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2019 National Turfgrass Evaluation Program Bermudagrass Test: 2022 Data

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TURFGRASS RESEARCH
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2019 National Turfgrass Evaluation Program Bermudagrass Test: 2022 Data[1]

Linda R. Parsons and Jason J. Griffin

Summary

Kansas represents the northernmost region in the central United States where bermudagrass (*Cynodon* spp.) can be successfully grown as a perennial turfgrass. Historically, few cultivars that have both acceptable quality and adequate cold tolerance have been available to local growers. Because new introductions are continually being selected for improved hardiness and quality, both seeded and vegetative types need regular evaluation to determine their long-range suitability for use in Kansas.

Rationale

The National Turfgrass Evaluation Program (NTEP) organizes evaluation trials of turfgrass species nationwide to look at cultivar adaptation under all types of environmental conditions. Wichita, KS, was selected as a standard trial site for the 2019 National Bermudagrass Test.

Objective

The objective of this study was to evaluate seeded and vegetative bermudagrass cultivars under an athletic field/home lawn maintenance schedule and south central Kansas conditions and submit data collected to the National Turfgrass Evaluation Program.

Study Description

On July 9–10, 2019, 13 seeded and 22 vegetative bermudagrass cultivars and experimental accessions were planted in 105 study plots (6- × 6-ft) in a randomized complete block design with three replications at the John C. Pair Horticultural

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

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Center in Wichita, KS. Seeded plots were protected with lightweight row cover until germination was complete. Once established, we applied glyphosate herbicide between rows as needed to maintain individual plot separation.

We started off the fourth year of the study by applying Stonewall (Prodiamine) pre-emergent herbicide for crabgrass control on April 15, 2022, at 1.15 lb/a and then maintained plot integrity throughout the growing season using a 2% solution of glyphosate as needed. We fertilized the turf with urea (46-0-0) at 1.0 lb N/1000 ft^2 on April 19 and July 14. We treated the plots for grubs on June 14 with Lawn Grub Control (Imidacloprid) at 1.6 pts/a and immediately watered it in. We mowed weekly during the growing season at 2.25 to 2.75 inches and returned clippings. We irrigated as necessary to prevent dormancy at approximately 1 inch per event.

On May 6, 2022, we rated turf spring greenup followed by stand quality on May 18, June 15, July 13, August 16, and September 27. We collected data on the absence of seedheads on August 16, genetic color on August 17, texture on August 17, and fall color retention on October 25. We collected percent cover data on November 9, 2021, and May 18, 2022. We rated percent cover visually on a scale of 0% to 99%. Spring greenup, quality, genetic color, texture, the absence of seedheads, and fall color retention were all rated visually on a scale of 1 to 9 (1 = poorest, 6 = acceptable, and 9 = optimum measure).

Results

We started the 2022 growing season by rating the bermudagrass in early May for spring greenup (Table 1). At that time, vegetative type JSC 80V and seeded types JSC 2013-10S and JSC 2013-5S were the greenest. We rated the turf monthly for quality from mid-May through the end of September. Quality ratings were influenced by degree of cover, weed infestation, and disease resistance as well as turf color, texture, and density. In the monthly ratings, seeded types 'Riviera', JSC 2013-10S, JSC 2013-12S, and JSC 2013-5S looked the best in May; JSC 2013-10S in June; Riviera, and JSC 2013-12S in July; Riviera in August; and 'Monaco', Riviera, and JSC 2013-10S in September. Of the vegetative types, JSC 80V and OKC1666 looked the best in May; OKC1406 in June; JSC 80V and OKC1666 in July; OKC1666 in August; and OKC1666 in September. The best overall performers for the summer were seeded type Riviera and vegetative type OKC1666.

During the course of the summer, we looked at turf genetic color and texture (Table 2) and found that vegetative variety MSS-1075 was the darkest green and that the darkest green seeded variety was JSC 2013-5S. Vegetative type OKC1666 had the finest texture. Of the seeded types, Monaco and Riviera were the most finely textured. In August, we rated seed head display and found that vegetative varieties MSB-1026 and MSB-1042 had the fewest seedheads. Of the seeded types, Monaco, and Riviera had the fewest seedheads. In September, we rated fall color retention and found that vegetative variety MSB-1042 retained its color the longest. Of the seeded types, JSC 2013-10S retained its color the best.

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Bermudagrass cover for some cultivars deteriorates over the winter and then improves again during the growing season. As cover variability could be indicative of winter hardiness, we decided to compare percent cover in September 2021 with percent cover in May 2022 to look at over-winter variability as a possible reflection of winter damage (Table 2). The cultivars with the best fall percent cover and least over-winter variability (least percent cover change from September to May) were vegetative type MSB-1042 and seeded type JSC 2013-10S.

Complete 2022 National Bermudagrass Test results and more information on NTEP can be found online at: *http://www.ntep.org/*.

Table 1. 2022 spring greenup and quality of bermudagrass cultivars at Wichita, KS[1]

Cultivar/ experimental number	Seeded/ vegetative	Spring greenup	Quality					
			May	June	July	Aug.	Sep.	Avg.
OKC1666	V	5.0	6.0	7.7	5.7	8.0	6.3	6.7
JSC 80V	V	6.0	6.0	7.0	5.7	7.0	5.0	6.1
OKC1406	V	5.3	4.7	8.0	5.3	6.7	4.7	5.9
MSB-1042	V	4.7	5.0	6.7	5.0	7.3	5.0	5.8
*Riviera[2]	S	5.0	4.7	5.7	5.3	7.0	6.0	5.7
*Tiftuf	V	3.3	4.7	6.3	5.3	7.0	5.3	5.7
*Latitude 36	V	5.0	4.7	6.3	5.0	7.3	5.0	5.7
JSC 77V	V	5.3	4.7	6.3	5.0	7.0	5.3	5.7
JSC 2013-10S	S	5.3	4.7	6.0	5.0	6.3	6.0	5.6
OKC1682	V	5.3	5.0	5.3	5.0	6.3	5.3	5.4
JSC 2013-12S	S	4.3	4.7	5.3	5.3	6.3	5.3	5.4
*Astro	V	4.7	4.3	5.3	5.0	6.7	5.3	5.3
*Tahoma 31	V	5.0	5.0	5.7	4.7	6.0	5.3	5.3
*Monaco	S	4.3	4.0	5.7	4.7	6.0	6.0	5.3
JSC 2013-5S	S	5.3	4.7	5.3	4.7	6.3	5.0	5.2
JSC 2013-8S	S	4.0	4.3	5.0	5.0	6.3	5.0	5.1
JSC 2013-7S	S	4.7	4.3	5.0	5.0	5.7	5.3	5.1
OKS2015-3	S	4.7	4.3	5.0	4.7	6.0	5.3	5.1
OKS2015-1	S	4.0	4.0	5.0	5.0	6.0	5.0	5.0
OKC1876	V	3.0	4.0	5.0	5.0	6.3	4.3	4.9
OKC1873	V	3.0	3.3	4.3	5.3	6.3	5.0	4.9
*Sun Queen (PST-R6MM)	S	3.7	3.3	4.3	4.7	6.3	5.3	4.8
DLF-460/3048	S	4.0	4.0	4.3	5.0	6.0	4.7	4.8
MSB-1017	V	2.7	3.3	6.0	4.3	6.0	4.3	4.8
*Tifway	V	2.0	3.0	5.0	5.3	6.0	4.3	4.7
MSB-1048	V	1.0	3.0	5.3	4.3	6.0	4.7	4.7
FB 1628	V	2.7	3.3	4.3	4.7	5.7	4.7	4.5

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Table 1. 2022 spring greenup and quality of bermudagrass cultivars at Wichita, KS[1]

Cultivar/ experimental number	Seeded/ vegetative	Spring greenup	Quality					
			May	June	July	Aug.	Sep.	Avg.
FB 1902	V	2.0	2.3	4.0	5.0	6.3	5.0	4.5
P5T-R6TM	S	2.7	3.0	4.0	4.3	6.0	5.0	4.5
OKS2015-7	S	4.3	3.7	4.0	4.0	5.3	5.0	4.4
MSB-1026	V	3.3	3.3	4.7	4.0	5.0	4.3	4.3
FB 1630	V	2.0	2.0	3.3	4.7	6.0	5.0	4.2
FB 1903	V	1.3	2.0	3.0	4.7	6.0	5.3	4.2
MSB-1050	V	1.3	1.7	3.7	4.3	4.7	4.0	3.7
MSS-1075	V	2.0	1.3	3.0	3.0	4.0	3.3	2.9
LSD[3]		1.3	1.1	1.2	1.7	1.1	0.8	0.6

[1]Visual ratings were based on a scale of 1 to 9 (1 = poorest measure, 6 = acceptable, and 9 = optimum measure).
[2]Cultivars marked with "*" are commercially available.
[3]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.

Table 2. 2022 genetic color, texture, absence of seed heads, and fall color retention[1]; 2021 fall percent cover and 2022 spring percent cover[2] of bermudagrass cultivars at Wichita, KS

Cultivar/ experimental number	Seeded/ vegetative	Gen. color	Texture	Seed heads	Fall color	2021 Fall % cover	2022 Spring % cover
OKC1666	V	4.0	8.7	8.0	4.3	93.0	88.3
JSC 80V	V	3.7	7.7	6.0	2.0	86.7	93.0
OKC1406	V	5.0	6.3	3.7	2.3	96.3	84.3
MSB-1042	V	5.3	8.0	8.7	4.7	93.0	91.7
*Riviera[3]	S	6.0	5.7	7.0	2.7	85.0	86.7
*Tiftuf	V	6.0	6.3	5.7	3.3	96.0	86.7
*Latitude 36	V	5.7	7.7	7.7	3.3	86.7	83.3
JSC 77V	V	5.0	6.0	3.7	2.3	85.0	90.0
JSC 2013-10S	S	7.0	4.3	6.0	3.7	94.3	90.0
OKC1682	V	5.0	6.7	7.7	3.3	97.7	86.0
JSC 2013-12S	S	6.7	4.7	5.7	2.3	89.7	86.0
*Astro	V	3.0	6.3	8.0	2.0	88.0	81.7
*Tahoma 31	V	6.7	6.7	7.0	2.0	94.7	86.7
*Monaco	S	7.0	5.7	7.0	2.0	86.3	73.3
JSC 2013-5S	S	7.7	5.3	4.7	3.0	97.7	85.0
JSC 2013-8S	S	6.7	5.3	5.0	2.0	99.0	81.7

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Table 2. 2022 genetic color, texture, absence of seed heads, and fall color retention[1]; 2021 fall percent cover and 2022 spring percent cover[2] of bermudagrass cultivars at Wichita, KS

Cultivar/ experimental number	Seeded/ vegetative	Gen. color	Texture	Seed heads	Fall color	2021 Fall % cover	2022 Spring % cover
JSC 2013-7S	S	7.3	5.0	4.3	2.7	93.0	82.7
OKS2015-3	S	6.3	5.3	6.0	2.7	91.0	73.3
OKS2015-1	S	6.0	4.7	5.7	2.3	94.3	81.7
OKC1876	V	6.3	5.7	6.7	3.0	99.0	78.3
OKC1873	V	5.3	5.3	8.0	2.7	86.3	68.3
*Sun Queen (PST-R6MM)	S	4.3	5.0	4.7	2.0	96.0	77.7
DLF-460/3048	S	5.3	5.0	4.7	2.0	93.0	77.7
MSB-1017	V	6.3	6.3	8.0	3.7	99.0	68.3
*Tifway	V	7.0	6.3	7.7	3.0	93.0	60.0
MSB-1048	V	6.0	7.7	8.0	4.3	99.0	53.3
FB 1628	V	7.3	5.3	3.7	3.3	96.0	70.0
FB 1902	V	6.7	5.0	4.7	2.7	99.0	40.0
P5T-R6TM	S	5.0	4.3	4.7	2.0	85.0	63.3
OKS2015-7	S	6.0	4.3	6.0	2.0	86.3	78.3
MSB-1026	V	7.3	5.0	8.7	4.0	96.0	70.0
FB 1630	V	8.0	4.0	3.3	2.3	91.7	45.0
FB 1903	V	8.3	4.3	5.3	2.7	75.0	23.3
MSB-1050	V	7.3	6.3	8.3	3.3	94.3	25.0
MSS-1075	V	9.0	4.0	5.0	2.7	86.3	18.3
LSD[4]		1.1	1.0	0.7	0.8	14.2	12.9

[1]Visual ratings were based on a scale of 1 to 9 (1 = poorest measure, 6 = acceptable, and 9 = optimum measure).
[2]Percent cover was rated visually on a scale of 0% to 100%.
[3]Cultivars marked with "*" are commercially available.
[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.

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