

## EFFECT OF SYNCHROMATE-B ON ESTROUS RESPONSE AND PREGNANCY RATE IN BRAHMAN CROSSBRED BEEF COWS

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### Story in Brief

Mature crossbred beef cows were used to evaluate the effect of Synchronate-B on estrous synchronization and pregnancy rate in postpartum cows with 0-Brahman, 1/4 Brahman, or 1/2 Brahman breeding. All cows were greater than 35 days postpartum at the start of the study. Cows were palpated for ovarian activity (presence of a corpus luteum) and randomly assigned within breed group to either synchronization with the Synchronate-B program or to Control (21 day AI breeding period). Calves were removed from cows for 48 hours in both groups on the day implants were removed (Day 9) from synchronized cows. Synchronized cows were observed for estrus and bred 12 hours after observed estrus; those not seen in estrus were bred 56 hours after implant removal. A 21-day breeding period was initiated in Control cows on Day 11. Within 48 hours of implant removal, 85% of synchronized cows exhibited estrus; whereas, 28%, 64% and 82% of the Control cows exhibited estrus by week 1, 2 and 3, respectively. Pregnancy rate was similar among breed groups within a treatment; however, pregnancy rate was significantly lower in the synchronized group when compared with Controls. Brahman crossbred cattle can be effectively synchronized for spring breeding; however, a lower pregnancy rate should be expected in a synchronization program compared to breeding on natural estrus.

Key Words: (Synchronate-B, Pregnancy Rate, Estrus, Brahman)

### Introduction

Previous research has shown that Brahman heifers synchronized with Synchronate-B will exhibit estrus and ovulate. However, the synchronized heifers had a lower pregnancy rate when compared with control heifers bred on natural estrus. It was suggested that the reduced pregnancy rate may be due to altered timing of luteinizing hormone release in the synchronized heifers. With the increasing popularity of Brahman crossbred cattle in the Southern region, we were interested in determining the effect of Synchronate-B on synchronization and pregnancy rate in mature, postpartum Brahman crossbred cows.

### Materials and Methods

One hundred forty-nine mature crossbred beef cows composed of 0-Brahman (Hereford-Angus and Angus-Hereford), 1/4-Brahman (1/4-Brahman 1/2-Angus 1/4-Hereford or 1/4-Brahman 1/2-Hereford 1/4-Angus), and 1/2-

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Brahman (Brahman-Angus and Brahman-Hereford) breeding were used in this study. Beginning in early May, ovarian activity was determined by rectal palpation of corpora lutea. Cows were then randomly assigned to either a Control or Synchronate-B treatment group, with approximately the same number of cows with ovarian activity assigned to each group and breed division.

Cows in the synchronized group were injected and implanted as specified by manufacturers instructions on Day 1 of the trial. Forty-eight hour calf removal was initiated on Day 9 in all cows from both treatment groups. At this time implants were removed and tail heads of synchronized cows were chalked with a Paint-Stik to aid in estrous detection. Estrous activity was detected by visual observation and signs of chalk removal from the tail head. Synchronate-B treatment cows were inseminated 12 hours after observed estrus or 56 hours after implant removal if estrus was not detected. All calves were returned to their dams after the synchronized cows were inseminated.

Estrous detection was initiated in Control cows on the day calves were returned to their dams. Gomer bulls fitted with chin ball markers were utilized to aid in estrous detection. Cows were inseminated 12 hours after the detection of estrus. The breeding period for Control cows was 21 days. Two technicians inseminated cows with frozen semen from 6 Limousin sires. Sires were randomly assigned to each cow before the start of breeding so each bull was used equally among the 3 breed groups and the 2 treatments. Ten days following AI, cows were exposed to fertile bulls. Synchronate-B cows were palpated for pregnancy 40 days after insemination; whereas, all Control cows were palpated 40 days after the end of the 21-day AI period.

## Results and Discussion

Synchronization with Synchronate-B resulted in a higher percentage of cows expressing estrus early in the 21-day breeding period. After implant removal, 84% of the Synchronate-B treated cows expressed estrus within 48 hours, while only 28% and 64% of the Control cows had exhibited estrus after the first and second week of breeding ( $P < .05$ ). However, by the end of the 21-day breeding period, 82% of Control cows had exhibited estrus. Determination of estrus by visual observation of standing and by evidence of chalk removal from the tail head in the synchronized cows were equally effective methods of estrus detection. The percentage of Brahman breeding had no significant effect on pregnancy rate (Table 1). However, synchronization with Synchronate-B resulted in a lower overall pregnancy response when compared with cows bred on natural estrus ( $P < .01$ ).

Technician differences contributed to a significant amount of the variation in pregnancy response. Technician fatigue may have affected Technician II as he achieved lower pregnancy rates in the synchronized cows when compared with Technician I (Table 2).

Semen quality and sire fertility also had a large effect on pregnancy rate ( $P < .01$ ). The average pregnancy rate for the six bulls used in the study was 60% (Table 3).

Brahman cross cattle can be effectively synchronized with Synchronate-B and bred artificially with pregnancy rate as high as expected in synchronized British crossbred cattle. Several things must be considered before undertaking a synchronization program. Among them are quality and cost of semen, and the expertise of AI technicians. A

Table 1. Effect of Brahman percentage on pregnancy rate in Control and Synchromate-B treated cows.

	Control		Synchromate-B	
	No. of cows in group	Pregnant (%)	No. of cows in group	Pregnant (%)
0-Brahman	15	67 (10/15)	12	42 (5/12)
1/4-Brahman	35	57 (20/35)	32	44 (14/32)
1/2-Brahman	28	71 (20/28)	27	44 (12/27)
Total	78	64 (50/78) <sup>a</sup>	71	44 (31/71) <sup>b</sup>

<sup>a,b</sup> Means in a row with different superscripts differ ( $P < .01$ )

Table 2. Effect of technician on pregnancy rate in Control and Synchromate-B treated cows.

Treatment	Technician		
	I	II	Total
Control	80 <sup>a</sup>	74 <sup>a</sup>	78 <sup>a</sup>
Synchromate-B	58 <sup>b</sup>	26 <sup>b</sup>	44 <sup>b</sup>

<sup>a,b</sup> Means in a column with different superscripts differ ( $P < .10$ ).

Table 3. Effect of sire on pregnancy rate.

Sire	Pregnant (%)
1	35
2	48
3	55
4	61
5	71
6	88
Average	60

skilled technician using quality semen can expect to get 50% to 55% of a group of cycling cows pregnant at the first insemination.

Synchronization with Synchromate-B will result in a significantly higher percentage of cows in estrus early in the breeding season. Although lower pregnancy rates would be expected, synchronized cows returning to estrus would have an additional opportunity to be bred, either naturally or artificially, approximately three weeks into the breeding season. Thus, a high percentage of pregnant cows would be grouped within a three-week calving period.