Effect of 14 d CIDR treatment prior to 7 d CIDR CO-Synch
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The major goals of all timed artificial insemination (TAI) programs used in beef cattle are to achieve high conception rates and maintain a relatively concise calving season. This can only be accomplished when the cows are cycling. There are numerous factors that affect cyclicity of the beef cow: days postpartum, age, body condition, sucking reflex, presence of the bull, and the use of exogenous hormones. Various pre-synchronization protocols involving gonadotropin releasing hormone (GnRH), prostaglandin F2α (PGF) and controlled internal drug release (CIDR) have been applied to dairy cows to improve their cycling activity, but less has been performed in the post-partum beef cow. The objective of the current study was to apply a pre-synchronization protocol involving placement of a 14 d CIDR 26 d prior to the start of a 7 d CIDR CO-Synch to determine if this would improve TAI pregnancy rate (AIPR) as well as overall season pregnancy rate (SPR). Commercial beef cows (n=1770) across 15 locations (herd size ranges from 49-287; seven fall-calving herds, eight spring-calving herds) were used in the study. To be included, cows must have been seven days post-partum at CIDR 1 insertion (n=1555). Cows were randomly assigned to Treatment (14 day CIDR; TG) or Control (no CIDR; CG) groups and balanced for age and days post-partum (DPP). Body condition score (BCS) was recorded at CIDR 1 insertion. All cows were artificially inseminated (AI) with one of 12 sires (each sire was not used in every herd) using a 7d CIDR CO-Synch protocol. Herd bulls were turned out three days after AI and removed after 60 d. Pregnancy diagnosis via transrectal palpation/ultrasonography was performed twice at 40-60 and 100-120 days after AI, respectively. The data were analyzed using PROC GLIMMIX in SAS (Cary, NC). For AI pregnancy rate, unit (season), AI sire, age, and treatment (T) were included in the model. In the analysis for season pregnancy rate, AI sire was not included in the model. Additionally, BCS and DPP were covariates. The following interactions were analyzed: T by Age, T by DPP, and T by BCS. Significant differences were noted at p<0.05. For AICR, there was no significant difference between T (61.2%; n=781) and C (60.2%; n=773). Overall AICR of 2 yr. olds was notably (p<0.05) lower (58.2%; n=280) compared to 3 yr old (67.9%; n=224) and 4+ yr. old (60.3%; n=1045) cows. Also, the AICR was higher for increased DPP: <60 d (52.7%), 60-90 d (62%), and >90 d (60.6%). Unit, BCS, and treatment had a significant effect on SPR. Cows with a BCS greater than 5 (BCS 5-6 and 7-9) had higher SPR (93.7%; n=1087 and 87.4%; n=334, respectively) than BCS 2-4 (84.5%; n=116). The TG group had a higher (p<0.05) SPR (93.5%; n=781) compared to the CG group (89.8%; n=773). There are numerous conclusions that can be described from this study, but the overall premise is that a 14 day CIDR inserted 26 days prior to synchronization and TAI did not have an effect on AIPR but had a significant effect on overall SPR. This protocol appears to be beneficial for improving AIPR of young cows as well as overall SPR in these herds.

Keywords: CIDR, CO-Synch, artificial insemination, pregnancy rate