EVALUATION OF LONG-TERM CIDR-BASED ESTRUS SYNCHRONIZATION PROTOCOLS IN PRIMIPAROUS TWO-YEAR-OLD BEEF COWS

Jillian Mae Abel

Dr. David J. Patterson, Thesis Advisor

ABSTRACT

Primiparous two-year-old beef cows, when considered as a specific age class of females, typically experience the highest incidence of reproductive failure. Two experiments were designed to evaluate pregnancy rates following a synchronized estrus administered in conjunction with fixed-time (FTAI) or split-time AI (STAI) breeding strategies. Experiment 1 compared the 14-d CIDR-PG (14-d) and 7-d CO-Synch + CIDR (7-d) protocols. Estrous response at FTAI was higher ($P < 0.0001$) for 7-d compared to 14-d treated cows; however, pregnancy rates resulting from FTAI were similar (14-d, 63%; 7-d, 64%). Final pregnancy rates at the end of the breeding season were similar between treatments (14-d, 95%; 7-d, 96%) with 87% and 88% of the 14-d and 7-d treated cows, respectively, conceiving within the first 30 d of the breeding season. A subset of cows was sampled to further characterize differences between the protocols. Mean dominant follicle diameter at $PGF_{2\alpha}$ and FTAI was smaller ($P < 0.05$) among 14-d vs 7-d treated cows, and estradiol-17β at $PGF_{2\alpha}$ and FTAI was greater ($P < 0.05$) for 14-d vs 7-d cows. Experiment 2 tested the hypothesis that estrous response and resulting AI pregnancy rates would be increased when STAI was used in conjunction with the 14-d protocol. Total estrous response was increased ($P < 0.0001$) for ST- vs FTAI treated cows (STAI, 64%; FTAI, 42%); however, pregnancy rates resulting from AI were similar (STAI, 55%; FTAI, 56%). The results from these experiments demonstrate that the 14-d and 7-d protocols can be used successfully to synchronize estrus prior to FTAI in two-year-old beef cows, and although total estrous response was increased using STAI in conjunction with the 14-d protocol, this strategy did not increase pregnancy rates compared to FTAI.