Smooth-working Layout Boosts AI Success

Here's how a veteran Angus breeder scores a high conception rate.

Story & photos by ***Boyd Kidwell***

Keeping cows calm is a key step in achieving a high artificial insemination (AI) conception rate, says J.F. Lancaster of Rocky Mount, N.C.

Lancaster has been AI breeding at Ann Angus Farms for more than 20 years. Throughout the past few years, he's honed his skills to reach a first-service conception rate of 68%-71%. A smooth-working set of handling facilities contributes to a quiet working environment, and the North Carolina cattleman has changed the way he handles cows to keep them calm.

"As we move cows into the facility for AI, we don't talk, and I ask anyone helping me to stay quiet. Our cows are on feed near the facility where I keep a close watch on them. When I see one in standing heat, we wait 12 hours and then move her quietly into the facility for AI," says the past president of the North Carolina Cattlemen's Association.

During the breeding season, Lancaster keeps his cows and heifers in feedlots surrounding the handling facility. These lots open into a lane that funnels toward holding pens for the facility. As the cows are fed morning and night, the Angus breeder observes for standing heat and writes down the numbers of the females that should be bred. When AI begins, one or two people can easily move the identified cows into the facility.

Box creates a staging area

When the cows reach the facility, Lancaster moves them through a couple of holding pens and into a crowding pen where he has a 10-foot (ft.) sweep gate to guide them up a curved alley into the working area. In reality, the cattle handlers usually don't need the sweep gate, as the animals see the entrance of the curved alley as the easy way forward.

The sides of the alley are solidly covered with thick industrial belt material that Lancaster's son Jeff recycled from a local company's discard pile. After running into problems with balky cows, Lancaster decided that the cows were reluctant to enter the alley because it was too dark. He removed one section of belting to allow more daylight down the alley, and this simple change improved animal flow.

The alley leads to a box made out of a metal frame that has sides covered with plywood. Sliding plywood doors on each end make entry and exit easy. The box creates a quiet area with no distractions and helps calm the cows before the sliding door opens, leading into the palpation cage and headgate. When the front sliding door opens, cows see a lighted area ahead and

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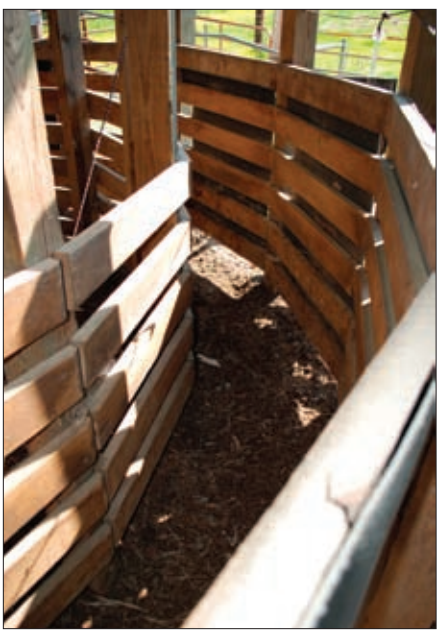
easily move forward to the headgate. The palpation cage has hinged sides that open for AI work when pins are removed.

"The box creates a staging area where cows don't see any of the activities on the outside. As we breed one cow, the next cow is waiting calmly in the box. When the front sliding door opens, she sees light ahead and moves forward," says Lancaster, who has visited other Angus operations where solid boxes are actually used for AI breeding areas.

►Most of the calves born at Ann Angus Farms are the result of AI.

►**Above:** A 10-foot sweep gate guides the cows to the entrance of the alley.



►**Above:** The box keeps cows calm as they await AI.

►**Left:** A curved alley leads the cows from the crowding pen into the dark box.

Advice from the expert

In building the facility, Lancaster followed the advice of animal behavior specialist Temple Grandin (available at *www.grandin.com/index.html*). The curved crowding chute works much better than a straight chute in an older facility at Ann Angus Farms, and the curved layout takes advantage of a cow's instinct to travel back in the direction from which she came. The open sides of the overhead shed allow light into the pens and chutes.

To prevent bruising of cattle, posts and corners are covered with heavy belting material. Grandin recommends that cattle producers observe animals moving through handling facilities to identify dark shadows or sources of glare that cause cattle to balk. Grandin also recommends removing hanging chains and other sources of noise in handling facilities.

Lancaster's helpers never use electric prods, and through the years he has selected animals with calm dispositions that are easy to handle.

The Angus breeder recycled a furniture truck box-bed to make a small office next to the facility. The office space allows him to keep AI equipment and cattle health supplies stored in a handy place next to the working chute. In one corner of the office, nitrogen tanks store valuable supplies of semen that will be responsible for future calf crops. Besides the lumber and a few gates, the headgate was the only thing purchased to build the facility.

"This isn't a fancy handling facility. From a cattleman's perspective it works great, and our AI results have been excellent. All of our females were born here on our farm, and almost all of them were the result of AI," Lancaster says.

Tips for AI success

Lancaster is well-known for his successful AI breeding program and his high conception rate on first-service AI. The veteran cattle breeder pursues AI for a second or third service so that almost all of the calves born on Ann Angus Farms result from AI.

In addition to an efficient handling facility, two other things are very important to Lancaster's success with AI:

1. a high level of nutrition for the animals; and
2. keen observation to identify standing heat.

During breeding season, the cows receive high-quality haylage and a ration based on 4 pounds (lb.) of whole cottonseed and 8 lb. of cracked corn per head. The key is to provide adequate energy, and the animal should have a body condition score (BCS) of 5.5 to 6 (on a 9-point scale where 1 is emaciated and 9 is obese) for a high AI conception rate.

►Lancaster practically lives with his cows during the AI breeding season.

The first AI breeding season is in January, so weather can play a role in feeding requirements.

"If the weather turns cold and wet, I feed a little more. I watch the cows closely, and if I see any ribs showing I increase their feed. When you think about improving your AI conception rate, providing extra feed when needed pays off," Lancaster says.

Attention to detail sets Ann Angus apart from most other operations, and close observation of the cows for heat is a very important factor in the high AI conception rate. Lancaster feeds twice a day and observes the cows. Standing heat is usually observed at sunrise and late in the evening. During the peak of breeding season, Lancaster observes the cows four times a day and practically lives at the AI headquarters.

"If there's one thing I do differently, it's to watch the cows closely and check for heat frequently," he says. "During the first breeding season, I come back out here and watch the cows at 9 p.m. I have a spotlight mounted on my truck so I can identify the cows in standing heat and write down their numbers."

During synchronization and AI, Lancaster uses the Select Synch + CIDR® protocol. A CIDR is a controlled internal drug-release device that releases a product with progesterone-like activity. On Day 1, Lancaster places a CIDR in the cow and gives a shot of gonadotropin-releasing hormone (GnRH.) After seven days, he pulls the CIDR and gives a prostaglandin (PG) shot. Some of the cows come in heat the second day after the PG shot, but 60%-70% of the cows come into standing heat on the third day. A few more cows come into heat on the fourth and fifth days.

Select Synch + CIDR is considered a relatively high-cost, medium-labor protocol. Each AI synchronization/service takes three trips through the chute. Depending on the cost of semen from the sire selected, Lancaster estimates that an AI pregnancy costs him an extra $100. But the uniformity and quality of the cow herd at Ann Angus makes the investment worthwhile.

"My goal is consistency," Lancaster says. "Most of our customers are commercial cattlemen, and they like to see uniform cattle. We use only a few bulls that are carefully selected for calving ease, growth and carcass quality."

Expert advice

Some universities and many private companies offer schools for learning artificial insemination (AI) techniques. You can pick up the information needed to build a handling facility for AI at one of these schools.

There also is much information available on the Internet for designing handling facilities and for AI breeding. Here are a few sources of information:

- ***www.grandin.com/references/new.corral.html***
- ***www.selectsires.com/beef/directory/cow_synchprotocol_2009.pdf***
- ***http://osuextra.okstate.edu/pdfs/F-3164web.pdf***
- ***www.selectsires.com/reproductive/ai_technique_cattle.pdf***
- ***www.agf.gov.bc.ca/resmgmt/publist/Leaflets/Beef/315-00.pdf***

Fig. 1: J.F. Lancaster's working facility eases the process