Public Abstract
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Graduation Term:FS 2015
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Degree:MS
Title:Evaluation of long-term CIDR-based estrus synchronization protocols in primiparous two-year-old beef cows

Reproductive management of two-year-old beef cows presents a unique challenge in managing a beef herd, since this age group of females typically experiences the highest incidence of reproductive failure. Strategic management of replacement beef heifers and primiparous cows is necessary to ensure their continued long-term reproductive success, which provides the opportunity for beef producers to increase retention rates, reduce input costs, and ultimately enhance production efficiency. Estrus synchronization and artificial insemination (AI) are important management tools available to producers that facilitate genetic improvement and enhance reproductive efficiency. A list of recommended protocols may be used to facilitate fixed-time AI (FTAI) in beef cows and heifers, and we now know that specific protocols perform better among various age classes of females. Short-term controlled internal drug release (CIDR)-based protocols are currently the preferred method to synchronize estrus prior to FTAI in postpartum beef cows. Alternatively, long-term CIDR-based protocols have been used with greater success in beef heifers. Two experiments were designed to evaluate long-term CIDR-based estrus synchronization protocols specifically in two-year-old beef cows. Experiment 1 compared the 14-d CIDR-PG and 7-d CO-Synch + CIDR protocols. Although estrous response following treatment with the 14-d CIDR-PG protocol was low, high pregnancy rates following AI were achieved after treatment with each protocol. Pregnancy rates at the end of the breeding season were similar between treatment groups, and a high percentage of cows in each group conceived within the first 30 days of the breeding season. The results from this experiment suggested that split-time AI (STAI), or delayed insemination of non-estrous females 24 h after the standard FTAI, could be used to improve estrous response and AI pregnancy rate in two-year-old beef cows following synchronization of estrus with the 14-d CIDR-PG protocol. This hypothesis was tested in Experiment 2. The results from Experiment 2 indicated that total estrous response was improved with STAI; however, pregnancy rates were not improved. These experiments demonstrated that the 14-d CIDR-PG and 7-d CO-Synch + CIDR protocols can be used successfully to synchronize estrus prior to FTAI in primiparous two-year-old beef cows. These protocols provide the opportunity to expedite genetic improvement with FTAI, in addition to the opportunity they provide in facilitating enhanced reproductive management within a herd.