

Table 12

Trace-mineral salt¹ for steers on a fattening ration (concrete and shelter vs. dirt and no shelter).

March 17, 1961, to July 26, 1961—131 days.

Treatment	Concrete lot + shelter		Dirt lot, no shelter	
	Plain salt	T-M salt	Plain salt	T-M salt
Lot no.	11	12	18	23
No. steers per lot	10	10	9 ²	10
Av. initial wt., lbs.	849	857	852	846
Av. final wt., lbs.	1154	1162	1140	1126
Av. total gain, lbs.	305	305	288	280
Av. daily gain, lbs.	2.33	2.33	2.20	2.14
Standard error of mean	±0.08	±0.12	±0.07	±0.09
Av. daily ration, lbs.:				
Cracked sorghum grain	21.6	22.1	21.7	22.2
Soybean oil meal	1.0	1.0	1.0	1.0
Prairie hay	6.0	6.0	5.9	5.9
Sorghum silage	1.7	1.7	1.7	1.7
Av. feed per cwt. gain, lbs.:				
Sorghum grain	927	948	986	1087
Soybean oil meal	43	43	45	47
Prairie hay	258	257	269	277
Sorghum silage	72	72	76	78
Feed cost per cwt. gain: ³	\$21.41	\$21.84	\$22.73	\$23.84
Shrink data:				
Av. shrink June 2, 1961 ⁴				
Pounds	39.5	45.5	38.9	38.5
%	3.6	4.2	3.7	3.6
Av. shrink to market ⁵				
Pounds	54.5	57.5	46.1	50.0
%	4.5	4.7	4.0	4.3
Av. overnight wt. change, lbs. ⁶				
	+15.0	+9.5	+1.0	+9.5
Carcass data:				
Av. carcass wt., lbs.	710	709	684	682
Av. packer yield, % ⁷	62.1	61.2	61.1	61.1
Av. U.S.D.A. grade ⁸	11.8	11.3	11.7	11.9
Av. fat thickness, in. ⁹	0.84	0.82	0.67	0.61
Av. rib eye, sq. in. ⁹	11.51	11.62	11.46	11.71

1. Commercial trace-mineral salt containing not less than 0.150% manganese; 0.010% cobalt; 0.033% copper; 0.005% zinc; 0.007% iodine; 0.125% iron.

2. One steer foundered badly and was not used in gain or carcass calculations.

3. Based on feed prices listed on page 2.

4. Cattle were individually weighed, loaded on trucks, hauled 60 miles, weighed off trucks, and returned to pens.

5. Cattle were individually weighed, loaded on trucks, hauled 125 miles, and individually weighed off trucks.

6. Cattle were fed and watered during overnight stand in the Kansas City Stockyards.

7. Based on off-truck weight at Kansas City.

8. Average grade determined as follows: Low choice, 13; high good, 12; average good, 11; low good, 10; high standard, 9.

9. Measured at 12th rib.

The Effect of Added Calcium and Phosphorus with and without Added Protein to the Ration of Steers on Bluestem Pasture (Project 253-1).

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This experiment was designed to evaluate the desirability of supplementing bluestem pasture as indicated in the title.

Forty Hereford steer calves were divided into four lots of 10 each and fed the following experimental rations per head daily:

Lot 1. Two pounds of dehydrated molasses (a molasses product dried on soybean hulls).

Lot 2. Two pounds of dehydrated molasses and 39.1 grams of dicalcium phosphate.

Lot 3. One pound of dehydrated molasses and 1 pound of 41% corn gluten meal.

Lot 4. One pound of dehydrated molasses and 1 pound of 41% corn gluten meal plus 29.6 grams of dicalcium phosphate.

The trial was started February 18, 1961, with steers weighing about 445 pounds each. They were all pastured together on a 190-acre bluestem pasture, gathered each morning, divided into different lots and fed. This system was continued until October 5, 1961, when they were fed three times per week instead of every day. The ration was increased so three feedings provided the same ration as the previous seven.

The cattle were weighed every 28 days, and a blood sample was obtained from the jugular vein of each animal. This was analyzed for calcium and phosphorus as soon as possible after collection. Hematocrit values were also determined.

At the beginning of the trial a bone sample was obtained from the coccygeal vertebra and a tooth was extracted to determine the effects of added mineral on the amount deposited in the bone and teeth. This procedure was repeated at the completion of the third and sixth months and more samples will be obtained at slaughter. The samples were placed in a sharp freeze and will be analyzed when the project is terminated.

Average weights and daily gains are shown in Table 13.

The October 2, 1961, gains are shown to approximate a long summer grazing season and it is evident that there was an increased gain when the steers received a protein supplement at 1 pound per head per day.

March 3 was the most recent weigh period and clearly shows the effect of wintering on dry bluestem grass. Approximately 5 pounds of prairie hay were provided per head daily when the snow cover was deep, about six weeks.

Adding protein to lots 3 and 4 gave a highly significant increase in gain over lots 1 and 2 for the entire period. Gain differences between lots 1 and 2 or between lots 3 and 4 were not significant.

The following table gives average calcium, phosphorus, and hematocrit values.

Calcium, Phosphorus and Hematocrit Values
(Blood values in mgs./100 mls. blood)

Lots	Calcium	Phosphorus	Hematocrit
1	10.47	5.65	35.73
2	10.27	6.82	35.13
3	10.39	6.28	34.77
4	10.27	6.42	35.52

Table 13

Effects of added calcium and phosphorus on steers with and without protein added on pasture.

	Starting wt. 2-18-61	Wt. 10-2-61	Av. daily gain 2-18-61 to 10-2-61	Wt. 3-3-62	Av. daily gain 2-18-61 to 3-3-62
Lot 1	438	680	1.07	579	.373
Lot 2	455	689	1.04	613	.418
Lot 3	441	734	1.30	702	.690
Lot 4	457	740	1.25	710	.669