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FSH at CIDR removal does not affect pregnancy rate to a CIDR-based, Cosynch protocol in lactating beef cows

J. Small[1], F. Dias[2], L. Pfeifer[2], K. Lightfoot[3], M. Colazo[4], J. Kastelic[5] and R. Mapletoft[2]

[1]Agriculture and Agri-Food Canada, Brandon, MB, Canada; [2]University of Saskatchewan, Saskatoon, SK, Canada; [3]Assiniboia Veterinary Clinic, Assiniboia, SK, Canada; [4]Alberta Agriculture and Food, Edmonton, AB, Canada; [5]Agriculture and Agri-Food Canada, Lethbridge, AB, Canada

Introduction

- eCG increased pregnancy rates to timed-AI in postpartum beef cows subjected to estradiol-CIDR-based protocols [1]
- eCG increased pregnancy rates to timed-AI in 2-y-old lactating beef cows, subjected to a modified Cosynch protocol [2]
- However, eCG is not universally available; perhaps pFSH would be effective

Hypothesis

- Giving pFSH at CIDR removal would improve pregnancy rates in a CIDR-based, Cosynch timed-AI protocol in postpartum, lactating *Bos taurus* beef cows

Objectives

In postpartum, lactating beef cows subjected to a CIDR-based, Cosynch timed-AI protocol:

- Primarily, to determine the effects of pFSH at CIDR removal on pregnancy rates
- Secondarily, to determine the effects of GnRH versus pLH (to synchronize wave emergence and ovulation) on pregnancy rates

Materials and methods

Experiment 1

- Lactating, crossbred beef cows (n=240), 2 to 9 y of age, 94 ± 11 d postpartum, and BCS 5.8 ± 0.4 (mean ± SD)
- All cows subjected to a CIDR-based, Cosynch timed-AI protocol (Fig. 1)
- 79 cows received 12.5 mg pLH at CIDR insertion and at timed-AI
- Half of the cows received 20 mg pFSH at CIDR removal

Experiment 2

- In Replicate 1, lactating, crossbred beef cows (n=109), 2 to 8 y of age, 59 ± 20 d postpartum and BCS 5.6 ± 1.1
- In Replicate 2, lactating, crossbred beef cows (n=160), 2 to 15 y of age, 71 ± 20 d postpartum and BCS 5.2 ± 0.4
- Same protocol as Experiment 1, except only GnRH was used to synchronize wave emergence and ovulation

Transrectal ultrasonography

- Day 42 (to confirm pregnancy)

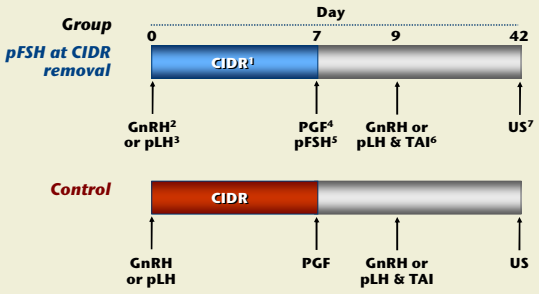
Statistical analyses

- Data were analyzed by Logistic Regression (backward selection) and Proc MIXED (Statistical Analysis System; SAS Institute, Cary, NC, USA)

Results

- In Experiment 1, three cows lost their CIDR; all were excluded
- In Experiments 1 & 2, there were no significant effects of pFSH on pregnancy rates (Fig. 2)
- In Experiment 1, pregnancy rates did not differ between GnRH and pLH (62.7 vs 69.6%, P=0.91)
- In Experiment 1, there was an interaction (P<0.04) between parity and the synchronizing treatment; in primiparous cows, pregnancy rates were lower in those given GnRH versus pLH (59.3 vs 83.3%; Fig. 3)

Fig. 1. Treatment schedules (Experiment 1).



[1] CIDR (containing 1.9 g progesterone; Pfizer Animal Health, Montreal, PQ, Canada)
[2] 100 µg GnRH im (Cystorelin; Merial Canada Inc., Victoriaville, PQ, Canada)
[3] 12.5 mg pLH im (Lutropin-V; Bioniche Animal Health, Belleville, ON, Canada) to only 79 cows in Experiment 1
[4] 25 mg dinoprost im (Lutalyse; Pfizer Animal Health)
[5] 20 mg pFSH im (Folltropin; Bioniche Animal Health) to half of the cows in both Experiments
[6] Timed AI was performed concurrent with the second GnRH or pLH injection (54 h after CIDR removal)
[7] Ultrasonography (Aloka SSD 500 with 7.5 MHz linear-array transducer; ISM Inc., Edmonton, AB, Canada)

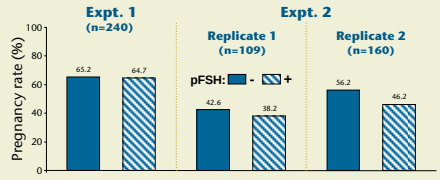


Fig. 2. Effects of pFSH on pregnancy rates in lactating beef cows subjected to a CIDR-based, Cosynch timed-AI protocol (no significant differences).

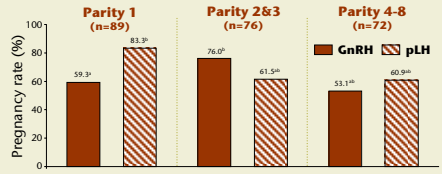


Fig. 3. Effects of gonadotropin treatment and parity on pregnancy rates in lactating beef cows subjected to a CIDR-based, Cosynch timed-AI protocol (Experiment 1).

Summary

- pFSH at CIDR removal did not improve pregnancy rates
- GnRH and pLH were equally effective in achieving high (>50%) pregnancy rates
- Primiparous cows had higher pregnancy rates when given pLH vs GnRH

References

[1] **Cutaia L, Tribulo R, Moreno D, Bo GA.** Pregnancy rates in lactating beef cows treated with progesterone releasing devices, estradiol benzoate, and equine chorionic gonadotrophin (eCG). Theriogenology 2003;59:216 (abstr.).

[2] **Colazo MG, Rutledge MD, Small JA, Kastelic JP, Siqueira LC, Ward DR, Mapletoft RJ.** Effects of presynchronization with a used CIDR and treatment with eCG on fertility in lactating cows subjected to a Cosynch protocol. Reprod Fert Dev 2005;17:156 (abstr.).