



Keeping
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Research
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Bermudagrass Varieties in Southeastern Kansas

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The major perennial grass in southeastern Kansas is tall fescue (*Festuca arundinacea*, Schreb.), a cool-season species that becomes semi-dormant during summer months. Most native grass pastures are severely overgrazed in this area and consist primarily of annuals and undesirable perennials, south-eastern Kansas has long needed a high producing, good quality, warm-season, perennial grass. We hope that bermudagrass (*Cynodon dactylon* (L.) Pers.) will prove to be such a grass.

Because bermudagrass originated in a tropical climate, its use this far north has been considered impractical. However, some ranchers in this area have established and maintained field plantings of bermuda. Their apparent success, and recent success in developing winterhardy strains in a breeding program, led us to establish a bermudagrass variety test in May, 1972, at Mound Valley.

AGRICULTURAL EXPERIMENT STATION
Kansas State University, Manhattan
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Twelve experimental hybrid bermudagrass varieties and two well known varieties, Midland (Coastal x Indiana Common) and Greenfield (a selection from Oklahoma Common) were planted. A Kansas Common selection was added (chunk sodded) May 9, 1973. It is an "escape" from a small bermudagrass nursery established here in the late 1950's, but its origin is unknown so it is listed as KS-1.

Since the nursery was established, Oklahoma State University has named and released one of the experimental hybrids (Hardie). Their scientists state that Hardie is about 12% more productive than Midland, and is the best adapted, improved variety, for northern Oklahoma. It produces about 6% more *in vitro* digestible dry matter and is considerably more winterhardy than Midland.

Yields in 1973 at Mound Valley from clipping four times are given in Table 1. Fertilization was 100 pounds each of phosphorus and potash May

4, 1973; 35 pounds of actual nitrogen May 17; and 100 pounds July 5. Although OK-15's yield was about in the middle of the group, its breeding background and previous performance in northern Oklahoma indicate that it is more winterhardy than such varieties as Hardie, OK-57, and others. We think standing water the winter of 1972-73 damaged OK-15 more than coldness did.

To expose all varieties to winter weather, late in 1973 we used a flail-type forage harvester to clip all plots one-half to three-quarter inch high. Completely removing all protective cover should have tested varieties susceptible to low temperatures. Overwinter lows were -2° F January 1 and 0° F January 12. Low temperatures the previous winter were -4° F December 16, 1972, and -7° F January 12, 1973.

A winter survival and spring recovery rating was made May 1, 1973, and May 6, 1974. This rating is an indication of the winterhardiness of

Table 1. Bermudagrass variety test results, 1973, Mound Valley, Kansas.

Variety	Yield (tons per acre—oven dry forage)								Spring recovery rating			
	1st cut 6-20	Rank	2nd cut 7-13	Rank	3rd cut 8-16	Rank	4th cut 11-12	Rank	Total ¹	5-1-73	5-6-74	Average
Hardie	1.50	2	0.44	6	3.09	1	2.38	2	7.41	4.50	4.75	4.62
OK-68	1.60	1	0.47	5	2.81	5	2.19	4	7.07	5.00	4.00	4.50
OK-42	1.25	4	0.51	4	2.81	5	2.20	3	6.77	3.75	2.00	2.87
OK-25	1.32	3	0.54	3	2.41	9	2.17	5	6.44	4.25	2.25	3.25
OK-57	1.05	6	0.43	7	2.92	4	1.90	7	6.30	5.00	6.25	5.62
OK-8	1.21	5	0.61	2	2.74	8	1.73	8	6.29	6.00	2.75	4.37
Midland	0.68	10	0.89	1	2.97	2	1.67	9	6.21	2.00	1.75	1.87
KS-1		12	0.25	12	2.20	10	3.40	1	5.85	.....	4.50	4.50
OK-15	0.75	7	0.36	9	2.95	3	1.11	12	5.17	5.25	7.00	6.12
OK-40	0.73	8	0.26	11	2.78	7	1.22	11	4.99	6.00	3.25	4.62
Greenfield	0.72	9	0.41	8	2.08	11	1.32	10	4.53	6.75	4.00	5.37
OK-23	0.59	11	0.28	10	0.60	12	1.93	6	3.40	1.50	1.75	1.62
OK-69		12	.....	13	.....	13	.....	13	.....	1.00	1.25	1.12
OK-17		12	.....	13	.....	13	.....	13	.....	1.25	1.00	1.12
OK-64		12	.....	13	.....	13	.....	13	.....	0.75	0.25	0.50
LSD .05	0.83	....	n.s.	....	1.22	....	1.10	....	2.97	.....	.....	.....

1. Numbers connected by the same line do not differ significantly.

the varieties. A variety with a higher rating than Midland (a variety known to survive in southeastern Kansas) could be expected to survive much farther north. Ratings varied from a 0 for complete winterkill to 9 for no winterkill and rapid recovery.

Based on first year yields (1972), varieties that became established quickest were OK-42, Midland, Hardie, OK-8, and OK-40. However, by the end of 1973 most of the high-yielding group had a satisfactory ground cover. Two varieties (OK-15 and OK-57) are more winter-hardy than Hardie and are still in the high-yielding group. This suggests the possibility of finding enough cold tolerance in bermuda for it to be successfully grown in northern Kansas.

SOUTHEASTERN KANSAS BRANCH

Mound Valley

Fred Boren, Superintendent

Information in this report is for farmers, producers, colleagues, industry cooperators, and other interested persons. It is not a recommendation or endorsement as it is not yet backed by enough research.

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