



# Repro Tracks

► by **Cliff Lamb**, University of Florida

## Planning for the breeding season

*For many readers, the spring breeding season is fast approaching. Many of you are considering your breeding season management and are trying to plan to obtain the best fertility out of your herd. There are many opinions on how to best develop heifers, manage cows, or determine which estrus-synchronization protocol to use. I frequently get these questions during this time of year. Hopefully my responses will help to assist you in enhancing fertility in your herd.*

### Preparing females

#### Are my heifers good candidates for estrus synchronization?

Heifers that will be used for breeding purposes should not have received growth-promoting implants. Previous studies indicate that implanting heifers within 30 days of birth impairs uterine function and decreases subsequent pregnancy rates. In addition, heifers should have attained 60%-65% of their mature body weight by the start of breeding.

Some recent studies have proposed heifers can be developed to lighter weights prior to the first breeding season. However, fewer heifers that were developed to 53% of mature weight were cycling prior to the start of the breeding season and when heifers were developed to 50% of mature weight, 15.7% fewer of them conceived in the first 30 days of the breeding season compared to heifers developed to 55% of mature weight. Therefore, to ensure a high percentage of heifers attain puberty at the start of the breeding season, using 60%-65% of mature weight is a good starting point.

A minimum of 50% of your heifers need to have reached puberty and have started normal estrous cycles before initiating the estrus-synchronization protocol. This

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can be determined by reproductive tract scoring your heifers 4-6 weeks prior to the breeding season. A reproductive tract score (RTS) is a subjective measurement of the sexual maturity of a heifer that is normally performed by a veterinarian.

#### Are my cows good candidates for estrus synchronization?

Generally, the single biggest factor limiting fertility in suckled cows is whether they have reinitiated estrous cycles after calving. The period from calving until estrous cycles are reinitiated is called the postpartum interval and is primarily dictated by suckling of the calf and plane of nutrition.

Therefore, suckled beef cows that are good candidates for estrus synchronization usually meet the following criteria:

1. Cows should be in a body condition

score of 5 (on a 9-point scale) at calving and be on an increasing plane of nutrition after calving.

2. For best results, the postpartum interval of cows should be >40 days at initiation of the synchronization protocol; however, a good practice is to include cows with shorter postpartum intervals, but don't expect the same pregnancy rates. If the estrus-synchronization protocol you plan to use includes CIDR® administration, each cow should be a minimum of 21 days postpartum at the time of CIDR insertion.

3. Cows should have a low incidence of calving difficulty since dystocia will lengthen the postpartum interval.

#### If I plan to vaccinate my females before breeding, when should I vaccinate?

There are many opinions on vaccination timing and whether vaccinations affect pregnancy rates, but a good rule of thumb is to vaccinate before and at weaning, with both heifers and cows receiving a booster vaccine at least 30 days before breeding. If it is absolutely necessary to give a modified-live virus (MLV) vaccine less than 30 days prior to breeding, the vaccine should be administered as soon as possible and only to animals that were vaccinated both before and at weaning. Animals that have not previously been vaccinated (naïve animals) should not be vaccinated near the time of breeding.

#### What should I consider when selecting an estrus-synchronization protocol?

When selecting an estrus-synchronization protocol, there are a number of issues to consider, including whether you want to detect estrus and inseminate after the detected estrus, inseminate at a predetermined time using fixed-time artificial insemination (FTAI), or detect estrus for 72 to 84 hours (depending upon the protocol) and inseminate any cows not detected in estrus at a fixed time. The Beef Reproduction Task Force has recommended protocols for cows and heifers on their resource page (<http://beefrepro.unl.edu/resources.html>). These recommended protocols, as updated for 2015, were published in the February *Angus Journal* (see pages 205 and 207) and appear in the directories of the major AI

**Table 1: Effect of transport after insemination on pregnancy rates**

	Days after insemination that transport occurred		
	1 to 4	8 to 12	29 to 33
Synchronized pregnancy rates	74%	62%	65%
% pregnancy loss compared to days 1 to 4		12%	9%
Breeding season pregnancy rates	95%	94%	94%

**Source:** Data adapted from Harrington et al., 1995.

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companies. There are protocols that fit each of the preceding approaches to estrus synchronization.

Other items to consider include the proportion of females that are cycling, and the time, labor and cost of the protocol. When trying to decide on a protocol, it is a good idea to speak to an AI company representative who has experience with the various protocols. Keep in mind that estrus-synchronization protocols must be followed precisely, and each product must be administered at the correct dose on the correct day and, in some cases, at a specified time of day. Be sure to store, handle and administer synchronization products correctly.

#### **When is the best time to transport cattle after AI?**

This is a difficult question to research. Only one study has been conducted that gives us some insight on the best time to transport. It appears that shipping cattle within the first five days after AI is best. The embryo is still in the oviduct at that time and has not hatched; therefore, it is unlikely to be subjected to any uterine influences that may have been affected during transport. It appears that shipping sometime between Day 5 and Day 42 can be detrimental to embryo survival and may cause as much as a 10% decrease in pregnancy rates (see Table 1). This is because the embryo needs to go through multiple development stages such as blastocyst formation, hatching, maternal recognition of pregnancy and adhesion to the uterus.



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**Editor's Note:** *Cliff Lamb is a beef cattle specialist for the University of Florida and coordinator of the Florida Bull Test.*