1997 NTEP Bermudagrass Cultivar Evaluation

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Objective

The objective of this study was determine the survivability and performance of seeded and vegetatively established bermudagrass in Evansville, IN.

Rationale

With genetically improved cultivars, bermudagrass is being used or considered for golf course fairways and athletic fields in southern IN. There has been tremendous genetic improvement in winter survivability and leaf texture for bermudagrass and so this species may now be better adapted to Southern IN than it has been in the past. Additionally, seeded varieties of are now available which will decrease the cost of establishing bermudagrass. However, we are unsure of the long term winter survival of bermudagrass on the northern edge of the transition zone.

How It Was Done

The study was located on the Wessman Par-3 Course in Evansville IN. Roundup was applied to the seed bed to kill existing turf. The seed bed was tilled to 2 inches and starter fertilizer (8-22-16) was applied prior to seeding at 1.5 lbs P_2O_5/1000 ft^2. On 25 Jun-97, two separate but adjacent studies for seeded types and vegetative types were established. Plot size for each study was 6 ft X 6 ft with 1.5 ft borders and each study contained 3 replications. Nineteen seeded Bermudagrass cultivars were seeded at 0.85 lbs/1000 ft^2 and then “dimpled in” with tires of a sand rake. Eleven bermudagrass cultivars were plugged with 1.5 in X 1.5 in plugs on 12 inch centers. The seeded varieties were covered with seed cloth to encourage germination, and then the entire area was watered 2 to 3 times daily to encourage germination and establishment. The area was mowed at 1 inch, irrigated to prevent moisture stress, and received 1.0 lb N/1000 ft^2 with a 25-4-12 fertilizer on 10 July and 5 Aug. Annual maintenance includes mowing at 1 inch once or twice per week, irrigation to prevent dormancy, and 0.5-0.75 lb N/1000 ft^2/growing month. This study will continue until through the 2001 growing season.

Results to Date

Bermudagrass is sensitive to winterkill, especially in the first winter following establishment. All of the cultivars in our study survived the winter of 1997-1998. However, since this winter was a very warm *El Nino* winter, it might not be an accurate reflection of what could occur during a typical winter.

Seeded Cultivars

- OKS-95-1 and Princess were the top two performers in 1998. OKS-95-1 is a fine bladed grass that creates a dense turf resulting in high quality ratings. Princess, on the other hand, is somewhat coarser textured and produced excellent quality near the end of the growing season.
- Many of the cultivars were slow to establish as shown by the cover ratings on 29 Jun, but most of the cultivars produced 100% cover by the end of the summer of 1998.
- Significant genetic improvement has occurred with the seeded bermudagrasses. All of the newer cultivars consistently outperform Arizona Common, which was the initial seeded bermudagrass.

Vegetative Cultivars

- The vegetative cultivars covered more quickly after establishment, and greened up more quickly in the spring than the seeded cultivars.
- OKC18-4, Cardinal, Midlawn, and Tifgreen were the top performers in 1998. OKC18-4 is a dark green turf but fairly coarse-textured. Cardinal, on the other hand, is very fine-textured but is a light green color. Mini-Verde is performing poorly in this test because it has a better fit for greens. It is a very dense growing cultivar and does not grow taller than about 0.25 - 0.5 inch.

It is still too early to draw definite conclusions from this study which will continue for three more growing seasons.

Table 1. Greenup, cover, color, leaf texture, and visual quality of seeded bermudagrass cultivars in 1998.

Cultivar	Greenup[a]	Percent Cover[b]	Color[c]	Leaf texture[d]	Visual quality[e]						
					May	June	Jul	Aug	Sep	Oct	Avg
OKS-95-1	3.0	100	6.0	6.0	4.0	6.3	5.7	7.0	7.0	6.3	6.1
Princess	1.3	95	6.0	4.7	2.7	5.0	4.0	7.3	8.0	8.0	5.8
PST-R69C	2.0	98	5.7	4.3	3.0	4.7	4.7	5.7	6.7	5.3	5.0
SW 1-11	1.0	90	5.0	5.0	2.3	4.0	4.3	6.0	7.3	6.0	5.0
Savannah	1.7	97	5.3	4.7	3.0	4.3	4.0	5.0	6.7	5.7	4.8
J-1224	1.7	93	5.0	5.0	3.0	3.7	4.0	5.0	6.3	5.0	4.5
Panama	1.3	83	5.3	4.0	2.3	3.3	4.0	5.3	6.0	5.0	4.3
Blackjack	1.7	68	5.3	4.0	2.3	3.7	3.7	4.7	5.0	4.7	4.0
SW 1-7	1.3	78	5.7	3.7	2.0	3.3	4.0	4.3	5.3	5.0	4.0
Sundevil II	1.0	80	5.7	4.3	2.0	2.7	3.7	4.7	5.7	5.0	3.9
Majestic	1.0	72	6.3	4.0	1.7	3.3	3.7	5.0	5.3	4.3	3.9
Pyramid	1.0	55	6.7	4.0	1.7	2.7	3.3	4.7	5.3	4.7	3.7
J-540	1.3	72	6.0	4.3	2.0	2.7	3.0	4.7	4.7	4.7	3.6
Mirage	1.0	50	6.0	4.0	1.7	2.7	3.3	4.0	5.7	4.3	3.6
Blue-Muda	1.3	62	5.7	3.7	2.0	3.0	3.3	4.0	4.7	4.0	3.5
Jackpot	1.0	42	5.7	3.7	2.0	2.0	3.0	4.0	5.3	4.3	3.4
Numex-Sahara	1.3	47	5.7	3.7	1.7	3.0	3.0	4.0	4.7	4.3	3.4
Shangri-La	1.0	40	5.3	3.3	1.7	2.3	3.0	3.7	4.7	4.3	3.3
Arizona Common	1.0	13	6.0	3.7	1.3	2.0	2.3	3.3	3.7	3.0	2.6
LSD (0.05)	0.8	36	NS	0.7	0.7	1.3	1.0	1.3	1.3	1.0	0.7

[a] Greenup was rated visually rated on 9 Apr where 1=brown, 5 acceptable, and 9=fully green.
[b] Cover was rated visually on 3 Jun as a percent of the plot covered by bermudagrass.
[c] Color was visually rated on 29 Jun. on a scale of 9 to 1 where 9=dark green, 5=acceptable, and 1=chlorotic
[d] Leaf texture was rated visually on Jun 29 where 1=coarse bladed and 9=very fine bladed.
[e] Quality was visually rated on a scale of 9 to 1 where 9=perfect, 5=acceptable, and 1=dead.

Table 2. Greenup, cover, color, leaf texture, and visual quality of vegetatively established bermudagrass cultivars in 1998.

Cultivar	Greenup[a]	%Cover[b]	Color[c]	Leaf texture[d]	Visual quality[e]						
					May	June	Jul	Aug	Sep	Oct	Avg
OKC18-4	2.3	100	7.0	5.3	4.7	7.3	7.7	6.0	7.0	7.3	6.7
Cardinal	2.7	100	4.0	8.0	7.0	6.3	6.3	6.0	5.7	5.7	6.2
Midlawn	4.3	100	5.7	6.0	5.0	7.3	6.3	6.0	7.0	5.3	6.2
Tifgreen	4.0	100	5.0	6.3	5.0	6.0	5.7	6.3	7.7	6.3	6.2
Tifway	2.0	98	5.7	6.0	4.0	5.7	6.0	6.3	7.3	6.3	5.9
Tift94	2.3	97	6.0	6.0	4.0	5.3	5.0	6.0	7.3	7.0	5.8
CN2-9	2.3	97	5.3	6.3	4.0	4.7	6.0	6.0	7.7	6.0	5.7
OKC19-9	3.3	97	6.0	5.7	5.0	5.3	4.7	5.7	6.0	6.0	5.4
Quickstand	4.0	100	5.7	4.3	4.7	5.7	5.0	5.3	5.0	6.3	5.3
Shanghai	2.3	100	7.3	4.0	4.0	5.7	5.0	5.0	5.3	4.0	4.8
Mini-Verde	3.7	90	5.0	7.3	3.7	3.7	3.7	4.3	6.3	6.3	4.7
LSD (0.05)	NS	4.1	1.0	0.9	1.2	1.3	1.1	NS	1.3	1.5	0.8

[a] Greenup was rated visually rated on 9 Apr where 1=brown, 5 acceptable, and 9=fully green.
[b] Cover was rated visually on 3 Jun as a percent of the plot covered by bermudagrass.
[c] Color was visually rated on 29 Jun.on a scale of 9 to 1 where 9=dark green, 5=acceptable, and 1=chlorotic
[d] Leaf texture was rated visually on Jun 29 where 1=coarse bladed and 9=very fine bladed.
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