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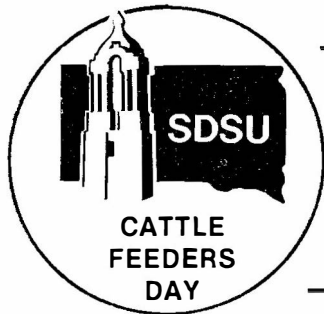
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WHOLE OR ROLLED OATS FOR FINISHING CATTLE

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Summary

Whole and rolled oats were compared in finishing rations for steers. On basis of feedlot performance calculated from carcass weight and 60% yield, steers fed rolled oats gained faster (10.5%) and more efficiently (11.6%) than those fed whole oats. Carcass characteristics measured favored steers fed rolled oats and having slightly heavier carcasses.

The oat rations did not compare favorably with normally expected performance from high-concentrate rations with corn as the major grain. Other research is needed to properly evaluate oats as a major feed grain in cattle finishing rations.

Introduction

Oats are a major grain crop in South Dakota with an annual production in the order of 100 million bushels. This crop has an advantage in that its growing season is such that early spring moisture may be adequate for good yields of grain and forage in some areas of the state where corn may not be a dependable crop.

Oat grain as a cattle feed has an advantage over corn in a higher protein content. Therefore, less supplemental protein would be needed. However, oat grain is substantially higher in fiber than corn grain, thus resulting in a lower energy value. For similar levels of production as with corn grain, less roughage should be fed with oats. A problem here is the large variability in test weight which should be expected to have important influences on the feeding value and ways in which oat grain might be used to the greatest advantage.

Fiber and digestible nutrient contents of oats are about those of a corn-hay mixture in a ration of about 60 parts corn to 40 parts hay. This would indicate that oat grain should be used as a substitute for roughage as well as other grain in finishing rations intended for high levels of production. Benefits from various methods of preparation are also of some concern when oats becomes a major ingredient in the ration.

In this experiment, oat grain was fed as the only ingredient in the ration other than mineral supplements. A low vitamin A status was desired at termination of the experiment. No vitamin A supplementation was used, but blood levels of vitamin A were monitored and considered adequate during the course of the experiment. Comparisons were made between whole and rolled grain.

Procedure

Thirty-six steers (Angus or Angus-Hereford) averaging 770 lb. were allotted to six pens of six each on the basis of weight and breed group. Three pens of cattle were fed a whole oat ration, while the other three were fed rolled oats. A pelleted supplement consisting of 75% finely ground corn grain, 15% limestone and 10% trace mineral salt was fed at 1 lb. per head daily. Oat grain was rolled to a fineness so that very few whole kernels were present.

The cattle were adapted to the oat rations over a period of 10 days during which a corn silage-haylage (alfalfa-brome) mixture was fed at decreasing amounts while increasing grain. Oat grain was fed to appetite for the remainder of the experiment.

Some difficulty was encountered in the changeover to the all-concentrate ration. This was compounded by a feeding error resulting in a greater increase in grain than scheduled for 1 day. It was observed that the cattle fed rolled oats were more adversely affected. One steer died from acidosis in the rolled oats group.

Samples of oat grain were obtained at about weekly intervals during the experiment for determinations of moisture and test weight. Average values for moisture and test weight were 10.49% and 38.5 pounds. Rolled oats were from the same source and density per bushel after rolling was 26.4 pounds.

Results

Results for the experiment are shown in table 1. Steers fed rolled oats had a higher dressing percent and heavier carcass weight. Since initial weight was about the same for the two treatment groups, differences in carcass weights are considered to more accurately reflect treatment differences than would live weights. Therefore, weight gain and feed efficiency data are shown adjusted on the basis of carcass weight and a yield of 60% which was approximately the average for all cattle in the experiment. Steers fed whole oats consumed slightly more oats. They gained at a lower rate (10.5%) than those fed rolled oats. Feed efficiency, therefore, was less for steers fed the rolled oat ration. The difference amounted to 11.6% and was due largely to differences in amount of oats. A charge for rolling equal to 11.6% of the cost of oats could have been made with no increase in feed costs in the experiment.

Carcass characteristics measured favored steers fed the rolled oat ration. These likely are primarily reflections of the slightly heavier carcasses.

Weight gain was less and feed requirements higher for these oat rations than would be expected with high-concentrate rations with corn as the major grain. It would appear that oat grain should be used as a replacement for roughage as well as grain for performance to be comparable with that obtained with corn. Additional work is needed on this as well as more research on processing methods to properly evaluate oats as a major feed grain for finishing cattle.

Table 1. Whole or Rolled Oats for Finishing Steers
(September 28, 1978, to January 26, 1979--120 days)

Item	Whole oats	Rolled oats
Number of steers	18	17 ^a
Avg. initial wt., lb.	771	769
Avg. final wt., lb.	1023	1047
Avg. daily gain, lb.	2.10	2.32
Avg. daily feed, as fed, lb.		
Silage-haylage mix ^c	1.83	1.83
Oat grain	20.70	20.11
Supplement	.97	.97
Total	23.50	22.91
Feed per lb. gain, lb. ^d		
Silage-haylage mix	.87	.79
Oat grain	9.86	8.67
Supplement	.46	.42
Total	11.19	9.89
Carcass wt., lb.	614 ^e	628
Marbling score ^f	5.29	5.53
Quality grade ^g	19.00	19.47
Yield grade	2.71	2.41
Heart-pelvic-kidney fat, %	2.44	2.68

- ^a One steer died from acidosis. Results presented for 17 head.
- ^b Adjusted on the basis of carcass weight and a yield of 60%.
- ^c Corn silage and alfalfa-brome haylage fed first 10 days of experiment when adapting to the oat grain rations.
- ^d Calculated from feed consumed and adjusted daily gain.
- ^e Carcass data missing for one steer.
- ^f Small amount = 5, modest amount = 6.
- ^g Low choice = 19, average choice = 20.