

COMPARISON OF LONG-TERM CIDR-BASED PROTOCOLS TO SYNCHRONIZE ESTRUS AND OVULATION PRIOR TO FIXED-TIME ARTIFICIAL INSEMINATION IN POSTPARTUM BEEF COWS

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ABSTRACT

This experiment compared two long-term CIDR-based protocols to synchronize estrus and ovulation prior to fixed-time AI (FTAI) in postpartum beef cows. Cows assigned to the 14-19 d CIDR-PG protocol (n = 196) received CIDR inserts (1.38 g progesterone) from d 0 to 14 and PGF_{2α} (PG; 25 mg, i.m.) 19 d after CIDR removal on d 33. Cows assigned to the 14-16 d CIDR-PG protocol (n = 195) received CIDR inserts from d 3 to 17, and PG 16 d after CIDR removal on d 33. Cows in both treatments were artificially inseminated on d 36, 72 h after PG, with GnRH (100 µg i.m.) at FTAI. Blood samples for progesterone (P₄) were collected at d -10 and d 0 to determine pretreatment estrous cyclicity status, and again at PG. Blood samples for estradiol (E₂) were collected at PG and FTAI. HeatWatch estrus detection transmitters were utilized from CIDR removal until FTAI to determine onset of estrus following CIDR removal and PG. Dominant follicle diameter was determined via ultrasonography at PG and FTAI. Ultrasound pregnancy diagnosis was performed 70 d after FTAI and confirmed at d 140 of gestation. Cows in both treatments had similar size dominant follicles at PG, and FTAI. Progesterone at PG was higher for 14-16 d CIDR-PG treated cows compared to 14-19 d treated cows. Mean concentrations of E₂ were similar between treatments at PG, but were higher at FTAI for 14-16 d CIDR-PG treated cows. There were no differences between treatments in E₂ at FTAI for cows that failed to exhibit estrus after PG. Estrous response after PG was higher for cows assigned to the 14-19 d CIDR-PG protocol. Estrous response after PG among cows ≥ 4 yr was higher for cows assigned to the 14-19 d CIDR-PG protocol, but there were no differences between treatments for cows ≤ 3 yr. There were no differences between treatments for FTAI pregnancy rate. However, pregnancy rate after FTAI among cows ≥ 4 yr tended to be higher for cows assigned to the 14-19 d CIDR-PG protocol. In summary, both protocols worked effectively to synchronize estrus and ovulation prior to FTAI in postpartum beef cows, suggesting that a range in interval from CIDR removal to PG may be feasible when using long-term CIDR-based protocols. Higher estrous response rates after PG and improvements in FTAI pregnancy rate for 14-19 d treated cows ≥ 4 yr of age warrants further consideration.