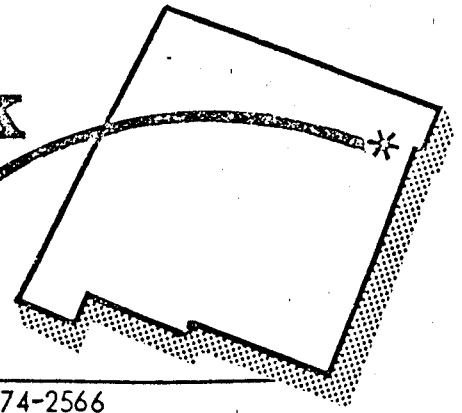




Clayton Livestock Research Center

PROGRESS REPORT



Route 1 Box 109 Clayton, New Mexico 88415 Tel. (505) 374-2566

Progress Report No. 16 (June, 1980)

STEAM FLAKED VS DRY ROLLED AND DRY WHOLE SHELLED CORN

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It has been clearly demonstrated that steam flaking of corn increases its efficiency of utilization in cattle rations compared to ground or dry rolled corn. It has also been shown that when properly supplemented whole shelled corn can be fed satisfactorily to cattle in an "all concentrate" diet. Due to high energy costs it is sometimes questioned if steam flaking will still pay. Additionally one wonders if the cheaper process, dry rolling or grinding is adequate. Furthermore, since whole corn can be used in an all concentrate ration perhaps it can be used satisfactorily in a conventional ration and thus save all processing costs. A trial has been completed recently at this Center in which steam flaked, dry rolled and dry whole shelled corn were compared in a typical finishing ration containing 15% roughage. Two hundred thirty nine No. 1 Okie calves and 101 native Hereford calves were used in the experiment. Steam flaked corn was steamed approximately 30 min. and flaked to a product weighing 22 or 23 pounds per bushel and containing an average of 19% moisture as it came from the flaker. The ration for all forms of corn is shown in table 1.

The results presented in table 2 clearly demonstrate the superiority of steam flaked corn. Cattle on the steam flaked corn ate less feed, gained more weight and converted feed to gain more efficiently than those on either dry rolled or whole shelled corn. No differences occurred in carcass quality. A

Table 1. Ration composition

Ingredient	%
Ground alfalfa hay	10.0
Cottonseed hulls	5.0
Corn	67.4
Rice bran	4.2
Fat	3.0
Molasses	7.0
Urea	.85
Powdered limestone	.75
Dicalcium phosphate	.3
TM salt	.5
Premix ¹	1.0
Total	100.0

¹The premix contained vitamin A, rumensin and bacitracin MD in cottonseed meal.

digestibility study on the rations showed both dry rolling and steam flaking improved digestibility of dry matter, starch and protein compared to whole corn. The feeding trial, however, showed that only steam flaking resulted in improved conversion. Calculation of net energy values shows higher values for steam flaked grain but no effect of dry rolling. If weight gain is given a value of 67¢ per pound, steam flaking was worth \$26 per ton of corn more than either dry rolled or whole corn. It is interesting that if corn cannot be steam flaked it might as well be fed whole since dry rolling did not improve its value.

¹Appreciation is expressed to Susie Johnstone for assistance in conduct of the digestion trials.

Table 2. Performance of the cattle

	Steam flaked	Dry rolled	Whole
No. of steers	113	114	113
Initial weight, lb	567	560	562
Average days on feed	171	169	172
Daily feed intake, lb	20.79 ^a	22.29 ^c	21.91 ^b
Daily weight gain, lb	2.91 ^b	2.84 ^{ab}	2.78 ^a
Feed per pound gain, lb	7.14 ^a	7.85 ^b	7.88 ^b
Carcass weight, lb	679	666	664
Dressing percent	63.8	64.0	63.8
Quality grade ^d	12.3	12.3	12.2
Ration digestibility, %:			
Dry matter	88.51 ^b	89.84 ^b	86.86 ^a
Starch	99.32 ^c	97.14 ^b	92.95 ^a
Protein	89.04 ^{ab}	90.40 ^b	88.15 ^a
Net energy of corn as fed, Mcal per 100 lb			
NE ^m	92	78	78
NE ^g	60	52	52

^{abc} Means in appropriate comparisons having different superscripts are significantly different.

^d Choice = 13: Low choice = 12.

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