

Public Abstract

First Name:Brianne

Middle Name:Elizabeth

Last Name:Bishop

Adviser's First Name:David

Adviser's Last Name:Patterson

Co-Adviser's First Name:

Co-Adviser's Last Name:

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Title:Timing GnRH administration with split-time artificial insemination following administration of CIDR-based protocols to synchronize estrus and ovulation in beef heifers and cows

Historically, adoption of AI within beef herds has increased due to improvements in methods to synchronize estrous and expanded use of fixed-time artificial insemination (FTAI) where all females are inseminated at a predetermined fixed time. Because pregnancy rates are higher among females that exhibit estrus prior to AI, split-time AI was developed as an alternative breeding strategy whereby insemination is delayed 20 to 24 hours (h) for females that fail to express estrus prior to a predetermined fixed time. Three experiments were designed to test hypotheses related to the timing and use of GnRH in breeding programs involving STAI based on results from previously published studies. Estrus was synchronized for heifers in experiment 1 with the 14-d CIDR-PG protocol, and for cows in experiment 2 using the 7-d CO-Synch + CIDR protocol. Females in each treatment that exhibited estrus by 66 h were inseminated at 66 h, whereas AI was delayed 24 h (90 h after PGF2?) for females failing to exhibit estrus by 66 h. Females in treatment 1 received GnRH 66 h after PGF2? irrespective of estrus expression; however, in treatment 2, GnRH was administered coincident with delayed AI only to females not detected in estrus at 66 h. GnRH administered to estrus females at 66 h did not affect AI pregnancy rate; however delaying GnRH to 90 h for non-estrous females at 66 h improved estrous response for cows but not for heifers, with no effect on AI pregnancy rate. A third experiment evaluated pregnancy rates of heifers that failed to exhibit estrus by 90 h after PGF2? following treatment with the 14-d CIDR-PG protocol. Treatments were compared on the basis of whether or not GnRH was administered concurrent with AI, 90 h after PG. There was no effect of treatment on AI pregnancy rate. Collectively, these results indicate: 1) GnRH is not required among females that exhibit estrus prior to AI; 2) delayed administration of GnRH increases total estrous response in cows when STAI is practiced; and 3) GnRH is not required when STAI is practiced in conjunction with the 14-d CIDR-PG protocol in heifers.