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Identical Twin Cows on Winter Bluestem Pasture
Used to Measure the Value of Supplemental Feed
and of Vitamin A.

G.A. Greathouse, R.W. Swanson and E.F. Smith

1. Value of Supplemental Feed

Two pairs of identical twin heifer calves were grazed together on bluestem pasture from 1961 until 1968. During the two winters, 1961-63 each ones daily supplement was 1 pound of ground sorghum grain, 1 pound of soybean oil meal, 20,000 I.U. of Vitamin A and 0.05 lb. of dicalcium phosphate. Salt was always available.

The third winter (1963-64), as bred two year olds, one of each pair was randomly selected to continue receiving the winter supplement, the other to receive only salt and bluestem pasture. They were pastured together, and those fed were separated each morning during the winter to receive the supplement.

Results

Results reported here are for calf crops produced from 1964 to 1967, inclusive, table 16. There were no significant differences between treatments. Birth weights and weaning weights were highest for calves from the supplemented cows. They also averaged calving 10 days earlier, but the price of calves and feed should be considered in evaluating the practice. With prices we used,

supplemental feeding did not improve calf weights enough to pay for the supplements, not including the extra labor. The numbers involved are small, Table 32.1, p. 409, of Kempthorne et al's Statistics and Methods in Biology shows each identical twin animal may equal 8. A valuable result of the study was that beef cows that calf first as three year olds and late in the spring can reproduce quite well on a diet of only bluestem pasture and salt; however, its effect on the length of productive life is not known.

2. Value of Vitamin A

Six pairs of identical twin heifers were purchased in the fall of 1964, and have been grazed together since then on bluestem pasture with a supplement, from November to April 2 of 1 pound of soybean oil meal, 1 pound of ground sorghum grain and .05 lb. of dicalcium phosphate per head daily. One of each pair was randomly selected to receive also 20,000 I.U. of Vitamin A daily.

The cows were divided each morning during winter to receive different supplements.

First bred as two year olds in the summer of 1966, they have produced two calf crops, 1967 and 1968.

Results

Results are summarized in table 17. No differences have been found between the two treatments. Each year the same cow on the vitamin A treatment has lost her calf at birth, probably not from the treatment. One pair of identical twins did not calve in 1968.

Table 16

Supplemental Feed for Cows Grazing Winter Bluestem Pasture
1963 to 1967

Supplemental winter feed, per head per day ¹	1 lb. sorghum grain 1 lb. soybean meal	None
Number of Identical twin cows per treatment	2	2
Av. beginning weight, lbs.	657	667
Av. summer gain, lbs.	149	179
Av. winter loss, lbs.	119	169
No. of calves produced ²	7	7
Av. weaning weight of calves, lbs.	396	374
Av. adjusted weaning weight, lbs. ³	414	391
Av. birth date	April 1	April 10
Av. birth weight, lbs.	69	63
Av. supplementation cost, ⁴	\$9.90	\$0.00
Av. increase in income, ⁵	6.16	0.00

¹ Supplement-fed cows also received 20,000 IU of vitamin A per cow daily and a source of phosphorus, usually dicalcium phosphate

² One cow from each treatment group lost a calf at birth.

³ Adjusted to a 205-day steer basis (+ 5% for heifers).

⁴ Feed costs used are on inside of back cover.

⁵ Figured on increase in weaning weight @ 28¢/lb.

Table 17

Feeding Vitamin A to Beef Cows on Winter Bluestem Pasture
December 1964 -- October 1968

Treatment	No vitamin A	Vitamin A
Number of identical twin cows per treatment	6	6
Average weight, lbs.		
December 1964 (Initial Weight)	354	364
December 1965	637	647
December 1966 ¹	948	963
December 1967 ¹	804	814
October 1968 ¹	934	954
Average winter loss, lbs.	86	86
Average summer gain, lbs.	215	217
No. of calves produced	11	9 ²
Average calving period, days	21	65
Average calving interval, days	378	372
Average calving date	Feb. 21	Feb. 26
Average birth weight, lbs. ³	63	61
Average weaning weight, lbs. ⁴	453	452

¹ Includes weights of twins when both individuals of each pair weaned calves.

² One cow on the vitamin A treatment lost her calf at birth both years.

³ Sex corrected by adding 5% of birth weight to heifers.

⁴ Weights adjusted to a 205-day steer basis (+5% for heifers).