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2019 National Turfgrass Evaluation Program Bermudagrass Test: 2023 Data

Linda R. Parsons
Kansas State University, lparsons@ksu.edu

Jason J. Griffin
Kansas State University, jgriffin@ksu.edu

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2024

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2019 National Turfgrass Evaluation Program Bermudagrass Test: 2023 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 subject to south central Kansas growing conditions and following an athletic field/home lawn maintenance schedule, and to submit data 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 6- × 6-ft study plots in a randomized complete block design with three replications at the John C. Pair Horticultural Center in

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

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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 fifth year of the study by applying Stonewall 65WDG (prodiamine) preemergent herbicide for crabgrass control at 1.15 lb/acre on April 3 and watering it in on April 6 with 1 inch of irrigation. On April 11, we put down the broadleaf herbicide Triad Select at 4 pts/acre. We 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/1,000 ft^2 on April 21 and June 30 and watered it in. We treated the plots for grubs on June 14 with Bandit (imidacloprid) at 1.6 pts/acre and 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 9, 2023, we rated turf spring green up followed by stand quality on May 24, June 27, July 25, August 30, and September 20. We rated the plots for absence of seedheads on July 26, genetic color on July 26, texture on August 15, and fall color retention on October 13. We collected percent cover data on September 28, 2022, and May 24, August 8, and September 27, 2023. We rated percent cover visually on a scale of 0% to 99%. Spring green up, quality, genetic color, texture, the absence of seedheads, and fall color retention were all rated visually on a scale of 1 to 9 with 1 = poorest measure, 6 = acceptable, and 9 = optimum measure. We analyzed the data using SAS PROCs SUMMARY and ANOVA.

Results

We started the 2023 growing season by rating the bermudagrass in late May for spring green up (Table 1). At that time, vegetative type 'Tahoma 31' and 'Latitude 36' and seeded type OKS2015-7 were the greenest. We rated the turf monthly for quality from late May through late 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, vegetative types JSC 80V and MSB-1042 looked the best in May; 'Latitude 36' in June; 'Latitude 36' and 'Tiftuf' in July; OKC1666 in August; and 'Latitude 36' and 'Tiftuf' in September. Of the seeded types, 'Riviera', JSC 2013-10S, and OKS2015-1 looked the best in May; OKS2015-1 and OKS2015-3 in June; JSC 2013-10S and JSC 2013-12S in July; 'Monaco' and 'Riviera' in August; and JSC 2013-5S in September. The best overall performers for the summer were vegetative types 'Latitude 36', JSC 80V, and OKC1666 and seeded types JSC 2013-10S and OKS2015-3.

Over the course of the summer, we looked at turf genetic color and texture (Table 2) and found that vegetative variety FB 1903 was the darkest green and that the darkest green seeded variety was JSC 2013-7S. MSB-1042 was the most finely textured vegetative type and 'Monaco' the most finely textured seeded type. In July, we rated seed head display and found that vegetative variety MSB-1042 had the fewest seed heads.

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Of the seeded types, MSB-1042 had the fewest seed heads. In October, we rated fall color retention and found that vegetative variety OKC1873 retained its color the longest. Of the seeded types, OKS2015-1 retained its color the best.

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 2022 with percent cover in May 2023 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 overwinter variability (least percent cover change from September to May) were vegetative type MSB-1042 and seeded types JSC 2013-5S and JSC 2013-5S. The cultivars with the greatest overwinter variability were vegetative types MSB-1050, MSS-1075, and FB 1903. The seeded types with the greatest overwinter variability were 'Monaco' and JSC 2013-7S. By July, only vegetative FB 1903, MSS-1075, FB 1630, and JSC 80V plots and seeded OKS2015-7 plots showed less than 90% cover.

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

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Table 1. 2023 spring green up and quality of bermudagrass cultivars at Wichita, KS.[1] Data sorted by best average quality.

Cultivar/ Experimental Number	Seeded/ Vegetative	Spring Green up	Quality					
			May	Jun.	Jul.	Aug.	Sep.	Avg.
*Latitude 36[2]	V	4.3	4.3	6.7	6.0	7.0	6.3	6.1
JSC 80V	V	3.7	5.3	6.3	5.3	6.3	5.7	5.8
OKC1666	V	3.3	4.3	6.3	5.0	7.7	5.3	5.7
JSC 2013-10S	S	3.3	4.7	5.0	6.3	6.3	5.7	5.6
OKS2015-3	S	3.3	4.3	5.7	5.7	6.7	5.7	5.6
*Riviera	S	3.0	4.0	5.3	6.0	6.7	5.7	5.5
*Tiftuf	V	2.7	4.0	5.3	6.0	6.3	6.0	5.5
JSC 2013-5S	S	3.7	4.3	5.3	5.7	6.3	6.0	5.5
MSB-1042	V	3.7	5.3	6.0	5.3	5.7	5.3	5.5
OKS2015-1	S	3.7	4.7	5.7	6.0	6.0	5.3	5.5
JSC 2013-12S	S	3.3	3.7	5.0	6.3	6.7	5.7	5.5
JSC 2013-8S	S	3.0	4.0	5.3	6.0	6.7	5.3	5.5
*Monaco	S	3.0	4.0	5.0	5.7	6.7	5.7	5.4
*Astro	V	3.0	4.3	5.0	5.7	6.3	5.3	5.3
JSC 77V	V	3.3	4.0	5.3	5.3	6.3	5.7	5.3
OKC1406	V	3.7	5.0	5.3	5.0	6.3	5.0	5.3
*Tahoma 31	V	5.0	4.7	5.0	5.0	5.7	5.7	5.2
FB 1902	V	2.0	3.0	5.0	5.7	6.7	5.3	5.1
JSC 2013-7S	S	2.7	3.3	4.7	6.0	6.3	5.3	5.1
OKC1873	V	2.0	3.0	4.3	5.3	7.0	5.7	5.1
*Tifway	V	2.0	4.0	5.3	5.0	6.0	4.7	5.0
OKS2015-7	S	4.0	4.0	5.0	4.7	5.7	5.0	4.9
DLF-460/3048	S	3.3	3.3	4.7	5.0	6.0	5.0	4.8
OKC1682	V	3.7	3.7	4.0	5.0	5.7	5.7	4.8
*Sun Queen (PST-R6MM)	S	2.7	3.3	4.3	5.0	6.0	5.0	4.7
OKC1876	V	2.3	3.3	4.3	5.3	6.0	4.7	4.7
FB 1628	V	2.3	3.3	4.3	5.0	5.7	5.0	4.7
MSB-1048	V	1.0	2.7	5.0	5.0	6.0	4.7	4.7
FB 1903	V	1.3	2.0	3.3	5.0	6.3	5.7	4.5
P5T-R6TM	S	2.3	3.0	4.0	5.0	5.3	5.0	4.5
FB 1630	V	2.0	2.7	3.7	4.7	6.3	5.0	4.5
*Celebration Hybrid (MSB-1017)	V	2.0	3.0	4.0	5.0	5.3	4.7	4.4
MSB-1026	V	2.0	2.3	3.7	4.7	5.0	4.7	4.1
MSB-1050	V	1.3	2.0	3.3	4.3	5.0	4.7	3.9

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Table 1. 2023 spring green up and quality of bermudagrass cultivars at Wichita, KS.[1] Data sorted by best average quality.

Cultivar/ Experimental Number	Seeded/ Vegetative	Spring Green up	Quality					
			May	Jun.	Jul.	Aug.	Sep.	Avg.
MSS-1075	V	1.7	2.0	2.7	3.7	3.7	3.7	3.1
LSD[3]		0.9	1.0	1.1	1.1	0.8	0.9	0.5

[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. 2023 genetic color, texture, absence of seed heads, and fall color retention[1]; 2022 fall percent cover and 2023 spring and summer percent cover[2] of bermudagrass cultivars at Wichita, KS. Data sorted by best average quality.

Cultivar/ Experimental Number	Seeded/ Vegetative	Gen. Color	Texture	Seed Heads	Fall Color	% Cover		
						Fall 2022	Spring 2023	Summer 2023
*Latitude 36[3]	V	5.3	7.3	8.7	3.0	93.0	51.7	93.3
JSC 80V	V	4.3	7.3	8.0	4.0	94.3	69.7	89.3
OKC1666	V	4.0	8.0	8.7	5.3	97.7	65.0	97.7
JSC 2013-10S	S	6.0	6.0	6.3	3.0	97.7	61.7	99.0
OKS2015-3	S	5.3	6.0	7.7	3.7	97.7	58.3	99.0
*Riviera	S	6.0	6.0	7.3	3.0	91.0	58.3	91.0
*Tiftuf	V	6.0	7.0	6.7	4.3	99.0	68.3	99.0
JSC 2013-5S	S	6.7	5.7	6.7	3.3	99.0	65.0	97.7
MSB-1042	V	5.3	8.3	9.0	4.0	99.0	76.7	96.0
OKS2015-1	S	6.0	6.0	7.0	4.7	99.0	65.0	99.0
JSC 2013-12S	S	6.0	6.0	6.0	3.3	99.0	50.0	96.0
JSC 2013-8S	S	6.3	5.7	5.7	3.0	94.7	51.7	96.3
*Monaco	S	6.0	6.3	6.7	3.0	94.3	40.0	92.7
*Astro	V	4.3	6.7	8.7	5.0	91.3	65.0	93.0
JSC 77V	V	5.3	7.0	6.3	3.0	92.7	53.3	94.3
OKC1406	V	5.0	7.0	7.0	3.3	99.0	70.0	99.0
*Tahoma 31	V	7.0	6.7	7.7	3.3	97.7	75.0	99.0
FB 1902	V	6.7	6.0	5.3	4.0	94.3	58.3	97.7
JSC 2013-7S	S	7.0	6.0	5.7	3.0	99.0	45.0	99.0
OKC1873	V	6.0	7.0	7.7	6.0	97.7	53.3	96.0
*Tifway	V	6.3	6.7	7.7	4.3	96.0	58.3	97.7
OKS2015-7	S	5.3	5.7	6.7	3.0	93.0	60.0	86.0

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Table 2. 2023 genetic color, texture, absence of seed heads, and fall color retention[1]; 2022 fall percent cover and 2023 spring and summer percent cover[2] of bermudagrass cultivars at Wichita, KS. Data sorted by best average quality.

Cultivar/ Experimental Number	Seeded/ Vegetative	Gen. Color	Texture	Seed Heads	Fall Color	% Cover		
						Fall 2022	Spring 2023	Summer 2023
DLF-460/3048	S	5.7	6.0	7.0	3.0	99.0	46.7	99.0
OKC1682	V	5.7	6.7	7.3	3.3	94.3	53.3	99.0
*Sun Queen (PST-R6MM)	S	5.3	5.7	6.0	3.0	97.7	55.0	96.0
OKC1876	V	6.0	7.0	7.3	3.7	99.0	53.3	99.0
FB 1628	V	7.3	6.0	4.3	4.0	97.7	63.3	97.7
MSB-1048	V	6.7	7.7	8.3	3.3	99.0	45.0	99.0
FB 1903	V	8.7	5.0	5.7	4.3	81.7	19.0	70.0
P5T-R6TM	S	5.3	5.7	6.3	4.0	85.0	36.7	90.0
FB 1630	V	8.0	5.0	3.7	3.3	91.7	35.0	86.7
*Celebration Hybrid (MSB-1017)	V	6.7	7.3	8.0	3.0	99.0	56.7	97.7
MSB-1026	V	7.3	6.0	8.7	3.0	94.7	40.0	94.3
MSB-1050	V	7.0	6.7	8.7	2.7	97.7	18.3	90.0
MSS-1075	V	8.3	4.3	3.7	4.7	85.0	21.7	83.3
LSD[4]		0.8	0.8	1.1	0.7	14.3	20.1	13.3

[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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