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Milo head silage (Milage) rations for finishing yearling steers

Abstract

Four finishing rations evaluated in the l02-day trial were: (1) unprocessed (Whole) milage, (2) processed (rolled) silage, (3) processed milage plus high moisture milo and (4) high-moisture milo plus chopped hay. Approximate roughage levels were 24% in rations 1 and 2 and 15% in rations 3 and 4. Yearling steers fed processed milage plus high--moisture lllilo gained faster (P<.05) and more efficiently (P<.05) than steers fed any of the other three rations. Steers receiving Whole milage (ration 1) consumed 9.4% more feed (P<.05) and required 14.0% more feed per lb. of gain than steers receiving rolled milage (ration 2). Steers fed rolled milage (rations 2 and 3) required an average of 15.8 and 8.52%, respectively, less grain per lb. of gain than steers fed rations 1 and 4.

Keywords

Cattlemen's Day, 1975; Report of progress (Kansas State University. Agricultural Experiment Station); 230; Beef; Milo silage; Yearling steers; Milage

Milo Head Silage (Milage) Rations for Finishing Yearling Steers[1,2,3]

K. K. Bolsen, J. G. Riley, and G. Fink

Summary

Four finishing rations evaluated in the 102-day trial were: (1) unprocessed (whole) milage, (2) processed (rolled) silage, (3) processed milage plus high-moisture milo and (4) high-moisture milo plus chopped hay. Approximate roughage levels were 24% in rations 1 and 2 and 15% in rations 3 and 4. Yearling steers fed processed milage plus high-moisture milo gained faster (P<.05) and more efficiently (P<.05) than steers fed any of the other three rations. Steers receiving whole milage (ration 1) consumed 9.4% more feed (P<.05) and required 14.0% more feed per lb. of gain than steers receiving rolled milage (ration 2). Steers fed rolled milage (rations 2 and 3) required an average of 15.8 and 8.5%, respectively, less grain per lb. of gain than steers fed rations 1 and 4.

Introduction

Harvesting and storing milo as milage have increased rapidly the past three years. Previous research at this station demonstrated that feedlot cattle could be finished on properly supplemented milage rations. Also processing milage to crack all of the grain improved its efficiency 11.4%.

In this trial, unprocessed (whole) milage, processed (rolled) milage and processed milage plus added grain rations were compared with a conventional, high-moisture milo plus chopped hay ration for finishing yearling steers.

Experimental Procedures

Forty-eight mixed breed yearling steers averaging 732 lbs. were allotted by breed and weight to 12 pens of four steers each. Three pens were assigned to each of these rations: (1) whole milage, (2) rolled milage, (3) rolled milage plus high-moisture milo and (4) high-moisture milo plus chopped hay. The 102-day trial began March 11 and ended June 20, 1974.

Milage and high-moisture milo were harvested from the same source the fall of 1973. Milage grain moisture was 30 to 32%; high-moisture

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[1] In this report, the term "milage" refers to milo head silage.

[2] Harvesting equipment provided by Field Queen Corporation (a division of Hesston Corporation), Maize, Kansas.

[3] Roller mill for processing milage provided by Davis Manufacturing Co., Bonner Springs, Kansas.

milo was 25% moisture. The milage forage harvester was equipped with a two-inch recutter screen, but only 20 to 30% of the grain was cracked. Approximately six percentage units of water was added to the milage as it was ensiled in 10 ft. x 50 ft. concrete stave silos.

Compositions of the four rations and milage are shown in table 13.1. All rations were mixed twice daily and fed free-choice. Rations 1 and 2 were 24% roughage. Milage for ration 2 was put through a roller mill set to crack all grain in the silage before it was fed. The ratio of milage to high-moisture milo in ration 3 resulted in 15% roughage. Ration 4 contained 15% roughage from chopped prairie hay. Initially, rations 1, 2, and 3 contained 25% forage sorghum silage, and ration 4 contained 40% chopped hay. Silage and hay were gradually decreased until all steers were receiving their final ration after 10 days.

Initial and final weights of the steers were taken after steers went 15 hours without access to feed or water. Final live weights were adjusted to a 60.3% dress for feedlot performance calculations.

Results and Discussion

Feedlot performances of the steers are presented in table 13.2. Steers fed rolled milage plus milo (ration 3) gained faster ($P<.05$) and more efficiently ($P<.05$) than steers fed any of the other three rations. Steers fed rations 1, 2, and 4 gained at similar rates; however, those fed whole milage were less efficient ($P<.05$) than those fed rolled milage or those fed milo plus chopped hay. Steers receiving whole milage (ration 1) consumed more ration dry matter ($P<.05$) than steers receiving any of the other three rations. The two rations containing rolled milage (rations 2 and 3) produced more gain per lb. of milo grain fed ($P<.05$) than either the whole milage or milo plus chopped hay rations (rations 1 and 4).

Performances of yearling steers fed whole and rolled milage rations the past two years (1973 and 1974) are summarized in figure 1. Feedlot responses of the steers receiving the two milages were similar both years. Processing the milage to crack all the grain did not influence rate of gain. However, in trial 1, steers fed whole milage consumed 14.6% more dry matter than steers fed rolled milage; in trial 2, that difference was 9.4%. As a result, steers fed whole milage in trial 1 were 11.5% less efficient than steers fed rolled milage; in trial 2, the difference was 14.0%.

An average of the two trials shows that one ton of rolled milage produced 16.5 pounds more gain than one ton of whole milage. In both trials, steers fed rations containing rolled milage required sigificantly less grain dry matter to produce a pound of gain than steers fed whole milage rations or typical feedlot rations containing 10 and 20% corn or wheat silage or 15% chopped hay.

Table 13.1. Ration Compositions and Milage Analyses (%,Dry Matter Basis).

Item	Milage			
	Whole	Rolled	Rolled + milo	Chopped hay + milo
Ration ingredients				
Milage	92.5	92.5	58.3	--
Rolled milo, 25% moisture	--	--	42.6	80.0
Chopped hay	--	--	--	15.0
Soybean meal	2.5	2.5	--	--
Supplement I[a]	5.0	5.0	--	--
Supplement II[a]	--	--	5.0	5.0
Milage analyses				
Dry matter		56.5		
Crude protein		9.5		
Grain		73.6		
Roughage		26.4		

[a]Formulated to provide 14.0% of the total ration crude protein equivalent from urea, 30,00 IU of vitamin A and 70 mg of aureomycin per steer per day.

Table 13.2. Feedlot Performance of the Steers.

Item	Milage			
	Whole	Rolled	Rolled + milo	Chopped hay + milo
No. of steers	13	13	12	12
Initial wt., lbs.	730	730	735	733
Final wt., lbs.	974	989	1028	987
Avg. daily gain, lbs.	2.40[b]	2.53[b]	2.87[a]	2.49[b]
Avg. daily feed, lbs.[1]				
milage	23.33	21.13	12.14	--
milo, 25% moisture	--	--	8.41	16.40
chopped hay	--	--	--	3.90
soybean meal	0.66	0.60	0.07	0.05
supplement	1.30	1.18	1.10	1.04
sorghum silage	0.27	0.25	0.27	--
Total	25.56[a]	23.16[b]	21.99[b,c]	21.39[c]
Feed/lb. gain, lbs.[1]	10.66[c]	9.17[b]	7.67[a]	8.62[b]
Milo grain/lb. gain, lbs.[1]	7.15[c]	5.99[a]	6.05[a]	6.59[b]
Dressing %	60.5	59.7	60.9	60.0
Quality grade	10.4	10.7	11.0	10.6

[1] 100% dry matter basis.

[2] 10 = avg. good; 11 = high good; 12 = low choice.

[a,b,c] Means in the same row with different superscripts differ significantly ($P<.05$).

Figure 13.1. Summary of Feedlot Performance of Steers Fed Whole or Rolled Milage in Two Trials (trial 1, Progress Report 210, Kansas Agricultural Experiment Station, 1974; trial 2, table 13.2).