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Animal Science Reports

1976

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L. B. Embry
South Dakota State University

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Recommended Citation

Embry, L. B., "Whole or Rolled Corn Grain Fed at Various Levels to Cattle on Pasture" (1976). *South Dakota Cattle Feeders Field Day Proceedings and Research Reports, 1976*. Paper 5.
http://openprairie.sdstate.edu/sd_cattlefeed_1976/5

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Whole or Rolled Corn Grain Fed at Various
Levels to Cattle on Pasture

L. B. Embry

Past experiments at this station with cattle on pasture have involved various levels of grain feeding. Levels of corn grain varied from none to a full feed averaging about 14 lb. per head daily. The corn was rolled prior to feeding in all experiments.

Several experiments have also been conducted where growing and finishing feedlot cattle were used in comparisons when feeding whole or rolled corn grain. Results of this research showed no advantage for rolling the corn in comparison to feeding whole on basis of weight gain and feed efficiency when rations contained 80% or more corn. At lower levels of grain feeding, there appeared to be some benefits from processing the grain.

Results of the feedlot experiments might indicate that corn grain need not be processed when offered at about a full feed to cattle on pasture. Therefore, experiments reported here were conducted to compare whole and rolled corn grain when fed at various levels to cattle during growing and finishing on pasture.

Procedures

The same pasture area was used for two experiments. It was established in 1968 and had been grazed at about maximum stocking rates each pasture season since that time. The pasture area was seeded for a stand of about equal parts alfalfa and grasses (brome grass and intermediate wheatgrass). It was fertilized in early spring of most years with a typical application being about 125 lb. of 18-46-0 per acre. Management procedures appeared to maintain approximately the desired proportions of alfalfa and grasses in the pasture.

Levels of corn grain fed per head daily were 0 (control), 4 lb., 8 lb. and a full feed. Each level was replicated four times for 16 paddocks of cattle. For those fed grain, it was fed whole for two paddocks and rolled for the other two.

For the first experiment (1974), 64 Hereford-Angus heifers were allotted into 16 paddocks of 4 head each. For the second experiment (1975), 64 Hereford heifers were used again with four animals per paddock. Acres per replicate (paddock) provided were 5 for the no grain control and 4-lb. groups, 3.75 for the 8-lb. group and 2.5 for those full-fed.

Grazing procedures during the 2 years were to allow the cattle only one-half of each paddock for a period of about 6 weeks and then the entire area for the remainder of the grazing season. Because of relatively low rainfall

during each year, the area of each paddock reserved for later grazing was not clipped nor were pastures clipped during the grazing season. Ample forage was available during the pasture season but with some on the mature side because of the management procedures followed.

Heifers in all paddocks fed grain were started at 4 lb. per head daily. The grain was increased at a rate of 1 lb. per head daily to the 8-lb. level for this group and until grain remained in the feed bunk at the next feeding for the full-fed group. Grain was fed once daily in feed bunks located near the water supply. Salt and dicalcium phosphate were supplied free-access. The heifers were implanted with 36 mg zeranol at the beginning of each experiment.

Results

Results of the experiment are presented in table 1. For most treatment groups, the Hereford-Angus heifers in the first experiment having a heavier initial weight had higher weight gains. The response in gain to increasing levels of grain feeding in comparison to the no grain control was quite small, amounting to 0.07, 0.05 and 0.07 lb. daily, respectively, for the 4 lb., 8 lb. and full-fed levels. Weight gains and response to grain feeding were less in these two experiments with heifers than in previous ones with steers.

There were no consistent differences between whole and rolled corn for levels of grain or years. The average for the 2 years showed only small differences in weight gain between forms of corn grain with no apparent advantage for processing the corn.

Summary

Results of the experiments show a relatively small response in weight gain per unit of grain by heifers fed grain on pasture at daily levels of 4 lb., 8 lb. or a full feed (about 14 lb.) in comparison to no grain controls. Rates of gain increased with increasing levels of grain and would, therefore, reduce days needed for drylot finishing following the pasture season.

Increasing levels of grain could be expected to reduce consumption of pasture forages which was not measured in these experiments. The decrease in forage consumption would mean more animals could be stocked per acre and could result in a lower pasture charge per animal.

These results differ somewhat from the drylot experiment where there appeared to be some advantage of rolled over whole corn at the grain levels used in these pasture experiments. An experiment in progress appears to be showing some advantage for rolled corn, even at the full-fed level. More pasture feeding experiments are planned to more adequately test the need for processing corn grain fed at various levels for growing and finishing cattle on pasture.

Table 1. Whole or Rolled Corn Grain Fed at Various Levels on Pasture

	No grain	4 lb./head daily		8 lb./head daily		Full-fed	
		Whole	Rolled	Whole	Rolled	Whole	Rolled
No. animals	27	16	16	16	16	16	16
Days fed	136	136	136	136	136	136	136
Initial shrunk wt., lb.	594	596	596	595	597	603	600
Final shrunk wt., lb.	759	798	794	816	813	914	884
Avg. daily gain, lb.	1.20	1.48	1.45	1.62	1.58	2.27	2.16
Avg. daily ration, lb.							
Whole or rolled corn		3.86	3.84	7.65	7.53	14.17	14.00
Feed/100 lb. gain, lb.							
Whole or rolled corn		260	266	472	475	625	650