

Utilizing Natural Service with Estrus Synchronization in Combination with Time Artificial Insemination

Estrous synchronization of cattle is an underutilized tool of the modern ranch. Twenty years ago Artificial Insemination (AI) was labor intensive and costly for the average cow/calf operation. Genetic advancement has been, and continues to, be the strong focal point of AI. AI companies find top genetics worldwide, pay a large amount for their bulls and offer them to the average producer at an affordable price. The Expected Progeny Differences (EPD) listed for AI bulls are computerized and accurate. It is not unusual to see an AI bull have a yearling weight EPD of over 100 pounds. That means this bulls' AI calves are expected to be more than 100 pounds heavier as yearlings than the typical ranch produced calves. Some of the EPDs on AI bulls are amazing. My wife laughs at the enjoyment and amount of time I can spend looking at the AI sire catalogs.

The labor intensive part of using AI is accurate heat detection. With new estrus synchronization protocols a large portion of the labor can be eliminated, calving can be condensed and the genetic advantages of AI can be added to the average herd of cattle. The use of Controlled Intra-vaginal Drug Release (CIDR) devices, commonly called seeders, and gonadotropin releasing hormone (GnRH) injections allow producers to coordinate the estrus and calving of their cows and heifers. A protocol that includes timed AI at 56 to 72 hours after CIDR removal normally attains successful pregnancy rates of 50 to 70 percent. My last try had a 78% AI success rate.

For example, on day 0, a herd of 100 cows have CIDR's inserted and each receives a shot of GnRH. On day 7, the CIDR's are removed and a shot of Prostaglandin (one brand name is lutylase) is given. Six hours later another shot of Prostaglandin is given and the cows are turned out with natural service bulls. Fifty-six (56) to 72 hours after CIDR removal all cows are artificially inseminated to the bull of choice and then turned back in with the herd bulls. This protocol should result in the majority of calves sired by AI and virtually all 100 cows calving within a 45 day interval. Fewer natural service herd bulls are needed with this protocol because most of the cows will conceive by AI.

CIDR cost is approximately \$10, but I use mine two times, costing \$5 per animal. The two GnRH and two Prostaglandin injections total cost should be under \$20 per cow. AI semen varies in cost, but \$15 to \$30 is common. In the earlier example the semen cost is \$20 per cow plus \$5 for the AI technician support. Total cost of this example protocol should be \$50 per cow or \$5,000 herd expense excluding labor.

On the reward side of the balance sheet our protocol would produce a very short calving season of 45 days. Calves gain approximately three pounds each day. Shortening a calving season by 40 days easily adds \$100 to each calf born 30 days earlier (+\$3,000). The genetic advantage of having the majority of your calves from AI sires is hard to figure, but for example our selected AI sire had a yearling weight EPD of +100 pounds. This means approximately 60%, for example 60 calves, are 80 pounds heavier at sale time (+\$4,800). The protocol means the herd does not require as many bulls. For example, we need at least 2 less bulls and have less maintenance cost (+\$1,800).

In the example of combining natural service with estrous synchronization and timed artificial insemination the 100 cow herd net income would be increased by a minimum of \$5,000. One disadvantage is not knowing which calves were from AI sires, but in normal pasture multiple sires mating this is not unusual. Anytime someone commits to artificial insemination in beef cattle, AI should be continued for at least three years. A herd manager needs to have a three year record of calf sales, kept replacement heifers and an overview of cow herd pre and post AI protocol comparison to get an accurate evaluation of the AI protocol value in any operation.

This or another AI protocol should be the standard for the small and medium sized beef producers. It makes little common sense to purchase a bull for a herd of 10 cows. If you have questions about this subject contact your WSU Extension Faculty in your county for help.