Texas Cattle Feeders Association Research Report

GRAIN SORGHUM TYPES AND CORN IN STEER FINISHING RATIONS. R. H. Klett, Rick Kellison, Lloyd B. Sherrod and R. C. Albin. 1973. Texas Tech University Center at Amarillo, Pantex, Texas.

Today there is no question regarding the place of grain sorghum in the livestock feeding industry. However, established values of sorghum grains do not reflect the introduction of hybrids in the 1950's and grain processing methods developed in the past decade. In early comparisons, grain sorghum was shown to be about 90% the value of corn in feeding livestock, but recent reports, using hybrid sorghum processed with modern equipment have shown higher values.

Procedure

A trial was conducted at the Texas Tech University Center at Amarillo to compare varieties of grain sorghum representing red, red X yellow, and yellow seed coat colors to elevator run milo and yellow corn. Varieties used were C42Y (all yellow-corneous endosperm), G 522 (yellow X red-intermediate high corneous endosperm) and RS671 (red-intermediate low corneous endosperm). One-hundred steers weighing approximately 740 pounds were assigned to five treatments with four replications. The cattle were fed 112 days on a ration containing either sorghum grain or corn, cottonseed hulls, cottonseed meal and premix (alfalfa leaf meal base).

Steer digestion trials were conducted to determine the digestibility of each grain. Digestion coefficients are for the complete ration, but grains were fed at the same level and other ingredients were held constant in each treatment, which gives a relative value for each grain.

Results

Performance, carcass, and digestion data are presented in table 1. There were no significant differences for any of the items studied. Differences in feeding value reported earlier for sorghum grain and corn was not observed in this trial. Varietal differences with regard to seed coat color appeared to have little effect on traits studied. This may be related to endosperm type since all were classified as containing some corneous material. Sorghum grains having corneous endosperm have been reported to have a lower feeding value than some other endosperm types.

Table 1. Comparison of Varities of Sorghum Grain to Elevator Run Sorghum Grain and Corn.

Item	Grain Source				
	Grain Sorghum[1]				
	C42Y	RS671	G522	Elevator run	Corn[2]
No. head	20	19	20	20	20
Initial wt., lb	740	742	736	738	734
Final wt., lb	1105	1079	1071	1104	1107
Average daily gain, lb	3.26	3.01	2.99	3.27	3.34
Feed consumption, lb	25.59	23.69	24.58	26.38	26.84
Feed conversion, lb	7.85	7.87	8.07	8.07	8.04
Dressing percent	62.46	61.43	62.17	62.11	62.88
Carcass grade[3]	12.5	12.3	12.67	12.75	12.47
Liver abscesses, %	20.00	5.26	30.00	15.00	5.00
	Digestion Date (%)[4]				
Dry matter	76.29	75.82	73.91	74.28	72.34
Gross energy	74.61	74.52	72.58	72.15	71.23
Crude protein	60.42	54.25	52.06	50.78	57.00

[1]Steamed flaked - 24 lb/bushel.

[2]Steamed flaked - 28 lb/bushel.

[3]Good plus = 11; Choice minus = 12; Average choice = 13.

[4]Digestion coeficients are for total ration.

The comparative feeding value of sorghum grain to corn is presented in table 2. Data indicated a higher value for corn of 6.3 and 6.6% in average daily gain and feed consumption, respectively. Feed conversion favored sorghum grain by one percent.

Table 2. Comparison of Sorghum Grain to Corn.

Item	Sorghum grain	Corn	Percent difference
Average daily gain, lb	3.13	3.34	6.30(higher for corn)
Feed consumption, lb	25.06	26.84	6.63(higher for corn)
Feed conversion, lb	8.01	8.04	1.00(higher for corn)

Summary

Grain sorghum variety was not significantly related to any performance, carcass, or digestion trait studied. There were no significant differences between the grains when comparing each sorghum treatment to corn; however, when all sorghum grains were combined and compared to corn, an advantage was noted in average daily gain and feed consumption for corn, while grain sorghum was superior in feed conversion.

Two points should be stressed in interpreting these data: (1) grains used to provide different seed coat colors and corn, represent only one variety which may or may not be equal to the average of all grain sorghums or corn; and (2) all grains used in the study were hybrids and raised under the same environmental conditions and processed by the same method which may have removed differences observed by researchers in earlier comparisons using ground grains.