



BC-2002 – Revised: January, 1998

Synchronizing Estrus in Virgin Heifers

Dr. John C. Spitzer – Professor, Reproductive Physiology

Few would argue the dramatic improvements in genetics available through AI. However, almost no commercial and few seedstock beef herds utilize AI. Obstacles to use of AI are many and varied, but primarily focus around labor, and/or time, available to adequately detect cows in heat. Synchronization of estrus may overcome some of the problems usually associated with AI. Beginning an AI/synchronization program with virgin heifers offers several advantages.

- **A smaller number of animals are usually involved, allowing one to start slow,**
- **Using carefully selected AI sires for heifers can reduce or eliminate calving difficulty,**
- **Heifers, as a group, should be genetically superior to older animals in your herd.**
- **No calves are present to handle and work around during the breeding season.**

There are now a wide variety of products and programs for synchronization of estrus. Each will be briefly discussed, in no particular order.

Prostaglandins (PG)

The prostaglandin products Lutalyse (The UpJohn Co.), Bovilene (Syntex Animal Health), and Estrumate (Miles, Inc.) are equally effective and all are highly luteolytic (will regress a CL) when administered to cycling heifers which have a functional CL (days 6 to 18 of a heat cycle). In these animals, rapid CL regression will be followed by heat 2 to 5 days after administration of the drug. Heifers in days 1 to 5 of a heat cycle *will not* respond to PGs and *will not* show a shortened cycle. Heifers in days 18 to 21 of a cycle will not respond to the drug, but will show heat within one to four days anyway. Thus, in a group of cycling heifers, approximately 75 to 80 percent will come into heat 1 to 5 days after PG administration (i.e., all cycling heifers except those in days 1 to 5 of a cycle when injected). Because 20 to 25% of all heifers will be in days 1 to 5 of their heat cycle and will not respond to a single injection of PGs, a number of programs have been developed.

Program 1 - One injection of PG

Inject all heifers on day 1 of your program.

Begin checking heat and AI.

If all heifers are cycling, you should breed a minimum of 70% of all heifers in a 5-day AI season.

Program 2 - Two injections of PG

Inject all heifers on day 1 of your program and *do not* check heat.

Twelve days later, inject all heifers a second time and begin checking heat and AI.

If all heifers are cycling, you should breed the majority in a 5-day AI season.

Program 3 - One injection of PG with prior heat detection

Begin checking heat and AI as in a conventional program not using synchronization drugs.

Breed all heifers in heat during the first 4 days of this program.

On the morning of day 5, breed all heifers in heat and inject any heifer you have not previously bred.

Continue to check heat and AI.

If all heifers are cycling, you should breed most of the injected heifers over the next 5 days.

There are additional schemes, but most are modifications of these 3 basic programs. The key is to be sure all heifers have reached puberty and are cycling before you begin.

MGA (The UpJohn Co.) and Prostaglandin combination treatments

Beginning 33 days prior to the breeding season, feed heifers MGA (melengestrol acetate) at a dosage of 0.5 mg/head/day for 14 days only. Seventeen days after the last day of MGA feeding, inject heifers with a prostaglandin (any of the previously described PGs work equally well). Again, high rates of synchrony (90%+) are expected with this treatment program. Animals generally exhibit estrus 36 to 144 hours after the PG injection. While this is a longer period than that observed following SMB, timed inseminations again show little reduction in pregnancy rates compared to breeding heifers 12 hours after observed heat. With this program, timed insemination should be at 72 to 80 hours after the PG injection. Currently, we recommend heat checking at 36 hours and 48 hours after PG injection. Heifers found in heat at those times should be bred 12 hours later. Then breed all other heifers 72 hours after PG injection, regardless of heat.

Following any of these products and programs, several options are available to the beef producer. Bulls can be turned in with heifers one to two days following the last AI breeding. This will probably be the program of choice for commercial herds. If the goal is to breed as many heifers via AI as possible, it might be expedient to remove these bulls approximately 18 days following the synchronized breeding and conduct a conventional AI program for about 10 days. This would yield an additional service on heifers not pregnant to insemination at synchronized estrus. Bulls can then be returned to the herd for the duration of the breeding season. If monitoring of breeding dates is important, these bulls might be equipped with chin-ball markers to determine which heifers were bred naturally. Of course, there is always the option of continuing your AI program for 30 to 45 days after synchronizing estrus. This gives 2 or 3 opportunities to get heifers bred AI. Where labor and time is available for heat detecting, this is the program of choice for most registered herds.

For Additional Information Contact:

Dr. John C. Spitzer
Animal & Veterinary Sciences Department
128 Poole Ag Center
Clemson, SC 29634
Email: JSPTZR@clemson.edu
Phone: 864-656-5164
Fax: 864-656-3131

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