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tempering chamber for approximately 20 minutes. Pressure in the steam boiler is 20 pounds and the temperature in the chamber is between 205° and 210° F. The steam rolled grain has a moisture level of 18 to 19 percent as it comes through the roller. The finished product has a distinctive flavor and odor which may be best described as a pleasing cooked cereal aroma.

The pictures on Page 16 show clearly the physical appearance of milo steamed under these conditions as compared to dry-rolled milo. One of the advantages of the steamed product is lack of fine material, as compared to the dry-rolled product. This is considered very important in cattle rations, as fattening cattle seem to prefer a ration with the minimum of fine material. Feeding trials show that rations which contain excessive fines result in lower performance.

Table 1 gives results of a fattening ration conducted at the university's Casa Grande feedlot during the summer of 1963, comparing steam-rolled milo as described above with dry-rolled milo and steam-rolled barley. The rations used are shown in Table 2.

#### Raise Gains by 10 Percent

The usual difference between the milo and barley was noted. Steam-rolled barley increased gains by 10 percent over the dry-rolled milo and improved efficiency by 11 percent. The steam-rolled milo increased gains by 0.20 pound daily over the dry-rolled milo and required 50 pounds less feed to produce 100 pounds of gain than did the dry-rolled milo.

Feed intake was similar for both milo groups and was actually higher than for the steers on the barley ration.

A nylon bag study was made to learn if the rate of disappearance of ground milo would be different from that of steam-rolled milo. (The nylon bag technique is a method of studying digestibility of feedstuffs in the rumen. Small nylon bags containing the feed to be studied are tied to weighted chains and placed in the rumen of a fistulated steer. The bags are removed at regular intervals and the contents washed, dried and weighed. The feed remaining in the bag represents the undigested portion. Removal of the bags at certain fixed intervals permits an estimate of the rate of digestion. Of course the results obtained must be verified with digestion trials and growth studies. This technique serves as a very useful screening tool).

Results of the nylon bag study, comparing the treated milo with the non-treated, are presented in Table 3. These results indicate a more rapid digestion of the steamed milo as well as possibly a greater total digestibility. It is probable that the increased performance from steam-rolled milo on the growth trial was due to better digestion of the steam-rolled milo as compared to the dry-rolled. A digestion trial is under way to test this possibility.

In general it would appear that a moist, high temperature treatment would improve the utilization of milo. This improvement may amount to as much as 10 percent. Considerable study is needed to determine under what feeding conditions a response to steam-rolled milo might be expected.

**Table 3. Effect of Steaming Milo on Disappearance of Dry Matter From Nylon Bags in a Fistulated Steer**

Hours in rumen	% disappearance	
	Dry-rolled milo	Steam-processed milo
2	39.1	50.9
4	45.7	52.3
6	54.5	59.4
8	53.8	59.4
24	74.0	77.7

## Long-Time Mortgage Has Hefty Interest

Home mortgages are getting longer and longer, but a home buyer should think long and hard before stretching the loan over too long a period of time.

Dr. George W. Campbell, Jr., extension economist with the University of Arizona, suggests that each family carefully weigh the advantages of a long term mortgage before getting one. Whether a family should or shouldn't depends on the circumstances.

During the past two decades the typical home mortgage has lengthened substantially. The Federal Housing Administration now insures 35-year mortgages on new homes, and, under certain circumstances, loans up to 40 years. The Farmers Home Administration of the U. S. Department of Agriculture makes home loans for up to 33 years.

Dr. Campbell says the chief disadvantages of long term loans are that the total interest costs are considerably higher and equity in the house is built up more slowly. A \$15,000 loan at 5¼ per cent annual interest for 35 years will cost the homeowner \$17,823 in interest alone. Had the same loan been obtained for 20 years, interest payments would have been only \$9,264.

Long term mortgages do, however, offer several advantages. They allow lower income families to become homeowners. They enable the family with a specified amount of money for monthly payments to buy a more expensive home. And they make it easier to sell the house because more people may be attracted by a long-term mortgage and a small cash settlement.

**Table 2. Experimental Rations**

	Steam-rolled barley	Dry-rolled milo	Steam-processed milo
Barley	62	—	—
Milo	—	58.2	58.2
Alfalfa <sup>a</sup>	15	15	15
Molasses	8	8	8
Cottonseed meal	5	8.8	8.8
Cottonseed hulls	4	4	4
Dicalcium phosphate	1	1	1
Salt	0.5	0.5	0.5
Tallow	4	4	4
Urea	0.5	0.5	0.5
	100.0	100.0	100.0
Vitamin A. 10,000 I.U./bm.	10 gm.	10 gm.	10 gm.

<sup>a</sup> 1% fat added to alfalfa hay at time of grinding to control dust.