REPRO TRACKS

by Cliff Lamb, Texas A&M University

Making the Most of Your Herd

Using estrous synchronization to enhance response to bull breeding.

Estrous synchronization has the potential to shorten the calving season and increase calf uniformity, but it is predominantly used in conjunction with artificial insemination (AI). A majority (more than 85%) of beef producers in the United States, however, do not utilize AI as a reproductive management tool, citing time and labor associated with detection of estrus and AI as major constraints.

Utilization of estrous synchronization may provide beef producers who do not typically use AI an opportunity to alter calving distribution and calf uniformity without the use of AI.

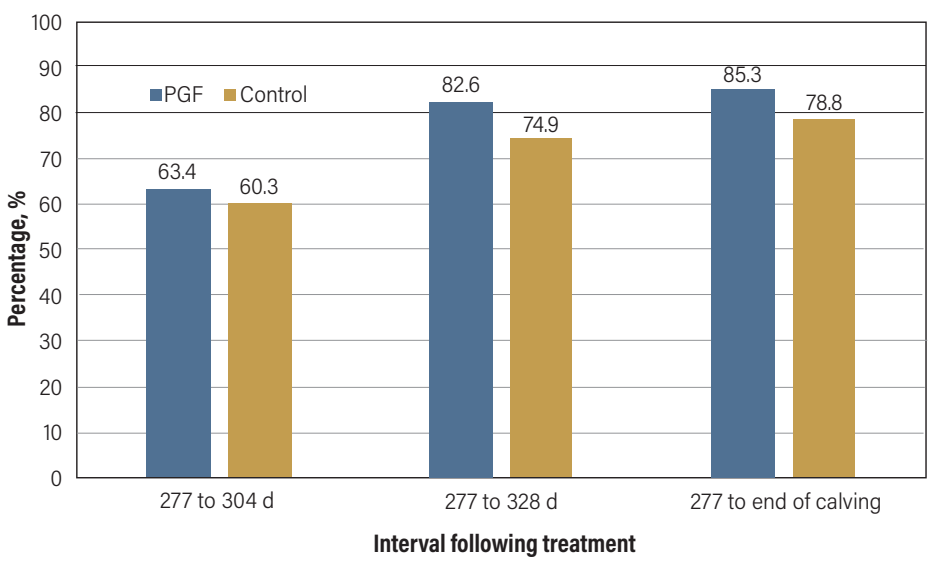
Estrous synchronization has positive effects on the calving season, such as increasing pregnancy rates and altering the calving distribution. It allows producers to shorten their breeding season by allowing a greater proportion of cows to calve earlier in the calving season. As a result, the opportunity exists to yield greater weaning weights.

One method to consider that has been used for more than three decades is the use of a single injection of prostaglandin F2α (PGF2α) five days after inserting the bulls with the cows to initiate the breeding season. This system only requires a single trip through the chute, and cows that are cycling with a corpus luteum (CL) will respond to the PGF2α. This does not have an effect on cows that have not returned to estrus after calving. The simplicity of this procedure reduces labor and should be especially applicable to management systems in which AI is unfeasible or not needed.

As noted in Figure 1 (adapted from Whittier et al., 1991), a greater percentage of cows receiving PGF2α had calved during each interval represented. The result of this type of estrous synchronization program was to provide more opportunities for conception during a fixed and relatively short breeding season, and thereby increase the calving rate.

In cyclic females, administration of a CIDR® will stop estrus from occurring during the duration of CIDR insertion. Upon CIDR removal, females that would have naturally been in heat during the interval of insertion would show estrus within a few days, and the remaining

Figure 1: ***Cumulative percentage of calves born at three intervals following treatment in suckled beef cows (adapted from Whittier et al., 1991)***



females would continue the natural course of their estrus cycle. Within the first five days after a seven-day CIDR protocol, 57% of cyclic females would be expected to show estrus, and 80% of females would show estrus within the first 10 days of the breeding season.

We explored a method of synchronizing suckled cows with only a CIDR for several reasons. The first reason was that withholding PGF2α from a synchronization protocol would allow a synchronized estrus with a more gradual distribution of estrus compared with the peak in estrus activity observed when PGF2α is administered at CIDR removal. The second reason for using a CIDR in a natural service synchronization protocol is to attempt to initiate cyclicity in a portion of non-cyclic females and subsequently get them pregnant earlier in the breeding season. In a large, multilocation study, we demonstrated the average days to conception was shorter for cows in the CIDR treatment compared with cows not receiving a CIDR. As expected, the interval to conception was reduced in cows receiving a CIDR compared to those not receiving a CIDR, especially in the earlier-calving cows (Figure 2).

Keep in mind not all bulls are suitable for breeding groups of synchronized females. Age, breeding soundness and libido need to be assessed to determine whether individual bulls are suitable candidates for natural service synchronization protocols. Breeding synchronized females with natural service bulls will work for some people and not for others.

In either case (synchronized or nonsynchronized bull breeding), producers are encouraged to closely monitor pastures for breeding activity and injuries throughout the breeding season. Though not all problems will be seen [such as changes in semen quality after the yearly breeding soundness examination (sometimes referred to as a BSE)], identifying issues early in the breeding season will allow time to replace bulls as needed and salvage the remainder of the breeding season. AJ

Editor's note: Cliff Lamb is the animal science department head and a professor at Texas A&M University in College Station, Texas.

Figure 2: ***Interval to conception from initiation of the breeding season at various days postpartum (adapted from Lamb et al., 2008)***