



Cattle Producer's Handbook

Reproduction Section

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Protocols for Synchronization of Estrus and Ovulation

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The potential for genetic improvement in beef herds in the U.S. through advances in biotechnology has never been greater. Recent improvements in our understanding of methods of inducing and synchronizing estrus and ovulation in postpartum beef cows and replacement beef heifers creates the opportunity to significantly expand the use of artificial insemination (A.I.) in both purebred and commercial herds. Technology now exists to successfully inseminate beef cows at predetermined fixed times with pregnancy rates comparable to those achieved detecting heat.

While many options exist for synchronization of estrus and ovulation, this short list of protocols was developed based on available research data and field use by the Beef Cattle Reproduction Leadership Team. This group is composed of representatives from the A.I. and pharmaceutical industries, veterinarians, and reproductive physiologists from the Beef Reproduction Task Force with active research programs in this area.

Selecting a Synchronization Protocol

Each producer should evaluate available resources and assess the cows or heifers intended for synchroni-

zation before selecting a protocol. Key considerations should include time and skill available for heat detection, body condition of the cows or heifers, days postpartum in cows, facilities, experience, and cost.

Amount of Heat Detection

The first step in selecting a synchronization protocol is to determine how much, if any, heat detection is feasible or desired. Some management systems make heat detection and the sorting of animals simple and effective. In other cases, heat detection can be difficult. Poor detection efficiency can result in a low A.I. pregnancy rate. The recommended protocols are divided into three groups based on amount of heat detection required: (1) heat detection for 7 to 8 days, (2) heat detection for 3 days followed by fixed-time A.I. of all remaining animals not previously detected in heat (clean-up timed A.I.), or (3) strict fixed-time A.I.

Cow Factors

Any of the synchronization protocols are recommended for mature cows with a body condition score of 5 or greater that are 50 days or more since calving at the time of A.I. Young, thin, and late calving cows are all less likely to have resumed their estrous cycles at the beginning of the breeding season. If a high percentage of cattle are in these categories, consideration should be given to protocols that include a progestin such as a CIDR (controlled internal releasing device). The progestin will induce some non-cycling cows to cycle and improve their chance of conceiving to A.I. If cows are too thin or have calved too recently, the investment in synchronization of estrus may not be cost effective.

Heifer Factors

Age and weight are key factors that influence time of puberty in heifers. Heifers should attain 60 percent of their mature weight before breeding. Because selec-

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