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2019 National Turfgrass Evaluation Program Bermudagrass Test: 2019–2020 Data

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2019 National Turfgrass Evaluation Program Bermudagrass Test: 2019–2020 Data[1]

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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 of turfgrass species nationwide to evaluate cultivars 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 in 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 6- × 6-ft study plots in a randomized complete block design with three replications at the John C. Pair Horticultural Center in Wichita, KS. Seeded plots were protected with lightweight row cover until germina-

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

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tion was complete. During the remainder of the year, we fertilized the plots with urea (46-0-0) on August 7 at 1.0 lb N/1000 ft^2 and August 21 at 0.5 lb N/1000 ft^2. We applied Triplet SF herbicide on August 5 and August 15 and glyphosate herbicide between rows as needed to maintain individual plot separation. Once established, plots were mowed weekly throughout the remainder of the growing season at 2.25 to 2.75 inches and clippings returned. Irrigation was applied at approximately 1 inch per event as necessary to prevent dormancy.

During the summer of 2020, plots were fertilized at 0.25 to 0.50 lb N/1000 ft^2 per growing month. Mowing was done weekly during the growing season at 2.25 to 2.75 inches and clippings returned. Irrigation was done as necessary at approximately 1 inch per event to prevent dormancy, and weeds and insects were controlled as needed.

We collected percent cover data on September 26, 2019, May 26, 2020, and July 22, 2020. Percent cover was rated visually on a scale of 0% to 100%. On May 5, 2020, we rated turf spring green up followed by stand quality on May 26, June 23, July 21, August 26, and September 23. We collected data on absence of seedheads on June 23, genetic color on August 12, and texture on September 30. Spring green up, quality, absence of seedheads, genetic color, and texture were all rated visually on a scale of 1 to 9 (1 = poorest, 6 = acceptable, and 9 = optimum measure).

Results

We started the 2020 growing season by rating the bermudagrass plots in early May for spring green up (Table 1). At that time, vegetative types 'Latitude 36' and 'FB 1628' and seeded types 'OKS2015-7' and 'OKS2015-1' were the greenest. We rated the turf monthly for quality from the end of 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' looked the best in May; Riviera in June; 'JSC 2013-105', 'JSC 2013-125', and 'JSC 2013-75' in July; Riviera, JSC 2013-125, and 'Monaco' in August; and JSC 2013-125 and JSC 2013-105 in September. Of the vegetative types, 'OKC1406' looked the best in May; 'OKC1666' in June; 'Tiftuf', Latitude 36, and 'OKC1873' in July; FB 1628 and 'JSC 77V' in August; and JSC 77V and Tiftuf in September. The best overall performers for the summer were seeded types JSC 2013-125, Riviera, JSC 2013-105, and Monaco, and vegetative types Tiftuf and OKC1666.

During the course of the summer, we looked at turf genetic color and texture (Table 2) and found that vegetative varieties 'MSS-1075', 'FB 1902', 'FB 1903', and FB 1628 were the darkest green, and that the darkest green seeded variety was JSC 2013-75. Vegetative types MSB-1048 and OKC1666 had the finest texture. In June, we rated for seed head display and found that vegetative varieties MSB-1050 and MSB-I017 had the fewest seedheads.

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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 2019 with percent cover in May and July 2020 to look at over-winter variability and speed of recovery from possible winter damage. The cultivars with the least over-winter variability (least percent cover change from September to May) were vegetative type OKC1682, and seeded types JSC 2013-125 and OKS2015-3. The worst performers were vegetative types MSB-1050, MSS-1075, FB 1903, and FB 1902. By July, the stands with the best cover were vegetative types MSB-I017 and MSB-1048, and seeded type PST-R5MM. Of the worst performers, MSB-1050, FB 1903, and FB 1902 showed the best recovery between May and July.

Complete 2019 National Bermudagrass Test results and more information on NTEP can be found online at: *http://www.ntep.org/*.

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Table 1. 2020 spring green up and quality of bermudagrass cultivars at Wichita, KS[1]

Cultivar/ experimental number	Seeded/ vegetative	Spring green up	Quality					
			May	Jun.	Jul.	Aug.	Sep.	Avg.
JSC 2013-125	S	6.3	5.7	6.0	6.7	6.3	6.3	6.2
Riviera	S	6.3	6.3	6.7	5.3	6.7	5.7	6.1
Tiftuf	V	6.3	4.7	7.0	7.3	5.7	6.0	6.1
JSC 2013-105	S	6.7	5.7	6.0	6.7	6.0	6.0	6.1
Monaco	S	5.0	5.7	6.3	6.0	6.3	5.7	6.0
OKC1666	V	6.3	5.0	7.7	5.7	5.7	5.3	5.9
JSC 2013-75	S	5.3	6.0	5.7	6.7	5.3	5.3	5.8
JSC 2013-85	S	6.3	6.0	6.0	6.0	5.7	5.3	5.8
MSB-1042	V	5.7	5.0	7.0	6.0	5.7	5.3	5.8
JSC 2013-55	S	5.0	5.3	6.0	6.0	6.0	5.0	5.7
Latitude 36	V	7.7	4.3	6.3	6.7	5.3	5.7	5.7
OKS2015-3	S	6.7	6.0	6.0	5.7	5.3	5.3	5.7
OKC1873	V	3.7	3.7	6.7	6.7	6.0	5.0	5.6
JSC 80V	V	6.0	4.0	6.7	6.3	5.7	5.0	5.5
PST-R5MM	S	4.7	5.0	5.7	5.3	6.0	5.3	5.5
FB 1628	V	6.7	4.0	5.0	6.3	6.3	5.3	5.4
Tifway	V	6.3	4.3	6.3	6.0	5.7	4.7	5.4
OKC1406	V	6.7	5.3	6.3	5.3	6.0	3.7	5.3
OKC1682	V	6.3	4.0	6.3	5.7	5.0	5.7	5.3
OKS2015-7	S	7.7	5.0	5.7	5.3	5.7	5.0	5.3
Astro	V	4.7	3.0	5.7	6.3	5.7	5.3	5.2
MSB-1048	V	3.0	4.0	6.7	5.3	5.7	4.3	5.2
MSB-I017	V	4.0	4.7	6.0	6.0	5.0	4.3	5.2
P5T-R6TM	S	3.3	4.0	5.3	6.0	5.3	5.3	5.2
DlF-460/3048	S	3.7	4.3	5.7	5.7	5.0	5.0	5.1
OKS2015-1	S	7.0	4.7	6.0	5.0	5.3	4.7	5.1
OKC1876	V	5.3	4.3	6.0	6.0	5.0	4.3	5.1
JSC 77V	V	4.0	2.7	4.3	5.7	6.3	6.3	5.1
FB 1630	V	5.3	3.7	4.3	5.7	5.0	5.3	4.8
FB 1902	V	4.0	3.3	5.0	5.0	5.3	5.3	4.8
Tahoma 31	V	6.7	4.0	4.7	4.7	6.0	4.7	4.8
MSB-1026	V	6.0	4.0	5.0	5.0	4.3	4.3	4.5
MSB-1050	V	2.0	2.3	4.7	5.0	5.0	4.0	4.2
FB 1903	V	3.3	2.3	3.0	4.7	5.3	5.3	4.1
MSS-1075	V	3.7	2.7	3.3	3.3	3.7	3.3	3.3
LSD[2]		1.5	0.9	1.2	1.4	1.2	1.2	0.6

[1] Visual ratings were based on a scale of 1 to 9 (1 = poorest measure, 6 = acceptable, and 9 = optimum measure).
[2] 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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Table 2. 2019 fall percent cover and 2020 spring and summer percent cover, genetic color, texture, and absence of seed heads of bermudagrass cultivars at Wichita, KS[1,2]

Cultivar/ experimental number	Seeded/ vegetative	2019	2020				
		Sept.	May	July	Color	Texture	Seed heads
		---------- % cover ----------					
JSC 2013-125	S	96.3	86.7	95.0	6.3	7.0	5.7
Riviera	S	97.7	85.0	97.7	5.7	7.0	6.3
Tiftuf	V	93.3	70.0	96.3	5.3	7.0	5.0
JSC 2013-105	S	96.3	80.0	97.7	6.7	7.3	4.7
Monaco	S	95.3	83.3	94.0	7.0	6.3	5.3
OKC1666	V	95.0	76.7	90.7	4.3	8.7	4.3
JSC 2013-75	S	97.7	83.3	95.7	8.0	7.0	3.3
JSC 2013-85	S	97.7	87.7	97.0	6.7	6.0	5.0
MSB-1042	V	94.0	81.7	97.7	5.3	7.7	6.7
JSC 2013-55	S	97.0	80.0	95.7	7.0	6.0	5.7
Latitude 36	V	90.0	66.7	87.3	5.0	7.7	6.3
OKS2015-3	S	94.7	85.0	94.7	5.7	6.7	7.0
OKC1873	V	85.0	61.7	88.3	5.7	7.0	7.3
JSC 80V	V	86.7	58.3	92.3	5.3	7.0	6.0
PST-R5MM	S	99.0	81.7	98.3	5.0	6.0	4.3
FB 1628	V	86.7	56.7	96.3	8.0	5.7	5.3
Tifway	V	88.3	68.3	94.0	6.3	6.7	6.0
OKC1406	V	90.0	75.0	97.7	4.7	6.3	5.3
OKC1682	V	83.3	75.0	97.0	7.3	7.7	6.7
OKS2015-7	S	92.7	66.7	93.0	6.3	5.0	4.0
Astro	V	91.7	53.3	94.0	4.3	5.7	5.7
MSB-1048	V	95.7	76.7	98.3	7.7	8.7	6.7
MSB-I017	V	97.0	80.0	99.0	7.3	8.0	8.3
P5T-R6TM	S	98.3	60.0	95.3	5.0	6.7	4.7
DlF-460/3048	S	98.3	71.7	96.3	5.7	7.0	5.0
OKS2015-1	S	94.3	75.0	94.7	6.0	6.0	5.7
OKC1876	V	91.7	76.7	94.7	6.7	7.3	5.7
JSC 77V	V	73.3	38.3	80.0	5.7	7.0	5.7
FB 1630	V	90.0	48.3	93.7	7.7	4.7	4.3
FB 1902	V	90.0	45.0	95.7	8.7	5.3	3.0
Tahoma 31	V	88.3	60.0	88.3	7.7	5.7	6.0
MSB-1026	V	88.3	61.7	93.3	7.7	7.3	7.7
MSB-1050	V	94.0	36.7	94.3	7.0	6.3	8.7
FB 1903	V	78.3	31.7	81.7	8.7	4.7	6.7
MSS-1075	V	88.3	36.7	80.0	9.0	7.3	7.0
LSD[3]		11.2	16.0	7.6	0.9	1.0	1.5

[1] Percent cover was rated visually on a scale of 0% to 100%.
[2] Visual ratings were based on a scale of 1 to 9 (1 = poorest measure, 6 = acceptable, and 9 = optimum measure).
[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.

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