INFLUENCE OF SUCKLING ON REBREEDING

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INTRODUCTION

On the average, only about 70 to 75% of the beef cows wean a calf each year. The major reason for this reduced calf crop is that about 15% of the cows are not pregnant at the end of the breeding season. The ovary is nonfunctional and estrus does not occur for varying lengths of time after a cow calves. A factor that influences the interval from calving to first estrus is suckling by the calf. Cows with weaned calves, or calves that die near birth, usually have a shorter interval from calving to first estrus. In addition, cows with twins or larger, faster gaining calves may have extended intervals from calving to first heat.

SUCKLING INTENSITY

Suckling intensity can influence the length of the interval from calving to first heat. We define suckling intensity as the total length of time a cow is nursed per day. In a trial at our station (Wettemann et.al., 1978), cows were assigned to nurse either their own single calf or a foster calf along with their own calf. The cows were maintained under range conditions and supplemented so body weight loss during October to April was similar for cows with both suckling intensities. Increasing the suckling intensity increased the average interval from calving to the first heat from 67 to 95 days. By 90 days after calving, 71 percent of the cows nursing their own calves had exhibited estrus, but only 43 percent of the cows nursing two calves had been in heat. These data indicate that increasing the suckling intensity increased the interval from calving until the time when the ovary becomes functional in range cows, although percentage body weight loss was similar in cows nursing one or two calves. Since the effect of suckling intensity is independent of the nutritional status of cows, it suggests that suckling probably inhibits secretion of gonadotropic hormones by the anterior pituitary. If gonadotropic hormones are not secreted after calving, the ovary remains inactive and follicles are not produced. Without follicles the female sex hormone, estradiol, is lacking and estrus does not occur.

CALF SEPARATION

If cows are suckled, the interval from calving to first estrus is increased compared to cows with weaned calves. When the mammary glands were surgically removed from heifer calves at 2 months of age, the interval from calving to first estrus was shorter than for normal heifers (Grass and Hauser, 1981).

In a trial at our station, Hereford cows calving between March and May were paired by calving date and divided into two groups. Half of the cows were separated from their calves for 48 hr at 45±3 days after calving and the others remained with their calves on pasture. Calf separation was accomplished by trucking the cows to an isolated dry lot about one mile from their calves. The calves were maintained in an open sided barn and were given free choice water, alfalfa hay and creep feed. The interval from calving to first estrus was reduced by 10 days in those cows separated from their calves. The effectiveness of the 48-hr separation on stimulation of normal heat is dependent on factors such as body condition, winter weight loss, and days after calving. Thus cows must be within several weeks of establishing normal estrous cycles for calf separation to be effective.

A major concern with calf separation is, "What influence will calf separation have on milk production and calf growth"? In our studies, neither milk production, calf growth rate or weaning weights were affected by calf separation (Beck et.al., 1979). Therefore, calf separation may be effective in establishing estrous cycles in some cows.

ONCE-DAILY SUCKLING

Another approach to reducing the suckling intensity and decreasing the interval from calving to first estrus is to only permit calves to suckle the cows once daily. An experiment conducted in Texas (Randel, 1981) demonstrated that once daily suckling of first calf Brahman x Hereford heifers from 30 days after calving to the first estrus, shortened the interval to first estrus without depressing calf performance. Seventy four percent of the cows with calves that suckled for only 30 minutes each day were in heat by 90 days after calving, whereas, only 6 percent of the cows with calves present continuously were in estrus. The calves that suckled only once daily from 31 days of age until cows were in estrus were kept in a dry lot with access to shelter and water. Coastal bermudagrass hay and a concentrate mixture were fed free choice. Weaning weights were similar for normal suckled calves and those that nursed once daily (Table 1).

Table 1. Effect of once-daily suckling on reproductive performance of Brahman x Hereford heifers and their calves.

	Treatment	
Criteria	Normal suckling	Once-daily suckling
Number of cows	16	19
Percentage of cows in estrus by 90 days after calving	6	74
Interval from calving to first estrus (days)	168±14	69±6
Weaning weights of calves (lbs)	323±11	324±10

Adapted from Randel, 1981.

A study with Angus cattle (Reeves and Gaskins, 1981) also demonstrated that once daily suckling decreased the interval from calving to first estrus. However, the interval from calving to conception was not altered by once daily suckling. More cows that were suckled once daily had estrous cycles that were shorter than normal (less than 11 days). The occurrence of abnormal estrous cycles may be the reason that the number of days to conception was not altered by once daily suckling although the number of days from calving to first estrus was reduced. More information is needed on the influence of once daily suckling on the normality of estrous cycles and how different breeds and management systems may effect the response.

EARLY WEANING

Since nonsuckled cows have a shorter interval from calving to first heat than lactating cows, another possible method to initiate estrous cycles after calving is to wean calves. A study was conducted in Nebraska (Laster et.al., 1973) to determine the influence of early wean on rebreeding of 2-and-3-year-old cows and mature cows. The average calving date was September 5 and calves averaged 55 days of age at weaning. Weaning the calves 8 days before the start of a 42-day breeding season increased the percentages of cows that exhibited heat during exposure to bulls. Percentage of cows in heat during the breeding season was increased by 29 percent in 2-year-olds, 27 percent in 3-year-olds and 17 percent in mature cows. Early weaning did not decrease the interval from calving to first heat or the interval from calving to conception. However, more cows became pregnant during the 42-day breeding season. The increased pregnancy rate resulted from the effects of weaning on the occurrence of heat, rather than on fertilization rate among the cows bred.

In an Oklahoma study, we determined the influence of early weaning on reproduction of Hereford heifers. Calves were born between February 18 and April 17 and those assigned to be early weaned were weaned every 2 weeks at 6 to 8 weeks of age. Early weaned calves were raised in drylot and self-fed high concentrate diets. Early weaning did not influence calf performance and calves weaned normally weighed 372 lbs at 7 months of age compared to 374 lbs for early weaned calves. Ninety six percent of the heifers that had their calves weaned between 6 and 8 weeks of age became pregnant during the breeding season compared to 59 percent of the heifers that were suckling calves (Table 2). The interval from calving to conception was reduced from 90.5 days for heifers with normally weaned calves to 73 days to heifers with early weaned calves.

Table 2. Conception rates, postpartum intervals and calving intervals for Hereford heifers with suckled or early-weaned calves.

Item	Treatment	
	Suckled	Early weaned
Conception rate		
No. Conceived/no. exposed	19/32	30/31
Pregnant, %	59.4	96.8
Interval from parturition to conception (calving-280 days), days	90.5± 2.8	70.0± 3.8
Cows with ovarian activity by 85 days postpartum, %	34.3	90.3

Adapted from Lusby et.al., 1981.

The influence of early weaning on reproductive performance may be different in spring calving cows than in fall calving cows. Spring calving cows usually have had greater nutritional restriction during pregnancy and exhibit longer postpartum anestrous intervals.

Early weaning of calves may be a useful technique to initiate estrous cycles under special circumstances. Cows that are too thin to breed while nursing a calf will often breed quickly after the calf is weaned. If cows calve late in the season, weaning of the calves may initiate heat so that they can be rebred with the other cows in the herd. Early weaning may also be useful with restricted breeding seasons when high quality forage is available for the calves.

SUMMARY

The greatest improvements in reproductive efficiency of cattle can be made by decreasing the interval from calving to conception. During the early period after calving, the ovary is inactive and cows are anestrous. Level of nutrition before and after calving and body condition greatly affect rebreeding. Increasing the suckling intensity increases the interval from calving until the first estrus. If calves are separated from cows for about two days between 40 to 65 days after calving, it may help to decrease the interval from calving to first heat and short term calf separation does not affect milk production or calf growth rate. Once-daily suckling of the calves may also help to decrease the interval from calving to first heat, however, additional labor and facilities are needed to separate calves and cows each day. Early weaning of calves during a restricted breeding season may be an effective method to increase the pregnancy rate in young cows. Early weaning may also be helpful for late calving cows, by allowing them to be rebred with the rest of the herd.

LITERATURE CITED

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