



## Tips for Synchronizing Cattle Using Progesterone Infused Vaginal Inserts

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### Background

Being able to control and influence when cattle show estrus and are able to be bred can be a key management tool to cattle producers. Historical data suggest that calves sold in uniform lots (i.e., same age, similar weight, size, and color) received more per pound than non-uniform lots. Synchronization allows producers to influence the reproductive performance and uniformity of their calf crop. Additionally, synchronization reduces labor associated with calving and facilitates the use of artificial insemination (AI) to bulls with genetically superior traits, i.e., calving ease, growth, carcass quality or maternal.

Progesterone maintains pregnancy and is produced from tissue remaining on the ovary after ovulation called a corpus luteum (CL), and later, by the pregnant uterus. Cattle receiving progesterone will act – hormonally – like they are pregnant and not cycle. Follicles will progress to a certain stage without progressing through to ovulation. The Food and Drug Administration (FDA) approved a removable plastic progesterone vaginal insert. The manufacturer calls it a *controlled internal drug release* (CIDR<sup>®</sup>, Pfizer Animal Health, New York, NY) vaginal insert. The plastic insert is impregnated with progesterone and designed to continuously release progesterone once inserted vaginally. The CIDR<sup>®</sup> has proven to be an effective method in synchronizing heifers, and can be used in cow-calf

operations to provide synchronized timed-AI conceptions rates greater than 60 percent.

### Tips to Consider

- Cycling - Cattle, especially heifers, must be cycling before a synchronization program is initiated. The CIDR<sup>®</sup> or other synchronization protocols will not bring non-cycling heifers/cows into estrus. Age, body condition, nutrition, and time post-calving, each have requirements which must be met before bovine female can begin the estrus cycle. Figure 1 shows heifers exhibiting signs of active estrus, standing heat.



**Figure 1. Confined heifers exhibiting signs of estrus during synchronization study. Photo courtesy of Kevin Heaton, USU Extension.**

- Good Nutrition - Cattle must be on an adequate nutritional plane to ensure that the reproductive tract is responsive. Again, this is especially true with heifers and first-calf heifers. These two groups are still growing and their subsequent energy demands are greater. Their nutritional plan should include a well-balanced vitamin and mineral supplement. Many parts of Utah and the west experience mineral deficiencies or excesses. Body condition scores (BCS) should be at least a 5, with heifers being in the 6 range (1=emaciated and 9=obese). Figure 2 shows heifers with a BCS of at least 6.
- Adequate Facilities – Most all of the synchronization programs require cattle to be handled – often multiple times – to administer injections and/or to insert or remove vaginal devices. Having adequate, low stress working facilities ensures that the recommended protocol is followed and cattle respond better to the protocol.
- Veterinary-Client-Patient-Relationship (VCPR) – Most of the protocols require the use of controlled, prescription drugs. In order for a veterinarian to prescribe these drugs there must be an active relationship between parties. Make sure that all prescription drugs are used in accordance with label instructions and according to the protocol. Furthermore, these drugs can be harmful to human pregnancies so there should be a caution to only handle the drugs if you are not pregnant. Using exam gloves is recommended when handling reproductive hormones.
- Follow BQA Principles – Beef Quality Assurance (BQA) guidelines suggest that any injectable labeled for intramuscular use be given in the neck. These reproductive products can cause significant tissue damage. A recent study (Fajt et al., 2011) found that injecting prostaglandin intramuscularly caused substantial muscle damage. BQA suggests that these injections be limited to areas of the animal that are of less retail value (neck region).
- Clean, Sterile Vaginal Inserts – It is recommended that the CIDR<sup>®</sup> be used in accordance with label instructions. Some report using the inserts multiple times, going against label instructions. Two studies (Colazo et al., 2003, Zuluaga and Williams, 2008) found no difference in pregnancy rate between new or previously used CIDR inserts in heifers or cows. However, Zuluaga and Williams (2008) found that autoclaving once used inserts significantly increased mean serum progesterone concentrations compared to re-used inserts that were soaked in chlorhexidine gluconate (0.03%) for 2 hours and allowed to air-dry. For those who



**Figure 2. Heifers with adequate body condition scores. Photo courtesy of Kevin Heaton, USU Extension.**

use the inserts in an off-label manner, autoclaving may be the best option when re-using CIDR inserts. Soaking will pull progesterone out of the CIDR and into the solution.

- Detecting heat (standing heat) in heifers and cows followed by AI 12 hours later can improve conception rates over timed AI.
- Trim the CIDR String – The author (RS) reports that some animals might remove the insert with their tongues if the removal string is too long. It is recommended that producers trim the removal string to about the level of the ventral vagina (Figure 3) to prevent inadvertent removal during grooming practices by the animal. Be careful not to cut the string too short, which could cause the string to retract into the vaginal vault and then be difficult to remove.
- Follow and understand the synchronization protocol – Many management tasks of a livestock operation have flexibility; a synchronization protocol is not one of them. Being a day late or forgetting the injection or insert may reduce estrus response substantially. Before starting a synchronization protocol, plan it out on a calendar and then make it happen.
- Use trained and capable AI technicians – AI is a fairly simple process, but can be



**Figure 2. Trim the removal string (blue) to about the level of the ventral vaginal opening.**

challenging when a large number of heifers/cows need to be bred at once. Trained competent technicians ensure that the “crunch-time” will go smoother.

## Summary

Vaginal progesterone inserts (CIDR<sup>®</sup>) are commonly used to synchronize reproduction on beef ranches because of their effectiveness and ease of use. This paper presents some tips and recommendations to consider in making the use of CIDR inserts effective. For a more complete discussion on CIDR protocols, please review the “*Synchronizing Cattle Using Progesterone Infused Vaginal Inserts*” Extension fact sheet.

## References

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