

Vet Call

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A new strategy for synchronizing mature cows

Estrous (or heat) synchronization gives many beef cattle producers the opportunity to capture the economic benefits of artificial insemination (AI).

Because AI involves a substantial investment of labor and time, most commercial farms or ranches will not utilize this technology unless it can be confined to a period less than five days. To make the labor requirements of AI compatible with modern beef cattle breeding, the estrous cycle must be synchronized so a high percentage of treated females show a fertile, closely synchronized heat.

A number of products and systems have already been developed, including the use of prostaglandin $F_{2\alpha}$ (available as Lutalyse® or Estrumate®) in one- or two-shot systems. Prostaglandin $F_{2\alpha}$ (PGF_{2α}) regresses the corpus luteum (CL), which starts the process leading to heat and ovulation of a fertile egg.

veterinarians and reproductive physiologists have shown that cows and heifers are synchronized most closely if they are already at a similar stage of the estrous cycle when treated with PGF_{2α}. In addition, scientists have shown that progestogens (such as MGA® and the implant included with Syncro-Mate B® and possibly gonadotropin releasing hormone (GnRH; available as Cystorelin® or Factrel®) are able to induce cycling in some prepuberal heifers and postpartum cows.

The newest synchronization system being developed utilizes

our knowledge of the estrous cycle and previous synchronization protocols by combining two types of drugs, GnRH and PGF_{2α}. The protocol involves an injection of GnRH followed seven days later by an injection of PGF_{2α}. The cows are observed for signs of estrus (heat) for 96 hours following the PGF_{2α} injection. Any cow displaying signs of heat is identified and bred artificially 12 hours after first detection of standing heat.

The PGF_{2α} injection regresses the CL, which leads to ovulation

and standing heat. The success of the GnRH injection to synchronize follicular growth is very good in cows, but less in heifers, particularly young heifers, which probably explains the reduced success of this method in yearlings.

The advantages of this system compared to others include:

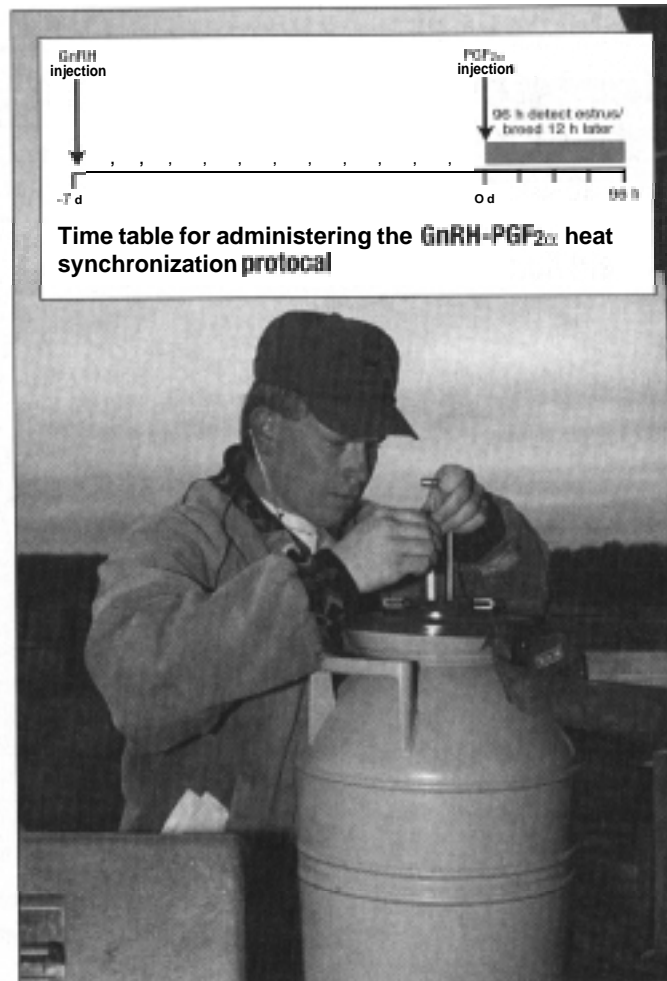
- It takes only seven days to implement; and
- Cows come into heat in a narrow range of time.

The disadvantages:

- GnRH is more expensive than PGF_{2α} or MGA;
- Cows have to be run through the chute twice for injections and a third time for insemination; and
- The system doesn't work nearly as well in heifers as it does in mature cows.

Dairy producers are utilizing a modification of the system to allow timed breeding (AI is scheduled at a preset time rather than using heat detection). With this modification, a second injection of GnRH follows the PGF_{2α} injection by 30-48 hours, which increases the synchrony of ovulation within the group of cows. Cows are then bred at a predetermined time, 8-24 hours after the last GnRH injection.

No one synchronization system is best for all ranches; therefore, by working closely with your veterinarian and professional breeding service, you can select the system that should provide the most advantages for your breeding program. Because of the advent of newer technologies and an increasing number of veterinarians and other professionals who can offer advice and service concerning the use of synchronization systems and AI, many ranches are reevaluating their breeding strategies for both their heifer and mature-cow herds and finding rewarding ways to incorporate AI.



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