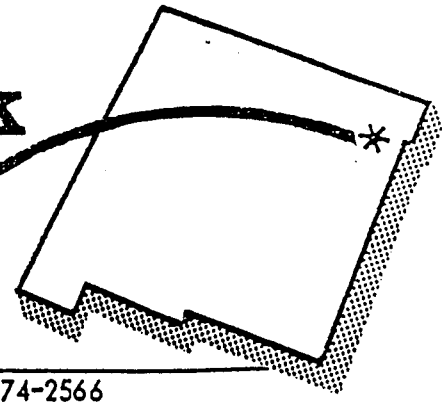




# Clayton Livestock Research Center

## PROGRESS REPORT



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Progress Report No. 26 (February, 1982)

### STEAMED VS STEAMED AND FLAKED CORN FOR FINISHING CATTLE

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In earlier research (Progress Report No. 16) steam flaked corn was superior to either whole shelled or dry rolled (cracked) corn in finishing rations. Cattle fed rations containing steam flaked corn ate less feed and gained more rapidly than those fed rations containing whole shelled corn. Even at today's high energy costs it was cost effective to steam flake. The experiment described in this report was designed to determine how much of the beneficial effect of steam flaking is due to steaming alone and how much to the combined effects of steaming and flaking. If most of the effect is due to steaming alone savings could be achieved by eliminating the flaking procedure following steaming.

One hundred twenty one calves of mixed breeding (No. 1 Okies and crossbreds) weighing approximately 360 pounds were shipped from Florida to Clayton for use in the study. Following a four week receiving period the calves were fed an 85% concentrate finishing ration (table 1) containing unprocessed whole shelled, steamed whole shelled or steam flaked corn. The steaming treatment was a minimum of 30 minutes at 205° F with the steamed only and steam flake treatments subjected to the same steaming time. During the preparation of the steamed whole corn the pin feeder was operated at the same speed as when steam flaking but with the rolls open to allow the steamed whole corn to pass through the rolls intact. The steam flaked product weighed 23 to 24 pounds per bushel.

Rations were mixed daily and the cattle fed once daily in amounts sufficient to allow free choice consumption. All groups were fed 201 days.

Table 1. Ration composition

Ingredient	%
Ground alfalfa hay	10.0
Cottonseed hulls	5.0
Corn	67.4
Hominy feed	4.2
Fat	3.0
Molasses blend	7.0
Urea	.85
Limestone	.75
Dicalcium phosphate	.3
TM salt	.5
Premix <sup>a</sup>	1.0

<sup>a</sup> Supplied 2,000,000 IU vitamin A, 30 g rumensin and 10g tylosin per ton of finished feed.

The results (table 2) confirm those of the earlier study showing a significantly lower feed intake, an increased rate of gain and improved feed conversion by steam flaking compared to whole shelled corn. If gain is valued at 60¢ per pound, steam flaked corn was worth approximately \$23 more per ton than unprocessed whole corn. Steaming alone caused an increased feed intake and increased gain compared to unprocessed corn but did not improve conversion. Flaking following steaming reduces feed intake compared to either unprocessed or steamed whole

thus significantly improves feed conversion.  
It appears from this study in order to

obtain the full processing benefits corn must  
be subjected to both steaming and flaking.

Table 2. Results of 201-day feeding trial

Item	Corn processing method		
	None	Steamed whole	Steamed flaked
Number of steers	41	41	49
Initial weight, lb.	421	428	424
Daily feed intake, lb. as fed	18.28 <sup>a</sup>	20.32 <sup>b</sup>	18.08 <sup>a</sup>
Dry matter, % as fed	84.46	82.25	81.69
Daily dry matter intake, lb.	15.44 <sup>b</sup>	16.71 <sup>c</sup>	14.77 <sup>a</sup>
Daily weight gain, lb.	2.75 <sup>a</sup>	2.90 <sup>b</sup>	2.95 <sup>b</sup>
Dry matter per pound gain, lb.	5.61 <sup>b</sup>	5.76 <sup>b</sup>	5.01 <sup>a</sup>
Dressing percent	64.2	62.1	64.2
Quality grade <sup>d</sup>	11.8	11.4	11.5
Yield grade <sup>e</sup>	2.7	2.9	2.9

<sup>abc</sup> Values having different superscripts are different (P<.01).

<sup>d</sup> Choice = 13, low choice = 12, high good = 11, good = 10.

<sup>e</sup> Yield grade is scored from 1 through 5 with 1 being the highest cutability.

The 1982 Livestock Research and Cattle Growers' Short Course will be held at New Mexico State University on February 15-16, 1982. Registration and tour of facilities are scheduled for Monday morning. The Monday afternoon program is "The Dollars and Sense of Ranching". The evening program is "Computers in the Ranching Business" and on Tuesday morning "Stocker-Yearling Management" is the subject.

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