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Timed-insemination of beef heifers using Cosynch with one or two initial injections of GnRH

Abstract

Our purpose was to determine if giving an additional injection of GnRH to beef heifers synchronized with the Cosynch protocol would increase pregnancy rate to timed A.I. Eighty yearling beef heifers received an injection of GnRH, 7 days before receiving an injection of PGF (Cosynch). One half of the heifers were also given an injection of GnRH 14 days prior to the PGF injection (2xGnRH-Cosynch). All heifers were given a GnRH injection 2 days after PGF and inseminated at that time. Pregnancy rate for the 2xGnRH-Cosynch group (40%) was not different than that for the Cosynch group (50%) and was actually numerically lower. This trial suggested that an additional injection of GnRH 1 week prior to the Cosynch protocol was not beneficial in increasing the pregnancy rate of heifers to timed A.I.

Keywords

Cattlemen's Day, 2002; Kansas Agricultural Experiment Station contribution; no. 02-318-S; Report of progress (Kansas State University, Agricultural Experiment Station and Cooperative Extension Service); 890; Beef; Heifers; AI; Estrous synchronization; GnRh; PGF2 α

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TIMED-INSEMINATION OF BEEF HEIFERS USING COSYNCH WITH ONE OR TWO INITIAL INJECTIONS OF GnRH

D. M. Grieger, C. D. Holladay and D. R. Eborn

Summary

Our purpose was to determine if giving an additional injection of GnRH to beef heifers synchronized with the Cosynch protocol would increase pregnancy rate to timed A.I. Eighty yearling beef heifers received an injection of GnRH, 7 days before receiving an injection of PGF (Cosynch). One half of the heifers were also given an injection of GnRH 14 days prior to the PGF injection (2×GnRH-Cosynch). All heifers were given a GnRH injection 2 days after PGF and inseminated at that time. Pregnancy rate for the 2×GnRH-Cosynch group (40%) was not different than that for the Cosynch group (50%) and was actually numerically lower. This trial suggested that an additional injection of GnRH 1 week prior to the Cosynch protocol was not beneficial in increasing the pregnancy rate of heifers to timed A.I.

(Key Words: Heifers, AI, Estrous Synchronization, GnRH, PGF_{2α}.)

Introduction

Research at Kansas State University and other locations has shown that using combinations of GnRH and prostaglandin F_{2α} (PGF) to synchronize estrus in lactating beef cows results in pregnancy rates ranging from 40 to 60 percent after timed A.I. Using these same protocols in heifers, however, usually results in low pregnancy rates, partly because some heifers have not achieved puberty at the onset of the breeding season.

In an effort to increase the number of heifers that respond to a GnRH/PGF/timed-A.I. synchronization system (Cosynch), we conducted an experiment using an additional injection of GnRH 2 weeks prior to PGF.

Experimental Procedures

Eighty crossbred yearling beef heifers received an injection of GnRH (100 µg of Cystorelin[®]; Merial Ltd., Iselin, NJ) on day -7 and an injection of PGF (25 mg of Lutalyse[®]; Pharmacia & Upjohn, Kalamazoo, MI) on day 0 followed by a second injection of GnRH on day 2. All heifers were inseminated 48 hours after PGF, when an additional injection of GnRH was given. This estrus/ovulation synchronization protocol is known as the "Cosynch" protocol. Half of the heifers (n=40) were given a preliminary injection of GnRH on day -14. This treatment is referred to as "2×GnRH-Cosynch". Pregnancy was determined in all heifers 30 days after insemination using transrectal ultrasonography.

Results and Discussion

The experimental design and results are shown in Figure 1. The pregnancy rate was not different between the 2×GnRH-Cosynch (40%) and the Cosynch treatments (50%). Therefore, we concluded that an additional injection of GnRH 2 weeks prior to PGF did not increase cyclicity and timed-AI pregnancy rate in this small group of heifers.

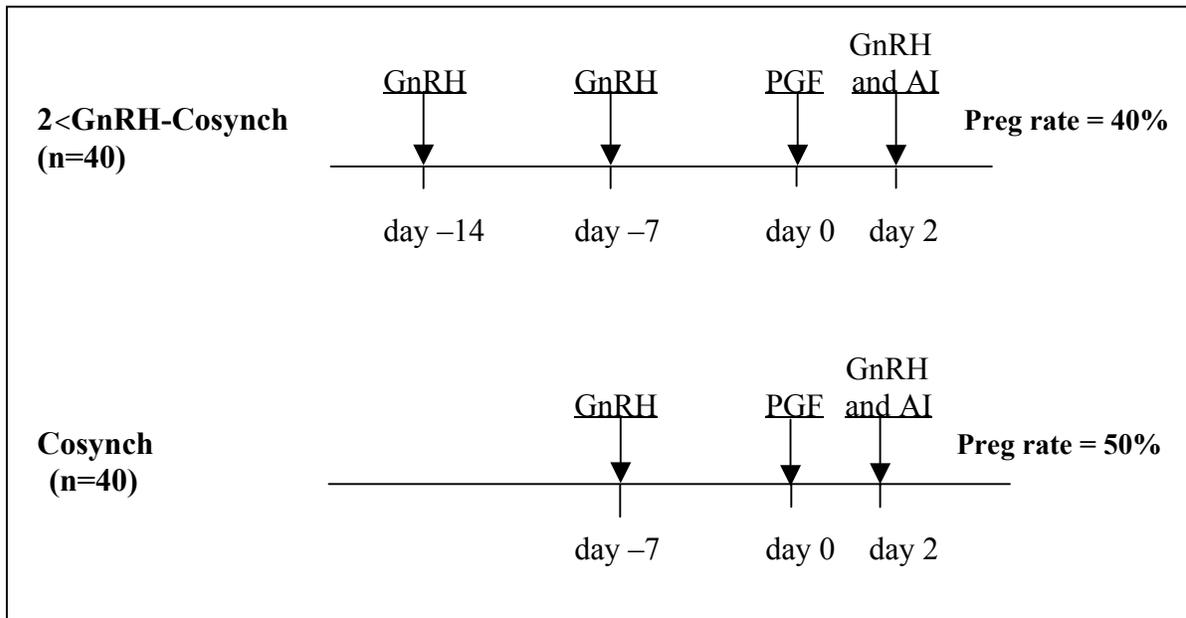


Figure 1. Synchronization Treatments and Pregnancy Rates for 2<GnRH-Cosynch vs. Cosynch in Yearling Heifers.