Synchrnonization of Estrus in Replacement Beef Heifers Using GnRH, Prostaglandin F2 (PG), and Progesterone (CIDR): a Multi-location Study

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ABSTRACT

Our objectives were to determine whether a fixed-time insemination (TAI) protocol could yield similar pregnancy rates to a protocol requiring detection of estrus (EAI) and whether an injection of GnRH at CIDR insertion enhanced fertility. Estrus in 2,077 replacement beef heifers from 12 locations was synchronized and AI occurred after four treatments: 1) a CIDR for 7 d with 25 mg of PG on the day of CIDR removal, followed by detection of estrus and AI during 84 h. Heifers not detected in estrus by 84 h received 100 g of GnRH and were inseminated (EAI; n = 517); 2) heifers were treated and inseminated as EAI heifers but also received GnRH at the time of CIDR insertion (GnRH+EAI; n = 504); 3) heifers received a CIDR for 7 d with PG on the day of CIDR removal, followed in 60 h by a second injection of GnRH and TAI (TAI; n = 531); and 4) heifers were treated and inseminated as TAI heifers but also received GnRH at CIDR insertion (GnRH+TAI; n = 525). Pregnancy was diagnosed by transrectal ultrasonography on d 30 to35 and blood samples were collected (d -17 and -7, relative to PG) to determine cycling status. Percentage of heifers cycling at initiation of estrus synchronization was 91%. Pregnancy rates among locations ranged from 78 to 100%. Overall pregnancy rates among locations ranged from 38 to 74%. Pregnancy rates were 57.3, 54.5, 53.1, and 49.1% for GnRH+EAI, EAI, GnRH+TAI, and TAI, respectively. Although no differences in pregnancy rates among treatments were observed, the GnRH+EAI treatment most consistently achieved the greatest pregnancy rates. In addition, the GnRH+TAI protocol provides an alternative to estrous synchronize heifers with TAI as an option without detection of estrus.

Key Words: Estrus Synchronization, Artificial Insemination, Beef Heifers