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## Insemination at an Appointed Time After Estrous Synchronization in Beef Cattle

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### Summary

Eighty-three cows were each treated with a nine-day Syncro-mate B ear implant and one estrogen and progesterone injection. After implant removal, cows were artificially inseminated either 48, 54 or 60 hours later or 12 hours after estrus. An additional 16 cows received no treatment and were pasture mated. First service conception rates were 26.3, 23.8, 38.1, 33.3, and 68.8% for the 48-, 54-, and 60-post implant group, 12-hour post-estrus, and naturally bred cows, respectively.

### Introduction

The widespread artificial insemination of cattle has increased labor and management by requiring estrus detection daily. Synchronization can decrease the time required to check for estrus by shortening the breeding season. However, estrus detection still is difficult. If acceptable fertility could be obtained by breeding at a predetermined time after synchronization, no estrus detection would be necessary.

We compared first service conception rates of synchronized cows bred artificially at predetermined times after treatment with cows synchronized and bred at estrus and with nonsynchronized cows bred naturally.

### Experimental Procedure

Syncro-mate B (6 mgs, G. D. Searle Co.) was implanted in one ear of 83 Polled Hereford cows and removed nine days later. An estrogen-progestogen injection (3.0 and 1.5 mgs., respectively, G. D. Searle Co.) also was administered with the implant. After being treated, the cows were equally divided into four groups. Cows in groups A, B, and C were bred artificially 48, 54, and 60 hours later, respectively. Cows in group D were bred artificially approximately 12 hours after estrus onset. Sixteen additional cows received no synchronization treatment and were pasture bred naturally.

### Results and Discussion

First service and total conception rates for groups A through E are shown in table 7.1. The treatment effectively synchronized estrus, but, first service conception by all synchronized cows (groups A to D) was lower than the conception rates of naturally bred, nonsynchronized cows the first 21 days of the breeding season (group E). The number of cows in estrus at each of the three appointed inseminations decreased (11, 8, and 5 for groups A, B, and C, respectively), indicating that breeding

may have been too early. However, conception rates of cows bred at estrus were no higher than rates of cows bred 60 hours post-treatment. Conception at the estrus after synchronized estrus was not affected by the treatment, as 53.4% of the synchronized cows conceived to the second service.

One of the 83 cows who lost her implant during the nine-day period was removed from the experiment. Three cows in group D failed to show estrus within five days after the implant was removed; then were classified as not synchronized.

Conception rates were lowered in synchronized, artificially bred cows compared with nonsynchronized, naturally mated cows. We do not know whether conception rates were low because of artificial insemination or synchronization of estrus.

Table 7.1. Conception Rates by Cows After Synchronization of Estrus with Syncro-mate Band Estradiol Valerate.

Time of artificial insemination	No. of cows	First service conception (%)	Total conception (%) <sup>a</sup>
48 hours after implant removal	19	26.3	78.9
54 hours after implant removal	21	23.8	95.2
60 hours after implant removal	21	38.1	85.7
12 hours after observed in estrus	21	33.3 <sup>b</sup>	95.2
Nonsynchronized pasture bred naturally	16	68.8	93.7

<sup>a</sup>Percent of cows conceiving during a 63-day breeding season.

<sup>b</sup>Three cows did exhibit estrus within five days after implant removal and were not included.