

The Value of Feed Lot Lighting, 1964

F. W. Boren, R. Lipper, E. F. Smith, and D. Richardson

In the two tests reported here the concentrate mixture or roughage-concentrate mixture was before the animals at all times. In addition a small amount of prairie hay was fed. In Lots 6 and 3 yearling Hereford feeder heifers were used, in Lots 17 and 13, yearling Hereford steers were the experimental animals. All the animals graded good to choice as feeders.

The lighting arrangement consisted of three 25-watt incandescent lamps, spaced about 8 feet apart and suspended under sheet-metal reflectors about 7 feet high. A photoelectric control automatically turned the lights on at dusk and off at dawn. The low mounting height and the reflectors were used to limit lighting to the lighted lot. In one comparison the two lots were about 80 feet apart; in the other they were about 100 feet apart.

It is doubtful whether the lights had any effect on the performance of the animals, although in the one test the weight gains were increased .10 of a pound per steer daily. However, the yield for those steers was 2.1% less, which indicates that the increased gain may have been at least partially intestinal fill, since all other carcass measurements were about the same (Table 29).

Table 29
The value of feed lot lighting.

Treatment	Concentrate mixture, self-fed		Roughage-concentrate mixture, self-fed	
	Lights	No Lights	Lights	No Lights
Duration of study	140 days May 6 to September 24, 1964		138 days May 8 to September 28, 1964	
Lot numbers	6	3	17	13
Number animals per lot	10	10	8	10
Average initial wt., lbs.	588	596	792	817
Average final wt., lbs.	917	941	1134	1104
Daily gain per animal, lbs.	2.34	2.16	2.48	2.08
Daily ration per steer, lbs.:				
Concentrate mixture ¹	18.2	18.6		
Roughage-concentrate mixture ²			27.8	26.5
Prairie hay	1.8	1.8	1.5	1.6
Feed per pound of gain, lbs.:				
Concentrate mixture	7.8	7.6		
Roughage concentrate mixture			11.2	12.7
Prairie hay	.8	.8	.6	.8
Total	8.6	8.4	12.8	13.5
Carcass data, av. per animal:				
Carcass wt., lbs.	574	580	687	673
Dressing %	63	62	58.8	60.9
Carcass grade ³	18.2	18	17.1	17.2
Rib-eye area, sq. in.	11.3	11	11.9	11.6
Fat thickness, in.	.94	.92	.86	.86

1. The concentrate mixture self-fed to Lots 3 and 6 on a percentage basis consisted of rolled sorghum grain, 83.4; soybean meal, 3.6; molasses, 5; dehydrated alfalfa, 5; ground limestone, 0.5; urea, 0.5; premix, 1. The premix supplied per head daily 70 mgs. aureomycin, 10 mgs. stilbestrol and 15,000 I.U. vitamin A. It also contained a commercial trace mineral mixture (Calcium Carbonate Co., Chicago, Ill.).

2. The roughage-concentrate mixture self-fed to Lots 17 and 13 on a percentage basis consisted of soybean oil meal, 10; rolled sorghum grain, 40; ground rice hulls, 35; molasses, 10; urea, dicalcium phosphate and premix, 1% each. The premix supplied per head daily 10 mgs. stilbestrol, 70 mgs. aureomycin and 28,000 I.U. of vitamin A.

3. The numerical grade, 17, represents average good; 18 is high good.

Cane Molasses and Hemicellulose Extract (Wood Molasses) in Rations for Finishing Steers. The Value of Shelter for Finishing Cattle, 1964 (Project 370).

F. W. Boren, H. B. Pfost, E. F. Smith, and D. Richardson

The only variable planned in the diet was type of molasses, which composed 10% of the self-fed roughage-concentrate mixture. Cane molasses was used in two lots; hemicellulose extract,^a in two lots. The self-fed roughage-concentrate mixture was composed of these ingredients: soybean oil meal, 10%; rolled sorghum grain, 40%; ground rice hulls, 35%; molasses, 10%; urea, dicalcium phosphate and premix, 1% each. The premix supplied 10 mgs. stilbestrol, 70 mgs. aureomycin and 28,000 I.U. vitamin A per steer daily.

The average proximate analysis of the mixture was 14% protein, 1.9% fat and 14.2% fiber, in addition to the roughage-concentrate mixture, which was before the animals at all times, they were fed about all the prairie hay they would eat, about 3 pounds per head daily for the first seven weeks of the test and less later.

One lot receiving cane molasses and one receiving hemicellulose extract were in pens with no shed shelter. The concrete pens were 30 X 43 feet, with a 15- X 30-foot soil-floor shed open to the south. The shed was about 7 feet high at the rear, 12 feet high in front.

The steers used were choice-grade feeders that had been used in other tests and were relotted to minimize any differences due to prior treatment.

^a A by-product of wood hardboard manufacture furnished by Masonite Corporation, Chicago, Ill.

Table 30
Cane molasses and hemicellulose extract in rations for finishing steers. The value of shelter for finishing cattle, May 8 to September 28, 1964—138 days.

Treatment	Cane molasses		Hemicellulose extract	
	Shed	No shed	Shed	No shed
Lot no.	13	15	16	14
Steers per lot	10	10	9	10
Initial wt., lbs.	817	820	811	812
Daily gain, lbs.	2.08	2.37	2.22	2.30
Daily ration per steer, lbs.:				
Roughage-concentrate mixture ¹	26.5	29.6	28.9	28.8
Prairie hay	1.6	1.5	1.4	1.5
Feed per lb. of gain, lbs.:				
Roughage-concentrate mixture	12.7	12.5	13.0	12.5
Prairie hay	.8	.6	.6	.6
Total	13.5	13.1	13.6	13.1
Carcass data:				
Av. carcass wt.	673	697	682	672
Av. dressing %	60.9	60.7	61.1	59.5
Av. carcass grade ²	17.2	17.4	17.3	17.1
Av. rib-eye area, sq. in.	11.6	11.9	11.7	10.8
Av. fat thickness, in.	.86	.88	.92	.82

1. Identical rations fed to all lots, except cane molasses was fed to Lots 13 and 15 and wood molasses to Lots 14 and 16. The composition in percent was: soybean oil meal, 10; rolled sorghum grain, 40; ground rice hulls, 35; molasses, 10; urea, 1; dicalcium phosphate, 1; premix, 1. The premix supplied per head daily 10 mgs. stilbestrol, 70 mgs. aureomycin, 28,000 I.U. vitamin A.

2. The numerical grade, 17, represents average good.

The type of molasses fed seemed to have very little influence on rate of gain, feed consumption, palatability, efficiency or carcass characteristics measured (Table 30).

In the comparison where two lots of the steers had access to a shed and two did not, those without the shed shelter made a slightly greater daily gain. Probably 10 to 20% of the days were hot enough to cause panting by the steers. Steers with access to shade used it those days.

The Effects of Silage Additives on the Feeding Value of Forage Sorghum Silage, 1964-65 (Project 623).

F. W. Boren, G. M. Ward, E. F. Smith, and D. Richardson

This experiment was to determine effects from adding glucose, sucrose and starch to forage sorghum (DeKalb FS1a), immediately prior to ensiling, on the feeding value of the subsequent silage.

When the forage sorghum grain was at medium-to-hard dough stage, it was field chopped with a conventional silage cutter. Dry matter of the forage was determined at harvesting and equalized by adding water. Each additive was added to the forage prior to ensiling. The sorghum forage was ensiled in 40-ton concrete stave silos.

Two trials were conducted. In one, steer calves were fed in groups of 10; in the other, 3 steers were individually fed the silages. The steer calves used were good-to-choice Herefords from the Warner Ranch, Cimarron, Kansas. They were assigned to experimental diets on a random-weight basis.

The amount of glucose, sucrose and starch added was 5.7, 5.6, and 5.6% of dry matter, respectively.

Table 31 presents a summary of the group and individual feeding experiments. Although there were differences in average daily gains made by the calves, the differences were not statistically significant. Under the conditions of the experiment, silage additives used had no effect on average daily gains.

The silages fed were excellent quality, indicating that sorghum silage can be made from forage that is high (40%) in dry matter.

Table 31
The effects of silage additives on the feeding value of forage sorghum silage.

Silage additive	December 4, 1964 to March 15, 1965			December 4, 1964 to March 15, 1965		
	Group fed -100 days	Group fed -100 days	Group fed -100 days	Individually fed -100 days	Individually fed -100 days	Individually fed -100 days
	No.	Glucose	Sucrose	No.	Glucose	Starch
Lot no.	3	4	5	6	4	5
No. steers	10	10	10	10	3	3
Initial wt., lbs.	417	416	417	417	417	417
Final wt., lbs.	551	564	553	558	542	550
Av. daily gain, lbs.	1.34	1.48	1.46	1.34	1.25	1.33
Av. daily ration, lbs.:						
Silage, free choice	26.2	26.4	25.6	25.0	24.5	24.1
Soybean oil meal	1.25	1.25	1.25	1.25	1.25	1.25
Dicalcium phosphate	.16	.10	.10	.10	.10	.10
Salt		free choice			free choice	
Silage dry matter, %	40.2	40.1	39.6	40.2	40.1	39.6
Silage dry matter consumed per head daily, lbs.	10.5	10.6	10.1	10.1	9.85	9.54
Silage dry matter per lb. of gain, lbs.	7.84	7.16	6.92	7.16	7.88	7.17
Feed cost per cwt. gain ¹	\$11.89	\$10.82	\$10.75	\$10.96	\$11.38	\$11.32

1. Feed prices on page 72. Cost does not include salt consumed.