Dicalcium Phosphate and Vitamin A for Calves on Winter Bluestem Pasture, 1962-63 (Project 253-1).

E. F. Smith, D. Richardson, F. W. Boren, and C. V. DeGeer

The 40 steer calves, 10 per lot, used in this experiment were good-to-choice Herefords from near Fort Davis, Texas, assigned on a random-weight basis to their treatments. They were pastured together in a 190-acre bluestem pasture during the winter, penned three times weekly, divided into treatment groups and fed the experimental diets shown in Table 40. The lots receiving dicalcium phosphate (0.1 pound per steer daily) and vitamin A (10,000 I.U. daily) received it mixed with soybean meal.

During the summer grazing phase only salt was fed, free choice. Each group of steers was in a 60-acre bluestem pasture. The steers were rotated among pastures the first of each month to minimize pasture differences.

The treatments appeared to have little effect during the winter. Some differences in weight gain occurred during summer grazing, but probably not from treatment.

Table 40
Dicalcium phosphate and vitamin A for calves on winter bluestem pasture, winter grazing, December 8, 1962, to April 1, 1963—114 days.

Lot no.	12A	12B	12C	12D
Treatment	Control	Dicalcium phosphate	Vitamin A	Dicalcium phosphate and vitamin A
No. of steers	10	10	10	10
Initial wt. per steer, lbs.	372	378	375	382
Daily gain per steer, lbs.	0.30	0.23	0.23	0.23
Daily ration per steer, lbs.:				
Soybean meal	1.0	1.0	1.0	1.0
Ground sorghum grain	1.0	1.0	1.0	1.0
Dicalcium phosphate	....	0.1	....	0.1
Vitamin A, 10,000 I.U. daily	....	....	Yes	Yes
Bluestem pasture	Free choice			
Salt	Free choice			
Summer grazing, April 1, 1963, to September 29, 1963—184 days.				
Initial wt., lbs.	406	404	401	408
Gain per steer, lbs.	242	273	272	241
Daily gain per steer, lbs.	1.32	1.48	1.48	1.31
Summary, December 8, 1962, to September 29, 1963—298 days.				
Final wt., lbs.	648	677	673	649
Gain per steer, lbs.	276	299	294	267
Daily gain per steer, lbs.	0.93	1.00	0.99	0.90

Dicalcium Phosphate and Vitamin A for Calves on Winter Bluestem Pasture (Project 253-2).

L. J. Theurer, E. F. Smith, D. Richardson, and F. W. Boren

The 40 heifer calves, 10 per lot, used in this experiment were good-to-choice Herefords from near Fort Davis, Texas, assigned on a random-weight basis to their treatments. They were pastured together in a 190-acre bluestem pasture, penned three times weekly, divided into treatment groups, and fed experimental rations shown in Table 41. Dicalcium phosphate (0.1 pound per heifer daily) and vitamin A (10,000 I.U. daily), when fed, was mixed with soybean meal.

The results (Table 41) indicate no apparent advantage to feeding dicalcium phosphate, vitamin A or a combination of the two.

Table 41
Dicalcium phosphate and vitamin A for calves on winter bluestem pasture, December 6, 1963, to April 3, 1964—120 days.

Lot no.	7	8	9	10
Item	Control	Dicalcium phosphate	Vitamin A	Dicalcium phosphate and vitamin A
No. of heifers	11	10	11	10
Initial wt., lbs.	437	434	428	437
Daily gain per heifer, lbs.	.36	.15	.17	.15
Daily ration per heifer, lbs.:				
Soybean meal	1.0	1.0	1.0	1.0
Ground sorghum grain	1.0	1.0	1.0	1.0
Dicalcium phosphate	......	0.1	......	0.1
Vitamin A, 10,000 I.U. daily	......	......	Yes	Yes
Bluestem pasture	Free choice			
Salt	Free choice			

The Value of Supplemental Copper and Cobalt for Steers on Fattening Rations, 1963 (Project 253-4-6).

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Cobalt is one of the more recent minerals discovered to be essential to ruminants. It is necessary for the synthesis of vitamin B$_{12}$ in the rumen. Copper is necessary for hemoglobin formation, along with iron. Corn is considerably lower in copper and cobalt than sorghum grains, according to the National Research Council. Its requirement tables for beef cattle show that 2 to 4 mgs. of copper and .03 to .05 mg. of cobalt are required per pound of feed.

The 54 good-to-choice Hereford steers, 9 per lot, were assigned to treatment on a random-weight basis. Two steers were removed shortly after the test started because of urinary calculi and arthritis, one from each of Lots 18 and 21. All lots received silage for 30 days and rolled corn was gradually increased until full feed was reached. Each lot received a controlled amount of prairie hay and a soybean meal protein supplement fed at 1.5 pounds daily. It supplied 7,500 I.U. of vitamin A, 10 mgs. of stilbestrol, 70 mgs. Aureomycin, and 20 gms. of calcium. Cobalt sulfate was added to the supplement for three lots to provide .75 mg. cobalt daily per head. Cupric sulphate was fed to two lots to supply 49.5 mgs. copper daily. Excess copper was fed to two lots to supply 271.5 mgs. copper per head daily. Both copper treatments utilized the supplement as their carrier.

The results of the trial are reported in Table 42. Differences in daily gain and efficiency were not large. However, lots receiving cobalt (.75 mg. per head) or copper (49.5 mgs. per head) at the lower level or cobalt and copper combined at the lower level were somewhat superior. The two lots receiving excess copper (271.5 mgs. per head) responded the same as the control lot.