

Synchronization and AI



User-friendly technology demonstrated in Alabama.

Story & photos by **Becky Mills**, field editor

Soren Rodning, Alabama Cooperative Extension System veterinarian, and Josh Elmore, regional extension agent, are firm believers in the benefits of estrous synchronization and fixed-time artificial insemination (TAI). Instead of simply telling Alabama producers about the technology, though, they decided to let them participate in the process.

As a result, a series of demonstrations was conducted in November and December 2011 at the Wiregrass, Gulf Coast and E.V. Smith research and extension centers.

"We gave producers the chance to participate by putting in the Controlled Internal Drug-Releasing (CIDR®) devices

and giving the shots," says Brian Gamble, associate director of the Wiregrass Station. "Then we had a session in the classroom. A week later they had the opportunity to remove the CIDRs and give the other shots."

The only part of the process the producers watched instead of participating in was the actual AI.

"These demonstrations were more about synchronization than AI," Gamble notes.

Elmore, who did the AI for the Wiregrass demo, adds, "So many times producers spend the time and money to go to AI school. Sometimes it is easier and cheaper to set the cattle up with synchronization and hire the actual AI done. AI is not a cheap investment,

especially if you own your own tank and equipment."

Ability to schedule

The estrous-synchronization protocol, the 7-day Co-Synch + CIDR regimen, was chosen for the demos because of its effectiveness and ease of scheduling. The combination of hormones synchronizes the heat cycles so tightly they can all be bred at the same time, eliminating the need to check heat.

"We could schedule all of it," says Gamble.

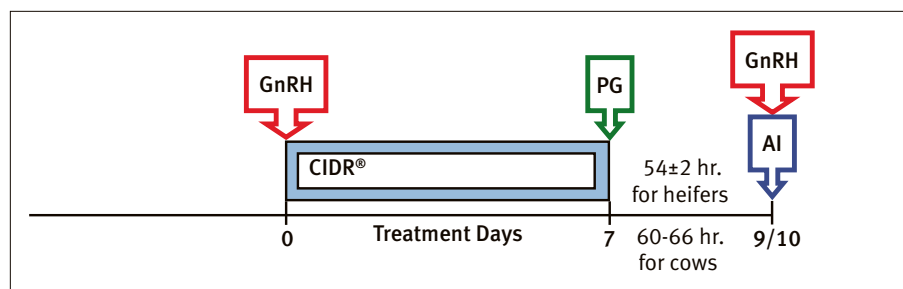
Rodning, who, like Elmore, had used the 7-day Co-Synch + CIDR program before, adds, "We were comfortable with it and have had good results. It was also important to us that the producers had the opportunity to put in CIDRs. A big benefit to the demonstrations was the producers walked away feeling comfortable using them."

The whole process actually started about a month before the synchronization when Rodning did pelvic measurements and provided reproductive tract scores (RTS) on the potential replacement heifers.

"Pelvic measurements are another selection tool," says Rodning. "They are a means of selecting heifers with adequate pelvic areas to minimize dystocia. ... We did find some abnormally small pelvises. However, if a heifer was borderline we didn't put a lot of selection pressure on it."

Fig. 1: 7-day CO-Synch + CIDR®

This protocol is recommended by the Beef Reproductive Task Force for both cows and heifers; however, the recommended time between CIDR removal and insemination varies. The task force recommends heifers be bred 54±2 hours after CIDR removal and cows be bred 60-66 hours after CIDR removal.



► **Left:** With synchronization and AI, the heifers at the Wiregrass Research and Extension Center produced top-quality, uniform calves.

RTS scores range from 0, or no palpable reproductive tract, to 5 in a heifer that is cycling.

“We were pretty lenient,” he says. “If they scored a 0 or a 1, we culled them. If they were a 2 or more, we gave it an all-American effort to get them bred.”

At the Wiregrass Station, 14 out of 15 heifers met the requirements for the synchronization and AI program. Next, at Day 0 of the Co-Synch program, which was actually Dec. 5, the heifers were run through the chute, the progesterin-secreting CIDRs were inserted, and the heifers received an injection of GnRH. On Day 7 (Dec. 12), the heifers went through the chute again and were injected with prostaglandin as the CIDRs were removed. About 54 hours later, on Day 10 (Dec. 15), they were bred AI and given another injection of GnRH.

While the ability to schedule synchronization and AI made it easier for the research stations to demonstrate the technology, as well as reducing the need for time-consuming heat checks, synchronization and AI have more benefits.

Synchronizing calving season

Malcomb Pegues, director of the Gulf Coast Research and Education Center, says, “I liked the idea of getting a tight breeding and calving season with the heifers. We have a pretty tight breeding season here, around 60 days.”

The tight calving season resulting from synchronization was evident at the Wiregrass station. Of the 14 heifers in the demonstration, seven were successfully bred AI. They had their calves from Sept. 17-Sept. 26. Even the seven heifers that came back in heat and had calves sired by the clean-up bull were bred quickly. Their calves were born from Oct. 8-Oct. 31.

“We were through calving in five or six weeks,” says Gamble. “The calves that are

born on the front end of the calving season should be heavier than those that were calved late, so we should have heavier weaning weights.”

There are also the advantages that come with AI.

“It gives us the ability to use bulls of superior genetics,” says Elmore. “You can use bulls with higher-accuracy EPDs (expected progeny differences), too.”

That is especially important when breeding heifers, he says. “We can use sires with calving ease and the maternal traits, but with growth. Then we can make more improvements in the economically important traits.”

At the Wiregrass station, they used WHS Limelight 64V from Select Sires. “He fit a lot of the characteristics we were looking for,” says Elmore. “We had used him on another project on a private farm and liked him.”

Elmore says Len Holliman, the Select Sires representative, helped sponsor the demonstration, along with Billy Arrighi with Zoetis (formerly Pfizer) and the Alabama Beef Cattle Improvement Association.

Challenges

Even with the advantages, synchronization and AI do have their challenges compared to natural service, says Gamble. “There is extra labor. We had to get the cattle up three times. There was more scheduling.”

For Pegues, the 58% pregnancy rate for AI was less than he wanted.

“We always hope for better,” he says, “But we haven’t had any calving problems with the heifers.”

At Wiregrass, the AI pregnancy rate and natural service rate were an even split. Both were 47%.

As far as the economics compared to natural service, that depends on the cost of the bull and how many females he breeds during his time on an operation. In the demonstration, the synchronization and AI worked out to \$37 per heifer bred. That included \$2.50 per injection of prostaglandin,



► **Brian Gamble**, associate director of the Wiregrass Research and Extension Center, says synchronization and fixed-time AI allowed them to schedule the whole process.

\$4.50 for two injections of GnRH, \$10.00 for the CIDR implant and \$20.00 per unit of semen. Elmore did the AI at the Wiregrass station, but if an AI technician were used, he says that would increase the cost by about \$10 per head. Labor, feed and yardage were not included.

Back to the original intent of the demonstration, Rodning says it was a success. “We have had producers who have adopted the technology, and Josh and I continue to get phone calls asking for more information and advice.”

If you are interested in synchronization and AI, the Iowa Beef Center has a synchronization calendar on its website. It will help with scheduling and can be downloaded for free at www.iowabeefcenter.org/estrus_synch.html.

Two other good (and free) resources are the website for the Beef Reproductive Task Force (<http://beefrepro.unl.edu>) and meeting coverage provided by the *Angus Journal* of the task force-hosted Applied Reproductive Strategies in Beef Cattle symposiums (www.appliedreprostrategies.com).



Table 5: Results of estrous synchronization and timed-AI demonstrations in Alabama

Wiregrass Research and Extension Center	Gulf Coast Research and Extension Center
15 Angus x Sim/Angus heifers	36 Angus x Sim/Angus heifers
7-day Co-Synch + CIDR® protocol	7-day Co-Synch + CIDR® protocol
GnRH at timed-AI	GnRH at timed-AI
Pregnancy diagnosis via rectal palpation	Pregnancy diagnosis via rectal palpation
7 of 15 bred by AI = 47% AI pregnant	21 of 36 bred AI = 58% AI pregnant
7 of 15 bred by natural service = 47% pregnant	11 of 36 bred by natural service = 31% pregnant
1 open heifer	4 open heifers
93% total pregnancy rate	89% total pregnancy rate