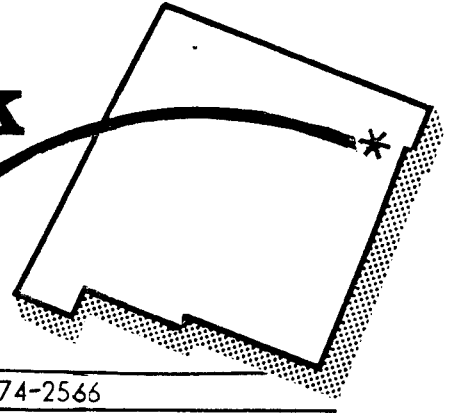




# Clayton Livestock Research Center

## PROGRESS REPORT



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PERFORMANCE AND CARCASS CHARACTERISTICS OF FEEDLOT CATTLE FED DIFFERENT PROPORTIONS OF STEAM-FLAKED MILO AND WHOLE SHELLED CORN IN THE FINISHING RATION

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In earlier research conducted at the Clayton Livestock Research Center, it was shown whole shelled corn (WSC) could replace 25% steam-flaked corn in a finishing diet with no adverse effects on animal performance and a reduction in grain processing costs<sup>1</sup>. It may be possible to optimize animal performance in a similar manner by feeding different mixtures of WSC and steam-flaked milo (SFM) in a finishing diet. Such mixtures might possibly be an effective method for decreasing cost of gain by taking advantage of a reduction in feed processing and energy costs and any differential which may exist between the relative price of corn and milo. The objective of this study was to evaluate the performance of cattle when fed different proportions of SFM and WSC in the finishing diet.

One hundred ninety-six crossbred steers were blocked by weight into sixteen pens (4 pens/weight group). Treatments consisted of an 85% concentrate finishing diet in which the concentrate portion was altered to provide ratios (% SFM:% WSC) of 100:0, 75:25, 50:50, and 25:75, calculated on an as-fed basis. Treatments were applied equally across weight groups. In a related study, intake and digestion coefficients

for dry matter, organic matter, starch, and protein were measured for the 100:0, 50:50, and 25:75 diets using three ruminally-cannulated steers in a 3 x 3 Latin square design.

No differences ( $P > .18$ ) in animal performance were observed among treatments (Table 1), however, the 100:0 and 50:50 diets tended to be more efficient in feed-to-gain conversion than either the 75:25 or 25:75 diets. Likewise, carcass characteristics did not differ among treatments (Table 1). Apparent digestion coefficients for dry matter, organic matter, protein, and starch did not differ ( $P > .05$ ) among diets (Table 2). However, because of differences in intake (Table 2), total amount of organic matter digested was greater for the 50:50 and 25:75 diets, while total protein digested was greater for the 100:00 diet compared to either the 50:50 or 25:75 diets. The results of the digestion trial would suggest 75% WSC could be substituted for SFM with minimal influence on diet digestibility while production data indicates up to 50% WSC can be substituted for SFM without adversely affecting animal performance. Economic benefits from this type of program will depend upon the relative costs of feed processing and the respective grains.

Table 1. Performance and Carcass Characteristics of Finishing Steers Fed Mixtures of Steam-Flaked Milo and Whole Shelled Corn.

Item	Diet (%SFM:%WSC)				SE <sup>a</sup>
	100:0	75:0	50:50	25:75	
Initial wt., lbs	517	517	517	517	56.1
Average daily gain, lb/d	2.79	2.73	2.84	2.73	.07
Daily feed intake lb/d	19.89	19.73	20.22	20.11	.66
Feed-to-gain, lb	7.12	7.23	7.12	7.37	.28
Hot carcass wt., lb	690.8	701.8	708.4	693.0	16.46
USDA yield grade <sup>b</sup>	2.8	2.7	2.8	2.6	.19
USDA quality grade <sup>b</sup>	11.4	12.1	12.0	11.8	.17
Dressing percent, %	66.2	67.9	67.5	67.2	.53

<sup>a</sup> SE = Standard error of mean, n = 4.

<sup>b</sup> High good = 11; low choice = 12; Choice = 13.

Table 2. Apparent Digestion Coefficients and Intake for Steers Fed Mixtures of Steam-Flaked Milo and Whole Shelled Corn.

Item	Diet (% SFM:%WSC)			SE <sup>a</sup>
	100:0	50:50	25:75	
	- - - - - % - - - - -			
Dry matter	83.6	83.6	83.8	1.64
Organic matter	85.5	85.2	85.8	.95
Starch	98.4	97.3	96.8	.45
Protein	78.6	75.5	79.3	2.7
Dry matter intake (g)	3475 <sup>b</sup>	3499 <sup>c</sup>	3502 <sup>b</sup>	12.0
Organic matter intake (g)	3186 <sup>b</sup>	3338 <sup>c</sup>	3324 <sup>b</sup>	18.0
Starch intake	1950 <sup>b</sup>	2233 <sup>c</sup>	2216 <sup>b</sup>	57.7
Protein intake	549 <sup>b</sup>	402 <sup>c</sup>	442 <sup>b</sup>	6.7

<sup>a</sup> Standard error of mean, n = 3.

<sup>b,c</sup> Means with different superscripts differ (P<.05).

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