Effect of Limited Suckling on Reproductive Performance and Milk Production of Cows and Weight Gains and Suckling Behavior of Calves

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Summary

We used 109 Polled Hereford and percentage Simmental cows to evaluate limited suckling as an aid to induce cows to cycle after calving. Cows were allotted to: 1. once daily suckle; 2. twice daily suckle; 3. 48 hr calf removal (just before breeding season); and 4. controls (suckle ad libitum). Half of each group was implanted with Norgestomet 9 days before the breeding season.

Limited suckling increased the number of cows showing estrus and conceiving early in the breeding season, and Norgestomet increased the percentage pregnant the first 21 days of the breeding season.

Introduction

Cows conceiving early in the breeding season have heavier calves at weaning and more time to rebreed the next year. Suckling supresses onset of estrous cycles in beef cows. Weaning calves before the breeding season increases cycling activity and improves reproductive performance. Researchers in Texas have shown that allowing calves to nurse only once daily significantly shortened the interval from calving to first post-partum heat and conception in two-year-old Brahman x Hereford heifers. Recent research also has shown that progesterone given before the breeding season may increase reproductive efficiency.

Our trial was designed to determine the effects of limited suckling on cow reproductive performance and milk production and calf weight gains and suckling behavior, and to determine the effect of a synthetic progestin implant (Norgestomet[a]) on cow reproduction performance.

Materials and Methods

We began checking heat twice daily April 15, 1980, and weighed all cows April 29 and monthly thereafter. May 9, 83 Polled Hereford and 29 percentage Simmental cows were allotted by breed, calving date, and winter nutrition treatment to one of four groups:

Group 1. Once daily suckle. Calves were separated from cows May 9 and penned. From then until June 2 (24 days), cows were brought to the calf pen daily at approximately 6 pm and the calves were allowed to nurse. After all cows had been nursed, they were returned to pasture.

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[a]Norgestomet implants, which are not commercially available, were provided by G. D. Searle & Co.

Group 2. Twice daily suckle. This group was handled the same as group 1 except that cows were nursed twice daily at approximately 7 am and 6 pm.

Group 3. Forty-eight hour calf removal. Calves were separated from cows May 18 and returned May 20.

Group 4. Controls (no calf separation). Suckling was allowed ad libitum.

We implanted half of the cows in each treatment group with 6 mg Norgestomet, a synthetic progestin, May 9 and removed the implants May 18. The breeding season started May 20 and continued through July 17 (59 days). From May 20 until June 2 all cows were bred artificially approximately 12 hr after they were detected in heat. From June 2 to July 1, half the cows in each treatment were bred artificially and the other half were exposed to bulls. Then all cows were exposed to bulls from July 3 to July 17.

Calves were 2 to 70 days old at the beginning of the limited suckle treatment. Calves separated from their dams had access to water and were fed grain and prairie hay while separated. After June 2, all calves had access to creep feed until weaned.

We recorded the total time each calf suckled in both limited suckle groups May 26, and observed the control group for 24 hours on pasture May 27-28 recording incidence and duration of suckling. All groups were observed for 24 hours on pasture between June 12 and 16, and incidence and duration of suckling were recorded. Milk production was measured in mid-June by the difference in weights before and after calves suckled.

Pregnancy rates were determined by rectal palpation after the breeding season.

Results

One calf from each of groups 2, 3, and 4 died either shortly before or during the breeding season; data from their dams were not included.

Limiting nursing to either once or twice daily or removing the calves for 48 hr before the breeding season increased the percentage of cows showing estrus the first 21 days of the breeding season. A higher percentage of cows were pregnant at all stages of the breeding season in the limited suckle groups than in the controls (Table 11.1).

The Norgestomet implant had little effect on percentage of cows showing estrus the first 21 days of the breeding season, but increased the percentage pregnant the first 21 days of the breeding season (Table 11.2).

Milk production did not differ among the treatment groups (Table .1).

Control cows were nursed 5.6 times per day when groups 1 and 2 cows were being limited to 1 and 2 nursings daily, which likely accounts for a higher percentage of cows in the limited suckle groups than controls showing estrus the first 21 days of the breeding season.

Limiting nursing to once or twice daily did not affect the incidence or duration of suckling observed two weeks later (Table 11.1).

Calf weight gains during the limited suckle period were greatest in the twice-daily suckle group and least in the 48 hr calf-removal group, but 205-day adjusted weaning weights were similar for all groups (Table 11.1).

Discussion

Stimulating cycling by suckling management is labor intensive. After the first 3 or 4 days of limited suckling, we spent about one hour in the morning and one hour in the evening putting the cows in the calf pen, insuring that cows found their calves, sorting cows from the calf pen and feeding and watering calves. After 3 or 4 days of limited suckling, most cows were at the calf pens at the regular nursing time and would return to grazing after nursing.

For limited suckling to be practical, the improved reproductive performance must pay for the added labor.

Two-year-old and late calving cows are less likely to be cycling early in the breeding season and should benefit most from limited suckling.

Table 11.1. Effects of limited suckling of beef cows on reproductive performance, milk production, calf weight gains, and suckling behavior.

	Treatment Group			
	Group 1 once daily suckle	Group 2 twice daily suckle	Group 3 48 hr calf removal	Group 4 controls
Number in group[a]	29	27	26	27
Reproductive performance				
Percent in estrus first 21 days of breeding season	89.7	85.2	88.5	66.7
Percent pregnant:				
first 21 days	44.8	40.7	38.4	37.0
first 42 days	82.8	74.1	76.9	66.7
breeding season (59 days)	89.7	88.9	92.3	85.2
Milk production[b], lb/24 hr	15.7	18.0	15.8	15.5
Suckling behavior				
During treatment[c], suckles/24 hr	1	2	0	5.6
During treatment[c], total suckling minutes/24 hr	18.7	31.3		48.0
After treatment[d] suckles/24 hr	4.8	4.9	4.9	4.9
After treatment[d], total suckling minutes/24 hr	42.2	41.2	45.2	46.3
Calf performance				
Initial wt, lb (Apr 29)	150.0	131.9	131.5	133.1
Final wt, lb (June 2)	197.6	212.5	189.0	200.7
Gain during trial, lb	67.6	80.6	57.5	67.6
Adjusted weaning wt, lb	476.5	486.7	468.5	481.8

[a]Groups 2, 3 and 4 had 28, 27, and 28 cow-calf pairs initially but one calf from each group died during the trial; data on their dams were excluded.

[b]Milk production was measured June 18-26.

[c]Incidence and duration of suckling during treatment were recorded May 26-28.

[d]Incidence and duration of suckling after treatment were recorded June 12-16.

Table 11.2. Effect of norgestomet on estrus and fertility in beef cows.

	Norgestomet implant	No implant
Percent showing estrus first 21 days of breeding season	84.9	78.6
Percent pregnant first 21 days of breeding season	49.0	32.1

[a]G. D. Searle & Co. Half of the cows in groups 1-4 were implanted May 9-18.

Determining Milk Production in Beef Cows

We measure milk production in beef cows by the "weigh-suckle-weigh" technique. Calves are separated from cows for about 8 hours. Ideally, this results in hungry calves. Then, calves are weighed accurately, allowed to nurse, and reweighed. Weight difference estimates the milk consumed. This is done three times at eight hour intervals to estimate milk produced in 24 hours.

Errors can result if the calf does not empty the udder at each nursing, the cow is too nervous during separation to secrete her normal amount of milk, or calves urinate or defecate between weighings.

Although weigh-suckle-weigh should be considered only an estimate of milk production, it's more accurate and safer than hand milking a wild cow!