

The Value of Feedlot Lighting, 1963-64.

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The favorable results of previous tests* of the value of beef feedlot lighting justified further studies. Faster and more efficient gains were obtained under lighted conditions in two years of farm testing.

Two tests are reported here, one using heifer calves on a silage ration and the other with steer calves self-fed a roughage-concentrate mixture. The heifer calves were good to choice Herefords from near Fort Davis, Texas; steer calves were choice Herefords from near Alden, Kansas. All animals were assigned to treatment on a random-weight basis.

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 lot in which they were mounted.

On the silage ration the two lots were located about 80 feet apart. Where the roughage-concentrate mixture was self-fed the two lots were about 100 feet apart.

* "Beef Feedlot Lighting" by K. E. Robertson and R. I. Lipper, Report of Progress No. 30, Department of Agricultural Engineering, Kansas Agricultural Experiment Station, February, 1964.

Table 55
The value of lights for feedlot calves.

Treatment	Silage ration		Roughage-concentrate mixture self-fed	
	Lights	No lights	Lights	No lights
Duration of study	Nov. 27, 1963-Mar. 17, 1964—111 days		Dec. 17, 1963-Mar. 21, 1964—95 days	
Lot no.	3	6	13	17
No. of animals per lot	10	10	10	10
Initial wt. per animal, lbs.	430	430	483	479
Daily gain per animal	1.46	1.23	2.72	2.77
Av. daily ration, as-fed basis, lbs.:				
Sorghum silage	30.89	30.60		
Soybean meal	1.25	1.25		
Dicalcium phosphate	0.10	0.10		
Roughage-concentrate-molasses mixture ¹			17.44	16.68
Alfalfa wafers			3.79	3.83
Prairie hay			1.73	1.76
Salt			Free choice	
Feed per lb. of gain, lbs.:				
Sorghum silage	21.16	24.88		
Soybean meal	0.86	1.02		
Roughage-concentrate mixture			6.41	6.02
Alfalfa wafers			1.39	1.38
Prairie hay			.64	.64
Feed cost per lb. of gain ²	\$0.1125	\$0.1327	\$0.1573	\$0.1496

1. The roughage-concentrate mixture on a percentage basis consisted of: Ground rice hulls, 42; ground sorghum grain, 40.4; molasses, 10; soybean meal, 4.6; urea, 1; dicalcium phosphate, 1; Aureomycin and stilbestrol premix, 1 (Supplied about 70 mgs. Aureomycin and 10 mgs. stilbestrol per steer daily).

2. Feed prices given on page 78.

On the silage tests the lighted lot gained slightly more than the non-lighted lot with no increase in feed intake, for more efficient gains. Where the roughage-concentrate mixture was self-fed, lighting seemed to have no effect. The last two lots will be on test 15 more days. Both trials were short, so the results should be interpreted as progress reports only.

Improving Beef Cattle Through Breeding Methods (Project 286).

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The purebred Shorthorn beef cattle breeding project was continued during 1963 without modification. Inbreeding was continued in the two separate lines, which have remained closed to outside breeding since the study was initiated in 1949. The inbreeding plan has been basically to continue successive generations of half-sibbing in both lines. The Wern-acre Premier line is in its fifth generation and the Mercury line, its fourth generation of inbreeding.

This project was initiated to study the inheritance of production traits in beef cattle, to evaluate the effects of inbreeding in beef cattle, and to explore the feasibility of using inbred lines of beef cattle to improve production traits.

Extensive individual animal production data have been collected on all cattle produced in the project since its start. No extensive line crossing has been attempted to date because of the relatively low levels of inbreeding and the limited number of breeding animals in the project.

The management of the experimental cattle includes weighing each cow and calf immediately following parturition. Summer pasture breeding is practiced and the calves are born during the spring of each year. The mature cows are wintered on dry native grass. The calves are not creep fed during the suckling period. All calves are weaned, weighed, and scored for conformation when they are approximately six months old and the standardized weaning age for weaning weight correction is 180 days. They are placed on individual feeding trials for record-of-performance tests for 182 days shortly after they are weaned. Body weight gain and feed consumption records are maintained on all calves during the feeding period. The calves are scored for conformation as yearlings when they complete the prescribed feeding test.

The full-feed ration for the bulls consists of 75 percent cracked corn and 25 percent chopped alfalfa hay; that for the heifers, 55 percent cracked corn and 45 percent chopped alfalfa hay. All calves are fed twice daily from individual feeders.

Production data for the 1962 calves are summarized in Table 56. The 1963 calves had not completed their feeding test at the time of this report. Thirty-four calves of the 1963 calf crop are being fed.