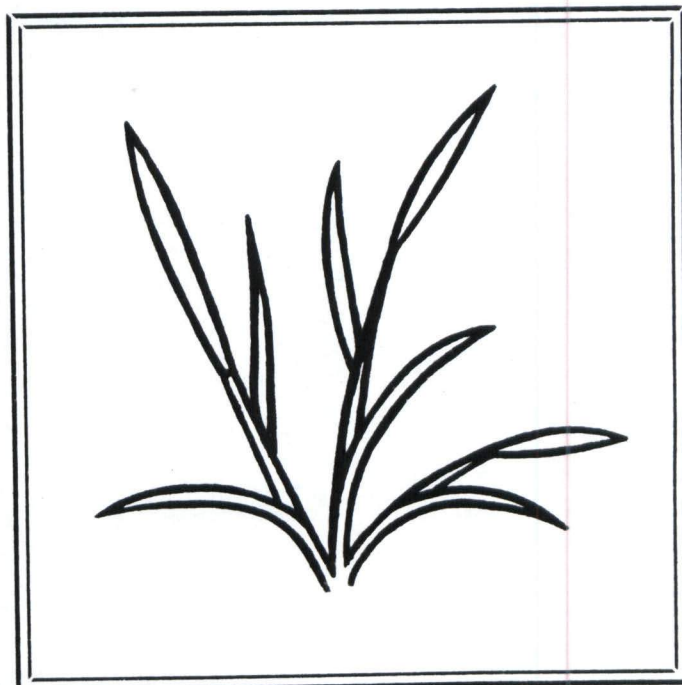
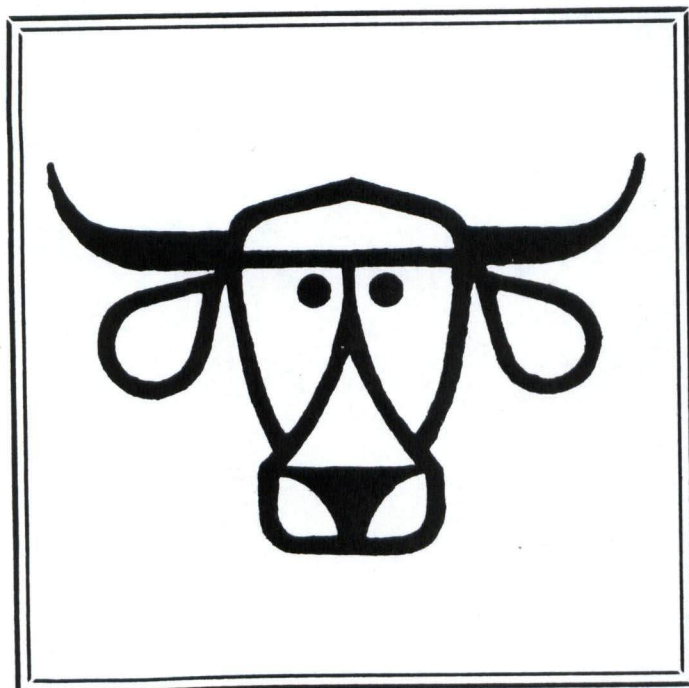
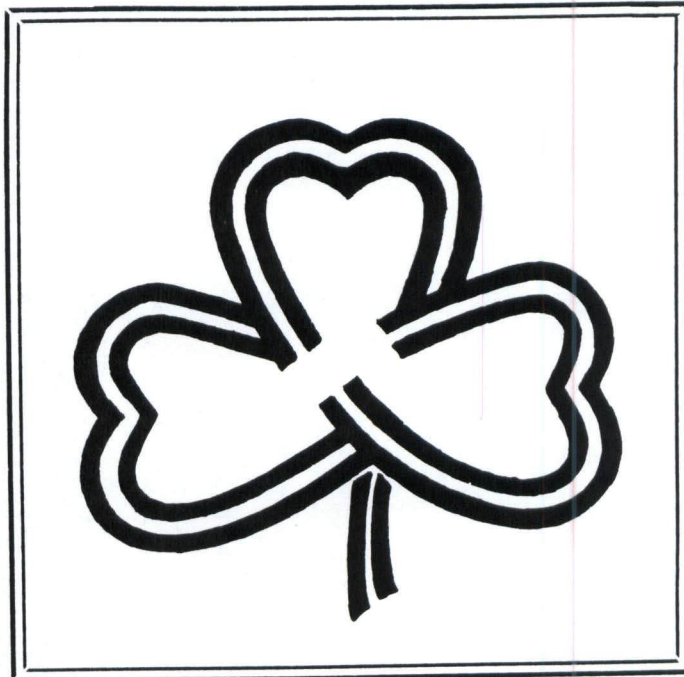


PUBLICATIONS

1983



Forage Research in Texas

1983

INDIANGRASS PERFORMANCE TEST

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Summary

Twenty-one yellow indiangrass (*Sorghastrum nutans* (L.) Nash.) breeding lines and the cultivars 'Lometa', 'Tejas', and 'Cheyenne' were tested for dry matter production, seed production, and percent protein. 'Lometa' had the highest dry matter production, seed yield, and percent protein when compared with the other two commercially available cultivars. Eleven of the breeding lines had a higher dry matter yield than 'Lometa' and five of these top lines had a greater seed yield. Three of these five equaled 'Lometa' in percent protein.

Introduction

Yellow indiangrass occurs in the tallgrass prairies of the central United States and is considered by many livestock producers as an excellent forage. Because of high acceptance animals tend to seek out yellow indiangrass colonies, therefore, it was one of the first grasses to be eliminated by overgrazing of the native rangelands. Vast acreages were also eliminated by the plow. Many ranchers would like to reseed yellow indiangrass if a locally adapted variety was available. Because of this need a breeding program on yellow indiangrass was initiated. This study was undertaken to identify the superior breeding lines and to compare progress with existing varieties. Forage yield, seed yield, and percent protein were measured.

Materials and Methods

Plots were established using transplants started in the greenhouse. The test was planted on June 2, 1980 in a randomized block design with three replications. Each plot consisted of one row 3 m (meter) long and plants were spaced 20 cm (centimeter) apart within the row. Row spacing was 1 m. Fertility consisted of 150 lb/ac of ammonium nitrate and 100 lb/ac of 18-46-0 in the spring of 1981 and 1982. One m was harvested using a Jari mower on July 15, 1981 for forage production and another 1 m was hand harvested on November 4, 1981 for seed production. On June 30, 1982 2 m were harvested using a flail type harvester for forage production.

Forage samples were oven dried at 60° C and ground in a Wiley mill to pass a 1 mm (millimeter) screen. Total nitrogen was determined by micro-Kjedahl and percent protein was calculated by multiplying the percent total nitrogen by 6.25.

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Results and Discussion

The two year mean dry matter production varied from 1.8 to 4.5 tons/ac. 'Lometa' had the highest production of the three varieties that were tested but breeding lines exceeded that of 'Lometa' (Table 1). The 1981 seed production varied from 250 to 18 lbs/ac for the test with 'Lometa' having the highest seed yield of the three varieties. There was no seed production in 1982. Ten breeding lines had higher seed yields with five of these lines also being higher in forage production. Protein content was lower in 1981 because of the late stage of harvest and varied from 5 to 8 percent. Protein content was greater in 1982 but little variation was observed in either year. 'Lometa' exceeded the other varieties in protein content. Three of the breeding lines that exceeded 'Lometa' in forage yield and seed yield equaled 'Lometa' in percent protein.

The data suggests that 'Lometa' is superior to both 'Tejas' and 'Cheyenne' at this location. It also suggests that considerable progress can be made in both forage yield and seed yield but that increases in protein content through breeding may be more difficult.

Table 1. Dry matter production, protein content, and seed yield of Indiangrass at Dallas.

Cultivar	dry matter tons/ac			percent protein			Seed lb/ac
	1981	1982	Mean	1981	1982	Mean	1981
12-17	5.0	3.9	4.5	6	7	6.5	86
18-7	4.7	3.8	4.3	6	8	7.0	104
18-17	4.7	3.8	4.3	7	7	7.0	140
1-13	4.2	3.5	3.9	5	7	6.0	68
8-13	3.9	3.7	3.8	6	7	6.5	36
9-21	3.8	3.6	3.7	7	7	7.0	149
10-4	3.7	3.7	3.7	6	7	6.5	161
4-4	3.8	3.4	3.6	6	7	6.5	125
1-7	3.6	3.6	3.6	6	7	6.5	36
7-20	3.4	3.3	3.4	7	7	7.0	140
9-8	3.0	3.5	3.3	6	7	6.5	57
Lometa	2.8	3.7	3.3	7	7	7.0	107
11-6	2.3	4.0	3.2	6	7	6.5	137
10-18	2.9	3.3	3.1	6	7	6.5	54
Tejas	2.6	3.6	3.1	5	7	6.0	66
15-16	2.4	3.5	3.0	7	6	6.5	74
5-8	2.5	3.2	2.9	7	7	7.0	116
11-4	2.3	3.4	2.9	6	7	6.5	250
1-6	2.4	2.9	2.7	8	7	7.5	101
Cheyenne	2.5	2.5	2.5	5	6	5.5	30
20-2	2.2	2.8	2.5	7	7	7.0	119
2-2	1.4	3.5	2.5	7	7	7.0	60
6-2	1.2	3.2	2.2	7	6	6.5	18
19-5	1.5	2.1	1.8	8	8	8.0	111