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Synchronizing estrus in heifers with prostaglandin and Syncro-mate B

Abstract

Forty-seven of 50 heifers were in estrus 1 to 5 days after an injection of prostaglandin given when an ear implant of Syncro-mate B was removed. The implant had been in place one week. Thirty of the 47 (63.8%) heifers with synchronized estrus conceived on first artificial insemination. Twenty untreated heifers were in estrus in 27 days; 13 (65%) conceived on first artificial insemination.

Keywords

Cattlemen's Day, 1974; Report of progress (Kansas State University. Agricultural Experiment Station); 210; Beef; Estrus; Prostaglandin; Syncro-mate B

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Synchronizing Estrus in Heifers with Prostaglandin and Syncro-mate B

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Summary

Forty-seven of 50 heifers were in estrus 1 to 5 days after an injection of prostaglandin given when an ear implant of Syncro-mate B was removed. The implant had been in place one week. Thirty of the 47 (63.8%) heifers with synchronized estrus conceived on first artificial insemination. Twenty untreated heifers were in estrus in 27 days; 13 (65%) conceived on first artificial insemination.

Introduction

Methods currently available to synchronize estrus in cattle have not been widely accepted. Increased management and labor, problems with feeding and concentrating cattle, and decreased fertility have deterred estrous synchronization. Recently, new compounds that avoid some of the previous problems, have become available for experimentation. Prostaglandin, a fatty acid related compound first isolated from semen, can now be synthesized from sea coral. One series of this compound ($F_{2\alpha}$), when injected, regresses the corpus luteum of a cow if she is at least 5 days post estrus. That terminates her cycle so she returns to estrus. Another compound, Syncro-Mate B is a synthetic progesterone that can be implanted in the ear and removed when desired. While implanted it prevents cows from showing estrus.

We tested the effectiveness of Syncro-Mate B and prostaglandin ($F_{2\alpha}$) in synchronizing estrus. Syncro-Mate B was given to prevent estrus for 7 days.

Experimental Procedure

Syncro-Mate B (6 mgs., G. D. Searle Co.) was implanted in one ear of 50 heifers and removed 7 days later. Prostaglandin (30 mgs., $F_{2\alpha}$, The UpJohn Co.) was injected intramuscularly when the implant was removed. The heifers, confined to dry lot with 20 untreated heifers, were observed for estrus. Each one observed in estrus was moved to another pen. All heifers were bred by artificial insemination 12 to 18 hours after being observed in standing estrus. First service conception was determined by rectal pregnancy diagnosis 65 and 95 days later.

Results and Discussion

Estrus and conception results are shown in table 16.1. Forty-one of the 50 treated heifers exhibited estrus in a 36 hour period between pm day 1 and am day 3 (prostaglandin injected am day 0). Forty-seven of the treated heifers exhibited estrus in an 84 hour period between pm day 1 and am day 5. Thirty of the 47 synchronized heifers conceived from the first insemination (63.8%).

Three heifers were not found in estrus during this period. One was in estrus am day 7, one am day 19, and one failed to show estrus.

The 20 control heifers were all observed in estrus in a 27 day period. Thirteen (65%) conceived to the first insemination. Conception rates at subsequent estrus periods were not different between treated and untreated heifers.

This method of synchronizing estrus appears to be superior to earlier methods. Cattle must be handled twice, to put in the implant and 7 days later to remove it and inject prostaglandin. Cattle must be closely observed the next 5 days. It is essential in large groups to remove animals in estrus to determine onset of estrus in others. We noticed no detrimental side effects during our tests. Estrus periods were normal length, and later cycles were normal in heifers that did not conceive at first service.

Syncro-Mate B and prostaglandin are not yet approved. Until they are approved for sale, their cost is unknown.

Table 16.1. Occurrence of Estrus and Conception Rate in Heifers Treated with Syncro-Mate B and Prostaglandin

Item	Days post treatment ^a								Total
	p.m. 1	a.m. 2	p.m. 2	a.m. 3	p.m. 3	a.m. 4	p.m. 4	a.m. 5	
No. in estrus	8	9	15	9	0	3	2	1	47 ^b
No. conceived to first service	6	4	12	5	0	1	1	1	30
Total % conceived									63.8%

^aProstaglandin injected a.m. day 0.

^bThree heifer out of 50 did not show estrus during this period.