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## Synchronization of Estrus in Beef Cows

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Summary

We used 79 cows to evaluate Syncromate B (G. D. Searle, Co.) as an estrus-synchronizing agent. Management of five groups of cows was: (1) nonsynchronized, bred naturally; (2) nonsynchronized, bred artificially; (3) synchronized, bred naturally; (4) synchronized, bred artificially at estrus; and (5) synchronized, bred artificially 60 hours after implant was removed. Conception rates were not affected by artificial breeding or synchronization. However, not all cows synchronized showed estrus. Percentages of cows bred during the first 25 days of the breeding season were 72.2, 71.4, 84.6, 68.7, 83.3 for groups 1 through 5, respectively.

Introduction

Syncromate B is the trade name for an experimental compound developed by G. D. Searle Co. to synchronize estrus in cattle. Last year we reported good synchronization with it; however, conception rates were low in cows inseminated when detected in estrus or at an appointed time after removing the implant. The low conception could have resulted from artificial insemination or the synchronization procedure, so this year we included more comparisons. Although conception is sometimes low after synchronization, benefits may be higher percentages of cows conceiving early in the breeding season and shortening the artificial breeding period to 25 days with each cow having two chances to breed.

Experimental Procedure

Seventy-nine Polled Hereford cows 45 to 90 days post-partum were divided into five breeding groups: (1) nonsynchronized, bred naturally; (2) nonsynchronized, bred artificially; (3) synchronized, bred naturally; (4) synchronized, bred artificially at estrus; and (5) synchronized, bred artificially 60 hours after removing implant. All cows were lactating and ovaries of some were palpated to confirm cycling.

All cows in the synchronized groups were given a 6mg. SC21009 ear implant. At the time of implantation, cows were injected intramuscularly with 6 mg. of estradiol valerate and 3 mg. SC21009 (a synthetic progestogen). Nine days later the implants were removed. Checks for estrus were made twice daily and cows in group 4 were bred artificially approximately 12 hours after estrus

was detected. Cows in group 5 were artificially bred 60 hours after implants were removed without regard to estrus. Groups 4 and 5 were placed with bulls equipped with chin-ball markers 6 days after implants were removed. Group 3 was placed with five bulls after implants were removed and were allowed to mate naturally.

The nonsynchronized cows in group 1 were placed with a marker bull and allowed to mate naturally. Cows in group 2 were checked twice daily for estrus for 21 days and artificially bred approximately 12 hours after estrus was detected. After the 21-day artificial breeding period, a bull was placed with the cows.

Bulls were removed after a 55-day breeding season (including AI). All cows were kept on range for the duration of the experiment. Pregnancy was determined by rectal palpation.

### Results and Discussion

First service conception did not differ between nonsynchronized cows bred artificially or naturally, 71.4 and 72.2%, respectively. Also, first conception rate was the same in synchronized cows whether bred naturally (69.2%) or artificially (66.7%). First service conception was lower in cows synchronized and bred 60 hours later (38.9%). Neither synchronization nor artificial insemination depressed conception rate when cows were bred according to estrus (table 4.1).

Four of 16 cows in group 4 did not show estrus during the five-day synchronization period. Considering only the cows bred, 8 of 12 (66.7%) conceived on first insemination, not different from the first three groups. Only 29% of group 5, bred artificially 60 hours after implant was removed conceived on first service; however, time of insemination in relation to estrus may have been incorrect for optimum conception. Eighteen cows were in the group: 4 were not detected in estrus, 1 conceived; 2 were first detected in estrus at breeding time--both conceived; 4 were in estrus 12 hours before breeding--2 conceived; and 8 were in estrus 24 hours before breeding--2 conceived. Insemination apparently was too late for good conception rates.

This experiment showed promise for estrus-synchronizing agents. Although conception percentage for cows in the timed-inseminated group was low, a higher percentage conceived during the first 25 days than in nonsynchronized groups. Also, 39% of the cows were bred artificially with minimum effort. Conception not being greatly reduced by synchronization in cows showing estrus suggests that insemination by appointment at the proper time in relation to ovulation may be possible.

Table 4.1 Conception rates in cows after estrous synchronization

Group	No. of cows	% conceived		
		synchronized period	25 days	55 days
Nonsynchronized, bred naturally	18	--	72.2	88.9
Nonsynchronized, bred artificially	14	--	71.4	71.4
Synchronized, bred naturally	13	69.2	84.6	84.6
Synchronized, bred artificially	16	50.0 <sup>a</sup>	68.7	87.5
Synchronized, bred A <sub>1</sub> at 60 hours	18	38.9	83.3	88.9

<sup>a</sup>Four cows did not exhibit estrus during the 5-day synchronization period. Of those bred, 66.7% conceived.