	5.0	5.3	6.3	60.8	46.7	75.0	99.0	6.7	5.3	7.0	4.3	5.0	6.0	2.3
74 Bladerunner 3	5.2	5.1	5.4	5.2	4.7	55.8	43.3	68.3	97.7	7.7	6.0	7.0	5.7	5.3	6.7	3.0
75 Paramount	5.2	5.0	5.6	5.0	4.7	64.2	56.7	71.7	99.0	6.7	5.3	6.7	5.3	6.7	6.7	3.7
76 PPG-TF-267	5.2	5.1	5.2	5.3	4.3	56.7	45.0	68.3	99.0	6.7	6.7	7.0	6.0	6.7	6.7	3.0
77 PST-5E6	5.1	4.5	5.1	5.9	4.3	51.7	38.3	65.0	99.0	6.3	4.0	7.3	5.0	6.0	6.0	5.3
78 Hounddog Nine	5.1	4.8	5.3	5.4	4.0	49.2	40.0	58.3	99.0	7.0	6.7	7.3	5.7	7.0	7.0	2.7
79 ATF 1768	5.1	5.5	4.8	5.0	5.0	61.7	50.0	73.3	96.3	8.0	5.7	6.3	4.7	5.3	4.3	1.7
80 Gro-Pro	5.1	5.4	4.8	4.9	5.0	57.5	46.7	68.3	97.7	5.7	6.7	7.0	4.0	5.0	5.0	2.3

136

(Continued)

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ. Includes all entries from the 2018 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹				Gray Leaf	Cover ³					Color ⁴		Brown	Texture ⁶	Uniformity ⁷	Density ⁸	Spring
					Spot ²								Patch ⁵				Green-up ⁹
	2018-21	2018-19	2020	2021	Oct 17	Sep 26	Oct 15	Nov 8	Oct 16	Nov 5	Aug 13	Nov 5	Nov 5	Nov 5	Nov 5	Nov 5	Mar 30
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
81	Hemi	5.0	4.9	5.1	5.0	4.0	55.8	40.0	71.7	97.7	5.7	6.7	7.0	5.0	5.7	6.7	2.7
82	Kizzle	5.0	5.2	4.9	5.0	4.3	56.7	51.7	61.7	97.7	6.0	4.7	6.3	4.0	6.0	5.0	4.0
83	ProGold	5.0	5.5	4.9	4.6	5.7	66.7	56.7	76.7	96.3	5.7	4.7	6.3	5.0	5.0	4.3	4.7
84	PST-5THM	5.0	5.5	4.7	4.9	6.7	63.3	55.0	71.7	99.0	6.3	4.7	6.0	4.0	4.7	3.7	3.3
85	PST-5BYOB	5.0	5.5	4.6	4.9	5.3	64.2	56.7	71.7	99.0	7.3	6.3	4.7	4.3	4.7	4.7	2.7
86	PST-5GQ	5.0	4.8	4.8	5.4	4.7	55.8	41.7	70.0	99.0	6.3	5.0	7.0	5.0	6.0	5.3	2.3
87	Padre 2	5.0	4.9	5.0	5.0	4.0	62.5	55.0	70.0	97.7	7.0	6.7	6.0	5.0	5.7	5.3	4.0
88	Lifeguard	4.9	5.2	4.8	4.8	5.0	63.3	56.7	70.0	97.7	5.7	6.0	6.7	4.7	6.3	5.7	4.7
89	Raptor III	4.9	4.4	5.4	5.0	4.3	58.3	50.0	66.7	97.7	6.7	5.0	7.7	6.0	6.0	6.0	2.3
90	RAD-TF105	4.9	4.1	5.4	5.2	4.0	50.0	40.0	60.0	99.0	8.3	6.7	7.3	6.0	6.0	7.7	2.3
91	Copious TF	4.9	5.7	4.8	4.1	6.0	67.5	56.7	78.3	94.7	8.0	7.7	6.0	6.0	5.3	4.0	2.7
92	Moondance	4.8	5.5	4.5	4.7	6.0	67.5	55.0	80.0	99.0	5.3	4.7	5.7	4.0	5.3	3.7	3.0
93	Bentley	4.7	4.7	4.8	4.7	4.3	58.3	45.0	71.7	96.0	8.7	7.0	8.0	5.0	5.3	5.7	2.3
94	3B2	4.7	4.6	4.6	4.9	4.3	55.0	43.3	66.7	99.0	7.3	6.3	6.3	5.7	5.3	5.7	4.3
95	Monument	4.5	4.4	4.6	4.6	5.0	61.7	51.7	71.7	97.7	6.3	5.0	6.7	4.7	5.0	4.3	3.3
96	AST8218LM	4.5	5.1	5.0	3.6	6.0	59.2	48.3	70.0	97.7	8.7	7.7	3.3	6.3	3.3	4.7	3.3
97	A-TF31	4.5	5.2	4.2	4.1	5.7	65.8	60.0	71.7	99.0	8.7	8.0	5.7	4.0	4.3	4.7	1.7
98	Firehawk SLT	4.5	4.0	4.8	4.7	3.3	49.2	38.3	60.0	99.0	6.3	6.7	7.3	5.0	5.3	5.3	3.0
99	PST-5MINK	4.5	5.1	4.3	4.0	5.3	65.0	53.3	76.7	96.3	7.3	6.3	5.3	4.0	4.0	3.7	2.7
100	BAR 9FE MAS	4.4	5.1	4.4	3.8	7.3	67.5	53.3	81.7	96.3	7.7	7.0	5.0	4.3	4.0	5.0	5.0

137

(Continued)

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ. Includes all entries from the 2018 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹				Gray Leaf Spot ²		Cover ³				Color ⁴		Brown Patch ⁵	Texture ⁶	Uniformity ⁷	Density ⁸	Spring Green-up ⁹
	2018-21	2018-19	2020	2021	Oct 17		Sep 26	Oct 15	Nov 8	Oct 16	Nov 5	Aug 13	Nov 5	Nov 5	Nov 5	Nov 5	Mar 30
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
101	Bullseye	4.4	4.7	4.4	4.1	4.3	53.3	38.3	68.3	99.0	7.0	6.7	6.0	4.0	4.7	4.7	3.3
102	Fairfield	4.4	3.8	4.8	4.5	3.0	48.3	38.3	58.3	97.7	6.7	6.3	7.0	6.0	6.3	6.3	2.7
103	SETFM3	4.3	4.5	4.5	4.0	4.7	52.5	41.7	63.3	97.7	7.7	7.3	5.7	4.3	4.3	4.7	3.7
104	3N1	4.3	4.7	4.0	4.3	4.7	57.5	43.3	71.7	99.0	7.0	7.3	5.0	5.0	5.0	5.3	3.7
105	LBF	4.3	4.6	4.4	4.0	3.7	55.8	48.3	63.3	94.7	8.3	7.7	5.7	5.3	3.7	4.7	3.0
106	Estrena	4.3	3.3	4.8	4.8	2.3	51.7	48.3	55.0	97.7	6.3	5.3	7.3	5.0	5.0	6.0	3.7
107	DLFPS-321/3703	4.2	4.3	4.6	3.8	4.3	51.7	41.7	61.7	99.0	6.7	6.7	7.0	5.0	4.3	5.3	2.7
108	PST-5DZM	4.2	3.8	4.4	4.4	3.7	46.7	31.7	61.7	97.7	7.0	5.7	5.7	5.0	5.7	4.7	1.7
109	Tango	4.2	4.4	4.0	4.2	4.0	52.5	46.7	58.3	99.0	7.3	6.3	5.7	4.7	4.3	4.0	1.0
110	Fayette	4.2	4.1	4.0	4.4	4.0	54.2	43.3	65.0	96.3	8.0	6.7	5.0	4.7	3.3	3.7	4.3
111	Birmingham	4.1	4.5	4.4	3.6	5.0	59.2	50.0	68.3	96.0	7.0	7.3	5.3	3.7	3.7	4.0	3.3
112	BGR-TF3	4.1	4.5	4.1	3.8	4.0	60.0	51.7	68.3	97.7	8.0	7.3	4.0	4.0	3.7	3.3	2.7
113	Naturally Green	4.1	4.4	4.5	3.5	3.0	65.8	61.7	70.0	99.0	8.0	8.0	5.7	4.3	4.7	3.7	3.0
114	BAR-FA8230	4.1	4.7	4.3	3.4	5.3	60.8	55.0	66.7	97.7	6.3	6.7	6.0	3.7	3.7	5.0	2.7
115	PST-5DC24	4.1	4.2	3.8	4.3	4.7	51.7	41.7	61.7	97.7	7.7	7.0	5.7	4.0	4.0	3.7	1.7
116	Lafayette	4.0	4.2	4.0	3.9	5.0	48.3	33.3	63.3	99.0	8.0	7.3	6.7	4.7	4.7	5.3	1.0
117	ATF2116	4.0	4.0	4.0	4.0	3.7	50.0	40.0	60.0	96.3	8.3	7.7	5.7	3.7	4.3	3.3	2.3
118	Bravo 2	4.0	4.5	3.8	3.7	3.7	58.3	50.0	66.7	95.0	7.3	6.3	5.0	4.0	3.7	4.3	2.7
119	AST8118LM	4.0	4.9	3.8	3.2	5.7	67.5	55.0	80.0	99.0	8.7	8.3	4.7	3.7	3.3	3.3	2.3
120	SE5STAR	4.0	4.4	3.6	3.9	4.7	54.2	38.3	70.0	97.7	5.7	7.0	5.3	4.3	3.7	4.0	2.7

138

(Continued)

Table 2. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2018 at Adelphia, NJ. Includes all entries from the 2018 National Turfgrass Evaluation Program (NTEP) test.

Cultivar or Selection	Turf Quality ¹				Gray Leaf	Cover ³				Color ⁴		Brown	Texture ⁶	Uniformity ⁷	Density ⁸	Spring
					Spot ²							Patch ⁵				Green-up ⁹
	2018-21	2018-19	2020	2021	Oct 17	Sep 26	Oct 15	Nov 8	Oct 16	Nov 5	Aug 13	Nov 5	Nov 5	Nov 5	Nov 5	Mar 30
	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.	Avg.
121 Palomar	3.8	4.6	3.3	3.6	4.3	66.7	58.3	75.0	97.7	6.7	7.0	4.7	3.3	3.3	3.0	2.7
122 SETFM2	3.7	3.7	3.8	3.5	4.0	50.8	41.7	60.0	96.3	9.0	7.7	5.3	4.3	4.0	4.7	3.0
123 Grand Prix	3.6	3.7	3.6	3.6	3.0	50.8	38.3	63.3	99.0	8.0	7.0	5.0	4.3	4.3	4.7	3.7
124 JT-517	3.6	3.8	3.6	3.5	3.3	51.7	36.7	66.7	96.0	7.7	6.7	5.0	4.0	4.0	4.0	3.3
125 Bandit	3.6	4.0	3.6	3.1	4.0	59.2	46.7	71.7	96.3	7.7	6.7	4.3	4.3	4.0	4.3	2.3
126 Turbo SS	3.6	3.0	4.1	3.6	3.0	52.5	45.0	60.0	96.0	8.7	8.0	5.3	4.3	3.7	6.3	1.3
127 NAI-FQZ-17	3.5	4.0	3.3	3.2	3.7	56.7	45.0	68.3	99.0	7.3	6.7	4.0	3.3	4.0	3.3	3.0
128 Escalade	3.4	3.7	3.4	3.1	3.0	54.2	46.7	61.7	96.0	5.3	6.3	5.0	3.3	3.3	4.0	4.0
129 OG-WALK	3.4	3.6	3.3	3.3	3.7	55.0	48.3	61.7	99.0	7.3	7.3	5.0	3.0	4.3	4.0	2.7
130 RAD-TF0.0	3.3	2.8	4.0	3.0	2.0	44.2	36.7	51.7	96.3	8.7	7.3	5.7	6.0	4.7	6.0	1.0
131 BAR FA 8228	3.0	2.9	3.0	3.2	2.7	50.8	41.7	60.0	99.0	6.0	7.3	5.0	3.3	3.7	3.3	3.3
132 Kentucky-31	1.2	1.3	1.1	1.1	2.0	57.5	56.7	58.3	99.0	1.0	1.0	5.0	1.0	1.3	1.0	4.3
LSD @ 5% =	0.7	1.0	0.8	0.9	1.4	12.2	13.7	14.1	3.1	1.5	1.5	1.6	1.4	1.8	1.7	1.4
CV =	8.7	12.2	9.2	10.7	17.5	12.7	17.7	12.1	2	13.1	15.3	14.3	15.8	19.6	17.4	28.7

¹9 = best turf quality
²9 = least disease
³100 = complete ground cover
⁴9 = darkest color
⁵9 = least disease
⁶9 = finest texture
⁷9 = most uniform
⁸9 = most dense
⁹9 = earliest green up

Table 3. Performance of tall fescue cultivars and selections in a turf trial seeded in August 2019 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			GLS+TEN Injury ² Oct 24, 2019	Brown Patch ³ Jul 20, 2021
	2019-21 Avg.	2019-20 Avg.	2021 Avg.		
1 PK3	6.9	6.8	7.1	8.0	5.3
2 PN1	6.8	6.3	7.3	7.0	6.0
3 PPG-TF 347	6.8	6.5	7.0	5.7	6.3
4 PPG-TF 345	6.7	6.4	7.1	6.7	7.0
5 PK4	6.7	6.5	6.8	7.3	5.0
6 PPG-TF 363	6.7	6.5	6.9	8.0	6.0
7 Providence	6.7	6.7	6.7	5.7	6.7
8 ROS4-19H	6.6	6.4	6.8	5.0	8.0
9 PPG-TF 361	6.6	6.4	6.8	6.0	7.3
10 PPG-TF 349	6.6	6.2	7.0	6.3	7.0
11 PPG-TF 353	6.6	6.1	7.0	5.7	7.7
12 PPG-TF 354	6.6	6.4	6.8	5.7	8.0
13 Clash	6.6	6.2	6.9	7.3	6.0
14 PPG-TF 352	6.5	6.5	6.5	6.7	6.0
15 PN2	6.4	6.4	6.4	6.7	4.7
16 PPG-TF 359	6.4	6.8	6.1	8.0	4.0
17 PK5	6.4	6.6	6.2	6.7	4.0
18 NAI-ROS4	6.4	6.2	6.6	5.7	7.0
19 PK1	6.4	6.4	6.3	7.3	5.3
20 PPG-TF 355	6.4	6.4	6.3	7.7	4.7
21 PPG-TF 364	6.3	6.2	6.4	6.7	6.0
22 PPG-TF 346	6.3	6.2	6.5	7.3	4.3
23 Raptor III	6.3	6.5	6.1	5.7	4.7
24 PPG-TF 362	6.3	6.3	6.3	5.7	6.3
25 PST-5LSS	6.3	6.3	6.2	6.3	5.3
26 PPG-TF 348	6.3	5.9	6.6	6.3	6.7
27 PN3	6.2	6.2	6.3	5.7	5.3
28 PPG-TF 366	6.2	5.9	6.5	6.0	7.7
29 PPG-TF 351	6.2	6.3	6.2	7.0	6.7
30 NAI-3N1	6.2	6.3	6.1	7.3	6.0
31 PKE	6.2	6.2	6.2	7.3	5.0
32 PPG-TF 360	6.2	6.3	6.1	7.3	5.3
33 Regenerate	6.2	6.5	6.0	7.3	6.0
34 PST-5BGG	6.2	5.9	6.4	5.3	6.3
35 Technique	6.2	5.9	6.5	6.0	5.7

(Continued)

Table 3. Performance of tall fescue cultivars and selections in a turf trial seeded in August 2019 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			GLS+TEN Injury ² Oct 24, 2019	Brown Patch ³ Jul 20, 2021
	2019-21 Avg.	2019-20 Avg.	2021 Avg.		
36 Avenger II	6.1	6.0	6.3	6.0	6.7
37 PPG-TF 357	6.1	6.0	6.3	6.7	4.7
38 GTO	6.1	5.8	6.4	7.3	5.7
39 RDC	6.1	5.8	6.4	7.3	6.7
40 Rebounder	6.1	6.6	5.6	7.0	3.3
41 Titanium 2LS	6.1	5.8	6.3	7.0	6.0
42 PK2	6.1	5.9	6.2	7.7	4.3
43 Maestro	6.0	6.1	6.0	6.7	5.7
44 Rockwell	6.0	5.9	6.0	5.3	6.0
45 Firecracker SLS	6.0	5.9	6.1	8.0	6.3
46 Padre 2	6.0	6.1	5.8	6.0	4.7
47 Michelangelo	6.0	5.9	6.0	6.3	4.3
48 PST-5TRN	6.0	6.1	5.7	7.0	6.0
49 Leonardo	6.0	5.8	6.2	7.7	4.7
50 ST17	5.9	6.1	5.8	5.3	6.0
51 Embrace	5.9	5.9	6.0	6.0	5.3
52 PPG-TF 365	5.9	5.9	5.9	6.3	5.3
53 Valkyrie LS	5.9	6.2	5.6	6.7	4.7
54 CT2115-C1	5.9	5.5	6.3	5.7	5.7
55 PST-Sny-5BG19	5.9	5.6	6.2	6.3	5.0
56 NAI ST 5	5.8	6.0	5.6	5.7	6.7
57 PST-5HAF9	5.8	5.7	6.0	6.0	6.0
58 Technique	5.8	5.4	6.2	5.3	6.7
59 PST-5GLBS	5.8	5.4	6.2	5.7	7.3
60 PPG-TF 350	5.8	5.9	5.6	6.3	6.0
61 Slate	5.8	5.5	6.0	7.0	4.3
62 Rowdy	5.8	5.9	5.7	7.7	4.7
63 Traverse 2	5.7	5.7	5.7	4.7	5.7
64 SuperSonic	5.7	5.8	5.6	7.0	5.3
65 PPG-TF 356	5.7	5.9	5.4	6.7	5.0
66 PST-R5DH6	5.7	5.7	5.7	7.0	4.3
67 Reflection	5.7	5.7	5.6	5.3	5.7
68 PST-GLX Ace	5.7	5.8	5.4	6.3	6.7
69 PST-5MCMO	5.7	5.5	5.8	6.7	7.0
70 Genius	5.7	6.0	5.3	8.0	5.7

(Continued)

Table 3. Performance of tall fescue cultivars and selections in a turf trial seeded in August 2019 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			GLS+TEN Injury ² Oct 24, 2019	Brown Patch ³ Jul 20, 2021
	2019-21 Avg.	2019-20 Avg.	2021 Avg.		
71 Foxhound	5.6	5.3	5.9	5.3	4.3
72 Annapolis	5.6	5.4	5.8	5.3	5.0
73 Screamer LS	5.6	5.3	6.0	5.3	5.3
74 Rhambler 2	5.6	5.9	5.4	6.0	4.3
75 Blacktail	5.6	5.9	5.3	6.3	4.0
76 Thor	5.6	5.9	5.4	7.3	5.7
77 Wichita	5.5	5.8	5.3	7.0	3.3
78 Maestro	5.5	5.8	5.3	7.7	6.0
79 PST-5GQ	5.5	5.5	5.6	6.0	5.7
80 Lifeguard	5.5	5.5	5.6	6.3	5.0
81 Tall Boy	5.5	5.6	5.4	5.0	6.7
82 Bloodhound	5.4	5.3	5.6	5.3	5.7
83 Bizem	5.4	5.4	5.5	6.0	5.0
84 PST-5FOE	5.4	5.6	5.3	7.0	4.7
85 SR 8650	5.4	5.6	5.2	5.3	3.0
86 PST-5E6	5.4	5.4	5.4	6.7	4.0
87 Unitus	5.4	5.7	5.0	6.7	3.3
88 Xtender	5.4	5.5	5.2	7.0	6.0
89 PST-5NOG-17	5.3	5.5	5.2	4.3	5.7
90 4th Millennium	5.3	5.8	4.8	6.0	5.3
91 Laqertha	5.3	5.3	5.3	4.7	4.7
92 PPG-TF 358	5.3	5.7	4.8	6.7	5.0
93 Fayette	5.3	5.4	5.2	5.0	5.0
94 Bizem	5.3	5.3	5.3	5.7	4.0
95 PST-5BYOB	5.2	5.4	5.1	5.0	4.3
96 Pro Gold	5.2	5.4	5.1	5.0	6.3
97 GO-GLOK	5.2	5.7	4.7	6.0	6.0
98 PST-5VFD	5.2	5.5	5.0	6.3	4.7
99 Spyder LS	5.2	5.6	4.7	5.7	3.7
100 Inferno	5.1	5.6	4.6	6.0	2.7
101 Copious TF	5.1	6.0	4.2	7.3	2.3
102 Firewall	5.1	4.9	5.3	6.7	3.7
103 PST-5MINK	5.0	5.5	4.6	7.7	4.7
104 Crossfire 4	5.0	5.5	4.5	5.7	3.7
105 Fesnova	5.0	5.4	4.5	6.3	3.3

(Continued)

Table 3. Performance of tall fescue cultivars and selections in a turf trial seeded in August 2019 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			GLS+TEN Injury ² Oct 24, 2019	Brown Patch ³ Jul 20, 2021
	2019-21 Avg.	2019-20 Avg.	2021 Avg.		
106 Renegade DT	5.0	5.3	4.6	4.7	2.7
107 Temple	5.0	5.2	4.7	5.0	4.3
108 Rhizing Moon	5.0	5.3	4.7	6.0	4.0
109 PST-5SQB	5.0	5.3	4.6	6.0	5.3
110 Houndog 8	5.0	5.1	4.8	7.7	3.7
111 Grande 3	4.9	4.9	5.0	4.3	5.0
112 Tango	4.9	5.1	4.8	4.7	3.3
113 Lafayette	4.9	5.3	4.5	6.0	3.3
114 Mustang 4	4.9	4.9	5.0	4.3	4.0
115 Bandit	4.9	5.4	4.3	5.3	1.7
116 Falcon IV	4.8	5.1	4.7	4.3	3.0
117 Tribute II	4.8	5.1	4.5	5.7	3.0
118 Nightcrawler	4.8	5.1	4.5	6.7	3.7
119 Renegade H2O	4.8	5.1	4.4	4.7	4.0
120 Crossfire 3	4.8	5.2	4.4	5.0	1.7
121 Guardian 41	4.8	5.0	4.6	5.0	3.7
122 PST-5DZM	4.8	5.2	4.3	5.7	3.3
123 Turfway	4.8	5.1	4.5	6.7	4.7
124 PST-5ZRX	4.7	4.9	4.6	3.7	4.0
125 Rodin	4.7	4.9	4.5	4.7	4.3
126 Bravo 2	4.7	4.9	4.6	5.7	3.3
127 NAI-SST-18	4.7	5.1	4.3	5.7	3.7
128 Dynamite LS	4.7	5.3	4.1	6.3	3.7
129 Birmingham	4.7	4.9	4.5	6.7	4.3
130 Garrison	4.7	4.8	4.7	7.0	2.3
131 PST-5DC24	4.7	5.2	4.3	7.0	4.0
132 Memphis	4.7	5.3	4.1	6.0	6.0
133 PST-5ZIP	4.7	4.7	4.7	6.7	4.0
134 Meridian	4.7	4.9	4.5	4.3	4.0
135 JT-251	4.7	5.2	4.1	5.3	4.7
136 Saltillo	4.6	4.9	4.4	5.0	5.0
137 Jamboree	4.6	4.6	4.7	7.0	5.3
138 Essential	4.6	4.6	4.6	7.3	5.0
139 Speedway	4.6	4.4	4.7	5.3	2.7
140 Diablo	4.6	5.1	4.0	8.0	4.7

(Continued)

Table 3. Performance of tall fescue cultivars and selections in a turf trial seeded in August 2019 at Adelphia, NJ.

Cultivar or Selection	-----Turf Quality ¹ -----			GLS+TEN Injury ² Oct 24, 2019	Brown Patch ³ Jul 20, 2021
	2019-21 Avg.	2019-20 Avg.	2021 Avg.		
141 Venture	4.5	4.5	4.6	6.3	5.3
142 Kingdom	4.5	5.2	3.9	8.0	3.3
143 Blade Runner II	4.4	4.5	4.4	4.3	2.7
144 Terrano	4.4	4.7	4.2	8.0	3.3
145 Monet	4.3	4.3	4.4	4.3	4.7
146 Esclade	4.3	4.2	4.3	5.3	2.0
147 Houndog 6	4.3	4.6	3.9	5.0	3.0
148 Quest	4.2	4.3	4.2	5.0	2.0
149 Siesta	4.1	4.7	3.6	5.0	2.7
150 Thunderstruck	4.1	5.1	3.2	5.3	3.3
151 GO-MNKY	4.1	4.7	3.5	5.7	3.3
152 Flame	4.1	4.8	3.4	5.7	2.7
153 GWR-18	4.1	4.3	3.8	6.3	2.7
154 Palmer	4.1	4.1	4.0	4.3	3.3
155 06-WALK	4.1	4.0	4.2	6.0	3.0
156 Da Vinci	4.0	4.2	3.9	3.7	3.0
157 Darlington II	4.0	4.5	3.4	7.3	2.0
158 Summer	3.8	4.5	3.2	6.7	2.3
159 JT-783	3.7	4.4	3.0	6.3	2.0
160 GO-FNKY	3.6	4.2	3.0	6.0	4.0
161 PST-5SLF	3.3	3.1	3.6	2.7	3.0
LSD @ 5% =	0.7	0.7	0.8	1.9	2.5
CV	7.5	8.2	9.9	19.1	33.3

¹9 = best turf quality

²9 = least disease and tenacity damage in combination due to chemical injury.
Further testing is needed to indicate gray leaf spot resistance

³9 = least disease

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2020 at Adelphia, NJ

Cultivar or Selection	Turf Quality ¹ 2021 Avg.
1 20TF20	7.4
2 PPG-TF 262	7.2
3 20TF13	7
4 TMT1	6.9
5 20TF14	6.9
6 PPG-TF 368	6.8
7 PST-5NOG-17	6.8
8 Capitan	6.7
9 Raptor LS	6.7
10 PPG-TF 343	6.7
11 PPG-TF 369	6.7
12 Temple	6.7
13 Providence	6.6
14 Regenerate	6.6
15 Titanium G-LS	6.6
16 Rover	6.6
17 Bizem	6.6
18 20TF05	6.6
19 20TF10	6.6
20 20TF15	6.6
21 20TF16	6.6
22 20TF19	6.6
23 Lagertha	6.5
24 Avenger III	6.5
25 Firecracker GLS	6.5
26 Technique	6.5
27 NAI-ST5-18	6.5
28 FA20PW5-S1	6.5
29 Nano	6.5
30 Teacher	6.5
31 Rowdier	6.4
32 Honeymoon	6.4
33 Avenger II	6.4
34 Dynamite GLS	6.4
35 FA20BSL-S1	6.4

(Continued)

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2020 at Adelphia, NJ

Cultivar or Selection	Turf Quality ¹ 2021 Avg.
36 FA20RUC-S1	6.4
37 PVF-PW4-2020	6.4
38 PPG-TF 381	6.4
39 PPG-TF 388	6.4
40 PVF-MFM-2020	6.3
41 PPG-TF 391	6.3
42 PST-5HAF9	6.3
43 PST-5LSS	6.3
44 PST-5VFD	6.3
45 3N1	6.3
46 20TF06	6.3
47 DLFPS-321/3693	6.2
48 DLFPS-321/3695	6.2
49 Essential 2	6.2
50 Raptor III	6.2
51 NAI-ROS4	6.2
52 PPG-TF 371	6.2
53 PPG-TF 372	6.2
54 PPG-TF 389	6.2
55 PPG-TF 249	6.2
56 PPG-TF 267	6.2
57 Tank	6.2
58 Talladega II	6.2
59 Bonfire	6.2
60 Padre 2	6.2
61 MSS	6.2
62 Raceway	6.1
63 DLFPS-321/3711	6.1
64 PPG-TF 370	6.1
65 PST-5GQ	6.1
66 PST-5MCMO	6.1
67 PST-R5DH6	6.1
68 Rhambler 2	6.1
69 20TF11	6.1
70 GTO	6

(Continued)

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2020 at Adelphia, NJ

Cultivar or Selection	Turf Quality ¹ 2021 Avg.
71 RH1	6
72 RH3	6
73 Tall Boy	6
74 Blacktail	6
75 Tough	6
76 Thor	6
77 Monument	6
78 20TF07	6
79 Foxhound	5.9
80 Rebounder	5.9
81 Hounddog Nine	5.9
82 DLFPS-321/3708	5.9
83 Fesnova	5.9
84 Rockwell	5.9
85 Stealth	5.9
86 Valkyrie LS	5.9
87 RDC	5.9
88 PVF-PW6-2020	5.9
89 PST-5BGG	5.9
90 Traverse 2	5.9
91 Tycoon	5.9
92 Triad	5.9
93 Technique	5.9
94 20TF12	5.9
95 Rowdy	5.8
96 Gallardo	5.8
97 Wichita	5.8
98 Screamer LS	5.8
99 Spyder 2LS	5.8
100 PVF-BestComp2020+	5.8
101 PVF-RJS-2020	5.8
102 PVF-JRW-2020	5.8
103 PPG-TF 373	5.8
104 PST-5E6	5.8
105 Lifeguard	5.8

(Continued)

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2020 at Adelphia, NJ

Cultivar or Selection	Turf Quality ¹ 2021 Avg.
106 PST-Syn-5RSS	5.8
107 Wolfpack III	5.8
108 Blacktail	5.8
109 4th Millennium	5.8
110 DLFPS-321/3694	5.7
111 DLFPS-321/3707	5.7
112 Genius	5.7
113 Firecracker SLS	5.7
114 FA20PW1-S1	5.7
115 Renegade DT	5.7
116 Crossfire 4	5.6
117 Bladerunner 3	5.6
118 DLFPS-321/3703	5.6
119 Bentley	5.6
120 NAI-SST-18	5.6
121 Padre 2	5.6
122 PVF-HSY-RR-2020	5.6
123 PST-5DZM	5.6
124 Dynamic II	5.6
125 Firewall	5.5
126 TF/3553	5.5
127 DLFPS-321/3706	5.5
128 Memphis	5.5
129 Spyder LS	5.5
130 PVF-RSE-2020	5.5
131 Falcon IV	5.5
132 Traverse 2	5.5
133 20TF03	5.5
134 TSS	5.5
135 SR 8650	5.4
136 Trending	5.4
137 Michaelangelo	5.4
138 PST-5GLBS	5.4
139 Wolfpack III	5.4
140 PST-5ZRX	5.4

(Continued)

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2020 at Adelphia, NJ

Cultivar or Selection	Turf Quality ¹ 2021 Avg.
141 Kizzle	5.4
142 Bizem	5.3
143 PPG-TF 312	5.3
144 PST-5FOE	5.3
145 Saltillo	5.3
146 Endeavor II	5.3
147 Rhizing Moon	5.2
148 MNKY	5.2
149 Renegade H2O	5.2
150 Bravo 2	5.2
151 Nightcrawler	5.1
152 Grande 3	5.1
153 Hounddog 8	5.1
154 Turfway	5.1
155 Terrano	5.1
156 Titanium 2LS	5.1
157 Lafayette	5
158 Dynamite LS	5
159 Supersonic	5
160 Inferno	5
161 Kingdom	5
162 Olympus	4.9
163 Thunderstruck	4.9
164 Fayette	4.8
165 Standout	4.8
166 Rodin	4.8
167 Duration	4.8
168 Unitus	4.7
169 Tribute II	4.7
170 PST-5DC320	4.7
171 Tar Heel II	4.7
172 Copious TF	4.7
173 Bandit	4.7
174 Duration	4.6
175 Mustang 4	4.5

(Continued)

Table 4. Performance of tall fescue cultivars and selections in a turf trial seeded in September 2020 at Adelphia, NJ

Cultivar or Selection	Turf Quality ¹ 2021 Avg.
176 Birmingham	4.4
177 Stingray	4.2
178 Armani	4.1
179 PST-5FDR	3.2
180 Falcon H2O	2.4
LSD @ 5%=	0.859
CV=	9.225

¹9 = best turf quality

Table 5. Yearly nitrogen (N) applied and mowing height (Ht) on tall fescue trials.

	----- 2018 -----		----- 2019 -----		----- 2020 -----		----- 2021 -----	
	N ¹	Ht ²	N	Ht	N	Ht	N	Ht
Table 1 (2018)	2.55	1.5	4.5	1.5	3.5	2.5	2.75	2.5
Table 2 (2018)	2.05	1.5	5	1.5	3.5	1.5	3.75	1.5
Table 3 (2019)	–	–	1.25	1.5	2.25	2.5	3.75	2.5
Table 4 (2020)	–	–	–	–	2	2.5	3.75	2.5

¹Annual N applied (lb/1000 ft²)

²Mowing height (inches)