

Breeding Back First-Calf Cows

Open first-timers can cause a major economic challenge.

by Ed Haag

Ken Monson, operator of Lantana Angus in Absarokee, Mont., has developed an interesting wrinkle in his registered cow-calf operation. Besides raising purebred Angus for private-treaty sale, he purchases the occasional first-calf cow, breeds her back and then sells her as a 3-year-old mother cow.

“Breeding back first-calf cows does involve a lot of extra work,” Monson says. “It is easy to slip up if you are not paying attention.”

The fact that Monson has no difficulty finding ranchers willing to sell him their first-calf cows and then buy them back as 3-year-olds speaks volumes about how difficult it is to breed back animals at that stage in their life. “A lot of ranchers just don’t want to mess with them,” he says. “You just can’t treat them like all the other cows and get good results.”

James Berardinelli, Montana State University (MSU) research scientist, has studied reproduction in first-calf cows since 1974 and estimates the average conception rate in these younger animals is around 60%.

“First-calf cows have longer intervals from the time they calve to the time they start to breed again, and they are notoriously difficult to impregnate,” he says, adding that when they do breed back, they are often late to conceive and calve.

This means that almost half of first-calf

heifers in a beef herd must be culled, bred in the spring or carried as open animals throughout the year into the next breeding

season. Of those that do conceive, a high percentage are born late and out of sync with the rest of the herd, often resulting in lower-priced, non-uniform calves.

Delays in breeding back first-calf cows can cost a beef producer more than a dollar a day in lost production, while an open 2-year-old that is carried through 12 months into the next breeding season will gobble up the equivalent of the profit margin on three calves.

Stakes are high either way

With current high feeder-cattle and replacement female prices, the producer who is stuck with an open first-calf heifer faces a major economic challenge. In a study conducted by W. Ellis, Southeast Missouri State University, Cape Girardeau, and reported in the *Journal of Animal Science* (Vol. 82, Supplement, 1:228-31), Angus and Angus-cross heifers were used to determine costs of developing replacement heifers from weaning to first calving.

Heifers born in fall 2000 were weaned the next April, bred in November and calved in fall 2002. Heifers averaged 448 pounds (lb.) at weaning and 815 lb. at the beginning of breeding, when the average age was 13.5 months, at which time all heifers were cycling. Heifers were synchronized, artificially inseminated (AIed) and then turned out with cleanup bulls. Cost of development (including pasture, feed, labor, vaccination, synchronization, AI, cleanup bulls, pregnancy testing and cost of open heifers) was \$400.23 per animal. With today’s price of more than \$1 per lb. received for 450-lb. heifers, the total investment in a 2-year-old heifer just prior to calving would be around

\$1,000 in today’s market, the article noted.

With that kind of money at stake, it is not surprising that Monson has taken the time to develop a reproductive strategy specifically tailored to breeding back first-calf cows as soon as possible. “These animals have different needs than mature mother cows,” he says. “You

have to watch them more closely if you are serious about breeding them back.”

Monson, who manages 200-300 cow-calf pairs, has been successful in breeding back more than 70% of his first-calf cows, most of which he AIed. Berardinelli, who also developed a breeding strategy for 2-year-old cows, recorded similar results with his research animals. Although Monson’s and Berardinelli’s reproduction strategies may differ in emphasis, they are very close in content. The following represents important elements of their breeding strategies.

Start early

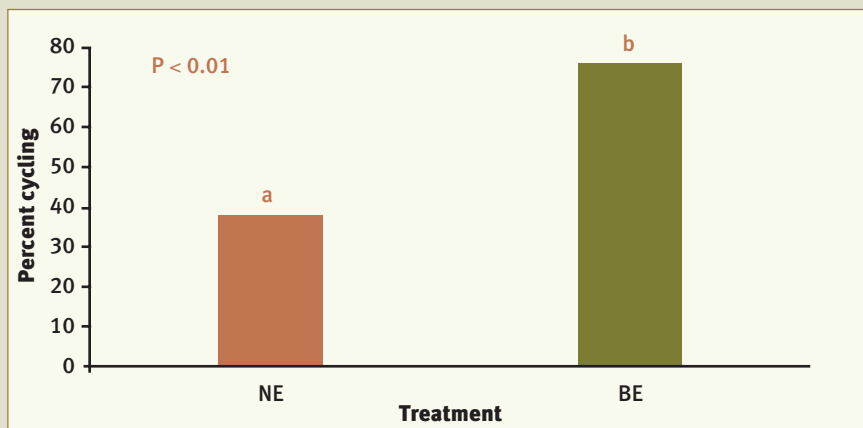
Both Monson and Berardinelli believe that some long-term planning is needed to optimize the chances of successfully breeding back first-calf cows. Producers who wait until after their heifers have their first calf before implementing a strategy are handicapping themselves and significantly reducing their chances of success, Monson says, adding that the extraordinary physical demands on a growing heifer of pregnancy and suckling calves must be counterbalanced by adequate recovery periods and quality nutrition.

Because of this, Monson’s program to breed back first-calf cows begins with his yearling breeding schedule. By breeding yearlings two to three weeks in advance of the rest of the herd, Monson is making sure that the same animals, as first-calf cows, have an adequate recovery time between giving birth and being rebred.

“Breeding back first-calf cows does involve a lot of extra work. Some ranchers don’t want to bother.”

— Ken Monson

Fig. 1: Percentage of first-calf cows exposed (BE; n = 175) or not exposed (NE; n = 185) to bulls that resumed cycling activity by 90 days after calving



Source: Summary of data collected between 1988 and 2001. J.G. Berardinelli, Montana State University.

“We will calve our yearlings in the first week of January, and I won’t breed them back until the end of April,” Monson says. “That gives them 80 days to recover. They need that.”

He adds that by manipulating the yearling breeding schedule, his 3-year-olds are ready to move into the breeding schedule he sets for adult cows.

Another action Monson takes well in advance of breeding his 2-year-olds is segregating them from the rest of the herd when his yearlings are impregnated.

“Right after we test them in the fall, I put my pregnant yearlings on my alfalfa bottoms,” he says. “It is never too early to get them in shape for their first two calves.”

Segregating his pregnant yearlings and grazing them in more accessible pastures allows Monson to monitor their progress closely and make sure they are putting on the kind of weight that will sustain them into their second pregnancy. “You don’t let them get down too far before they calve,” Monson says. “Once they calve, it is hard to pull one back up.”

Body condition is key

Monson adds that there is a third reason for segregating his younger animals by age. Younger, lighter animals have a tendency to lose out at the feedbunk when pitted against larger, more experienced cows. The segregation is part of a deliberate strategy to make sure heifers receive the kind of nutrition needed to breed back after having their first calf. Monson says that if there is a single factor that affects whether a first-calf cow will breed back, it is body condition.

“I try to keep my best alfalfa hay for these first-calf cows,” Monson says. “I want them in top shape when we breed them back in April and May.”

He notes that he will supplement his first-calf cows’ diets with protein when necessary.

Berardinelli agrees that close monitoring of the nutritional intake and body condition of all replacement animals, especially first-calf cows, is essential to successful breeding.

“This is very important because of the fact that they are not only lactating, but they are also growing,” he says. “Good postpartum energy input is essential to bringing these younger animals back into breeding activity.”

Like Monson, Berardinelli recommends keeping these younger animals separate from the herd and incorporating high-energy feed supplements such as corn or barley into their diet. “These animals should have a body condition score (BCS) between 4.5 and 6.5 on a 1-to-9 scale,” he says. “Any less will have a negative impact on their breeding activity.”

Early bull exposure

One promising area of study that Berardinelli and his colleagues at MSU have been pursuing is the early introduction of a teaser bull to stimulate estrus in first-calf cows (see Figs. 1 and 2). His research has shown that bringing a bull into a cow herd 40 days before breeding affects both when first-calf cows come into heat and their overall breeding success.

“Using a teaser bull can reduce the waiting time by one full cycle length (21 days) and substantially increase the percentage of young cows being bred back,” he says. “With the early introduction of a bull, we have seen the percentage of young animals being bred back early jump from 60% to well over 70%.”

Monson has seen a similar response in his heifers when he introduced an early gomer bull (a bull surgically disabled from impregnating cows) into his herd.

Berardinelli hypothesizes that pheromones present in the bull’s excretory products, probably urine, stimulate estrus in the young cows. “But, there are other factors involved,” he adds, noting that an experiment exposing target animals to bull urine continuously failed to invoke the same response as was seen with the early introduction of the bull. “We actually saw a drop in the breeding activity of those animals,” he notes.

Estrus synchronization improves odds

In a recent study that evaluated the use of estrus synchronization in conjunction with short-term exposure to bulls (28 days), Berardinelli found that synchronized first-calf cows exposed to bulls had a higher

success rate than synchronized cows not exposed to bulls. Exposure of first-calf cows to bulls was followed by a seven-day treatment with a CIDR® and an injection of prostaglandin (PGF_{2α}) following the

removal of the CIDR. The cows were then bred 12 hours after showing heat. The cows that did not show heat were Aled 72 hours after the prostaglandin.

“In the two-year project, 91% of the cows exposed to a bull showed estrus and were bred within 12 hours, compared to 43% of the cows that were not exposed to the bull,” Berardinelli says. “The overall pregnancy rate of cows exposed to bulls and then bred 12 or 72 hours later was 81%, compared to 63%

for cows not exposed to the bull.”

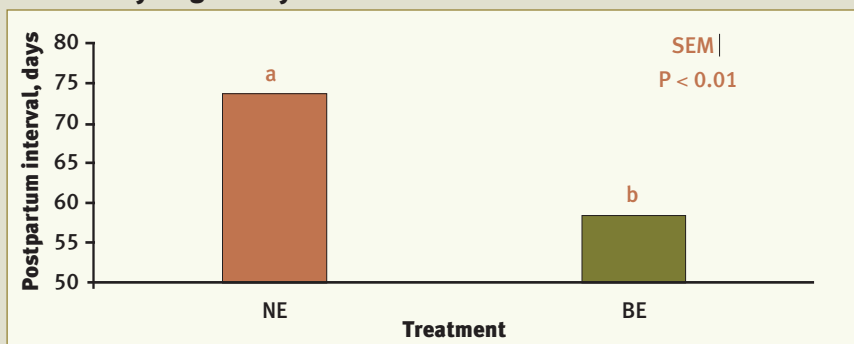
Monson agrees that estrus synchronization is an important tool in breeding back first-calf heifers. His best results have come from using the seven-day CIDR program in conjunction with shots of gonadotropin-releasing hormone (GnRH) at the beginning of the program and prostaglandin (such as Lutalyse®) at the time the CIDR was removed. Rather than starting with timed breeding, Monson takes a more traditional approach.

“I like to heat-detect first,” he says. “At 72 hours, if there are some left, I will time-breed them.”

For the Montana Angus producer, it is a system that has worked well. He recalls that last year he had 10 heifers out of around 60 that didn’t take on heat detection. “I went back, time-bred them and got six out of the 10,” Monson says, adding that when it comes to breeding back first-calf heifers, you need to be persistent.

“Using a teaser bull can reduce the waiting time by one full cycle length and increase the percentage of young cows being bred back early by 40%.”
— James Berardinelli

Fig. 2: Biostimulatory effect of bulls on interval from calving to resumption of ovarian cycling activity in first-calf suckled beef cows



Source: Summary of data collected between 1988 and 2001. J.G. Berardinelli, Montana State University.