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Heat synchronization with Alfaprostol

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Abstract
One-hundred eighteen heifers were used to determine the effectiveness of Alfaprostol as a heat synchronization agent. Seventy-nine were injected twice (12 days apart) with 6 mg Alfaprostol per head and 39 were not treated. Twelve to 96 hours after the second injection 88.6% of the treated heifers were in standing heat and 81.4% of those in heat conceived at the first insemination. Eighty-one percent of the 37 untreated heifers in heat the first 21 days conceived at the first insemination. Ninety-one percent of the treated heifers and 89.2% of the untreated heifers conceived within a 50-day breeding period, so Alfaprostol did not affect reproductive performance.

Keywords
Cattlemen's Day, 1983; Report of progress (Kansas State University. Agricultural Experiment Station); 427; Beef; Alfaprostol; Heat synchronization; Reproductive performance

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Heat Synchronization with Alfaprostol[1]

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Summary

One-hundred eighteen heifers were used to determine the effectiveness of Alfaprostol as a heat synchronizing agent. Seventy-nine were injected twice (12 days apart) with 6 mg Alfaprostol per head and 39 were not treated. Twelve to 96 hours after the second injection 88.6% of the treated heifers were in standing heat and 81.4% of those in heat conceived at the first insemination. Eighty-one percent of the 37 untreated heifers in heat the first 21 days conceived at the first insemination. Ninety-one percent of the treated heifers and 89.2% of the untreated heifers conceived within a 50-day breeding period, so Alfaprostol did not affect reproductive performance.

Introduction

Prostaglandins (Lutalyse®) have been used since 1979 to synchronize heat in cattle. More recently a prostaglandin analog (Estrumate®) also has been used for heat synchronization. Our trial was conducted to determine the effectiveness of another prostaglandin analog, Alfaprostol, as a synchronizing agent and to determine its affect on conception rates.

Procedure

Treated heifers each received two I.M. injections of 6 mg of Alfaprostol. The first injection was given according to the day of the heifer's cycle. All days of the cycle (0-20, heat = 0) were represented. The heifers were observed for signs of heat every 6 hours, but none were inseminated after the first injection. A second injection was given 12 days after the first. All heifers were observed for signs of heat every 6 hours for the first 5 days after the second injection and twice daily for the next 45 days. Both treated and untreated heifers were artificially inseminated 12 to 18 hours after being detected in standing heat. Pregnancy was determined by rectal palpation approximately 50 days after the end of the breeding period.

[1]Alfaprostol is a prostaglandin analog provided by Hoffmann LaRoche, Inc., who provided partial financial assistance for the trial. Alfaprostol is not currently cleared by the FDA for use in cattle.

Results and Discussion

Table 7.1 shows the number of heifers and the interval from the second injection to heat and conception. Approximately 89% of the heifers were in heat between 12 to 96 hours after the second injection and 81.4% of these conceived at the first insemination. Approximately 77% of all treated heifers conceived within the first 21 days of the breeding period. Thirty-seven untreated heifers were in heat the first 21 days of the breeding period and 81% (30) conceived to the first insemination. Ninety-one percent of the treated heifers and 89.2% of the untreated heifers conceived during the 50 day breeding period.

Table 7.1. Distribution of Heat and Conception after Two Injections of Alfaprostol

Hrs to heat after second injection	Less than 24 hrs	25-36	37-48	49-60	61-72	73-84	85-96	Total to 96 hrs	Total in 21 days
No. in heat	1	3	13	22	13	8	10	70	78
No. conceived	0	2	8	18	12	8	9	57	60

Alfaprostol was effective in synchronizing heat to 4 days, but did not appear to synchronize heifers close enough for a single, timed insemination. Alfaprostol did not affect first insemination conception rates during the synchronized period (4 days) when 81.4% of the heifers conceived as compared to 81.0% for the untreated heifers the first 21 days of the breeding period. Alfaprostol had no long term effect, as indicated by the similar conception rates at the end of the 50 day breeding period.

Although Alfaprostol is not currently cleared for use, it appears to be a good potential synchronizing agent that has no effect on conception rates.