

# Cattle Producer's Handbook

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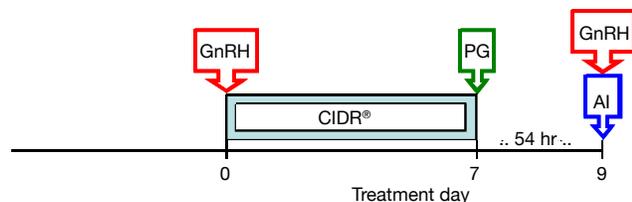
## Utilizing Natural Service with Estrous Synchronization in Conjunction with Timed Artificial Insemination

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Development and use of the controlled intra-vaginal drug releasing device (CIDR) and gonadotropin releasing hormone (GnRH) have allowed producers to manipulate the estrous cycle and ovarian activity of beef cows and heifers. This has enabled the development of estrous synchronization protocols that can attain pregnancy success rates of 50 percent or better with timed artificial insemination (TAI; Fig. 1).

Over the past 30 years, a variety of estrous synchronization protocols and products have been researched and developed. This paper discusses two commonly used protocols and how natural service can be incorporated in conjunction with A.I. A complete description of proven estrous synchronization protocols is available at: <http://westcentral.unl.edu/beefrepro/resources.html>.

Perform TAI at 54 hr after PG with GnRH at TAI.



**Fig. 1.** Timeline for the estrous synchronization of beef heifers via the CO-Synch + CIDR<sup>®</sup> protocol (TAI = timed artificial insemination; PG = prostaglandin F<sub>2</sub>; GnRH = gonadotropin releasing hormone; CIDR<sup>®</sup> = controlled intra-vaginal drug releasing device).

Nevada and Oregon field studies suggest that incorporating the use of bulls into synchronization and TAI protocols can increase first-service pregnancy rates to levels as high as 70 percent. From 2004 to 2006, over 1,200 well-developed and cycling yearling heifers were synchronized and bred on four cooperating commercial ranches. Two protocols for yearling replacement heifers were examined. The goals in using these protocols were to impregnate as many heifers as possible (with the majority being bred to A.I.) while keeping costs to a minimum.

The first protocol involved CO-Synch + CIDR (Fig. 1) with exposure to fertile bulls (1 bull to 15 heifers) during two periods after CIDR removal: (1) for 48 hours immediately after CIDR removal, and (2) beginning 84 hours after CIDR removal (Fig. 2). Insemination via TAI occurred at approximately 65 to 70 hours after CIDR removal instead of the standard  $54 \pm 2$  hours, which is recommend for the CO-Synch + CIDR protocol.

The second estrous synchronization protocol that was evaluated included the CO-Synch protocol without the use of a CIDR (Fig. 1 minus CIDR). The same bull-to-heifer ratio (1:15) was used, but heifers were exposed to fertile bulls for a longer period

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