



# Getting First-Calf Heifers Rebred on Time

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## Identify strategies to overcome the challenge of improving conception in first-calf heifers.

by *Heather Smith Thomas*

It can be a challenge to get first-calf heifers rebred without losing ground. They often calve later the following year or come up open. The two-year-old is nursing a calf, still growing and needs good nutrition and body condition to cycle on schedule after calving. Two-year-olds need more care and management than mature cows.

Steve Hendrick, DVM, Coaldale Veterinary Clinic, Coaldale, Alberta, says it's common for ranchers to breed heifers earlier than the cow herd, so they will calve earlier and have more time to recover from calving before they rebreed.

Colin Palmer, DVM, Department of Large Animal Clinical Sciences, Western College of Veterinary Medicine, University of Saskatchewan, explains heifers tend to have a longer postpartum recovery period than cows and are slower to start cycling again. "To overcome that, some ranchers have heifers calving one cycle length [three weeks] earlier than the cows to give them more chance to breed back on time," he says.

Selecting replacement heifers that were born early also helps. This means not only are they a little older than the average heifer calf in the herd and more likely to breed, but they are also offspring of your most fertile cows — the ones that breed early. "You perpetuate fertility, as well as having that extra time for them to grow," Palmer says.

He says there are two main things that determine cyclicity in heifers. One is age and the other is body size and condition. Larger body size goes along with older animals but feed can also play a role. In the past, feeding heifers to reach approximately 65% of their mature size before their first breeding season was common.

However, work done by Bart Lardner, DVM, and Kathy Larson, a beef economist, at the Western Beef Development Centre in Saskatchewan explored feeding heifers from 50 to 55% of their mature weight. Lardner and Larson discovered feeding to 55% was adequate in their research herd. Their long-term work was not indicative of any negative effects. "You can feed heifers to lighter weight if you make sure your feeding program is sufficient to achieve the target," Palmer says.

It is not necessary to push heifers to 65% of mature body weight to breed, and it is imperative

not to overfeed. He says if they exceed an average daily gain (ADG) of 2 lb., they may deposit excess fat in their udder. The additional fat can inhibit their ability to milk enough.

### Important factors

Age and nutrition play a role in puberty, as does the sire's scrotal circumference. Bulls that have greater scrotal circumference often sire the most fertile heifers. Early puberty is heritable, and scrotal circumference is a good indicator of early puberty in bulls and their daughters, as well. Additionally, Palmer notes heterosis playing a role in fertility — crossbred heifers are more fertile than purebred heifers.

“Another thing that can help first calvers is to manage them separate from the mature cows for winter feeding,” he explains. “They don't compete well with larger, more dominant cows. If you can't keep them in a separate group, there are ways to manage the feed so they have more chance to eat it.”

He recommends producers find a way to evenly distribute feed, rather than using bale feeders or smaller troughs, if mature cows and heifers are together. These methods prompt more opportunity for them all to eat.

Studies in Saskatchewan found young cows tend to be more deficient in copper — which also plays a big role in reproduction. “We wonder if the young cows weren't able to compete for their share of mineral supplementation,” he notes. “It's important to make sure young cows have access to supplement, and that they are in decent body condition by the time they hit the breeding pasture.”

It also helps to use easy-calving bulls for heifers. Their recovery after calving will be quicker if they can calve easily. If there is more dystocia, a longer recovery phase is needed before they cycle again.



Managing first-calf heifers separately from the remainder of the cow herd can prove beneficial.

“In dairy herds we see a lot of sexed semen used on heifers to produce heifer calves,” Hendrick says. “Even though pregnancy rates with sexed semen is not as high as when using regular semen, the pregnancy rates with heifers are often a little better than cows. It's worth that investment on heifers.”

He foresees sexed semen gaining popularity in the beef industry for this reason alone. Heifer calves are generally born smaller — promoting calving ease on first-calf heifers.

There are also a number of drugs and protocols for heat synchronization in heifers to get them all bred in a timely manner. “We used some of these in a heifer project Bart Lardner was doing at the

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University of Saskatchewan,” he recalls. “When we first proposed that project, it was interesting to hear comments from producers. Many were hesitant, thinking these were too much of a crutch to get heifers bred early.”

Many producers want breeding to be part of the selection process for sorting the most fertile animals for the cow herd. Hendrick says it is often better to use “survival of the fittest” as part of the criteria to identify which ones become cows. When a group is exposed to a bull, the ones that breed early are the ones to keep.

### Early breeding

Greg Shaw, a seedstock breeder near Caldwell, Idaho, says his program is heavily reliant on artificial insemination (AI). “We breed our heifers to start calving two weeks before the cow herd to give them a little more time to rebreed,” he notes. “We have a fairly short breeding season. We synchronize and AI all the heifers, then watch them for one more heat cycle to breed any that return. All the heifers calve in the first half of our calving season and are well grouped.”

Shaw says before calving, heifers are kept separate from the mature cows. He claims he and his family can better manage the heifers’ nutrition

and keep a closer eye on them during calving. Shaw again emphasizes the need to separate heifers for feeding. “They can’t compete with the older cows,” he explains. “So we keep the two-year-olds separate through their first breeding season.” The Shaws calve about 250 heifers in their spring herd, and after calving they are in small groups of about 50 each. They have seen an increase in conception rates and body condition scores since the inception of this process.

Before they calve, pregnant heifers are on grass until late fall. “We try to stockpile forage so they can stay on grass until about December 20,” he notes. “We may supplement them with protein the last month of grazing. When we start feeding hay, we give them stock-cow quality alfalfa. After they calve, we feed grass hay the first 30 days.”

As they calve, the heifers are moved into groups of 50 pairs. Again, these smaller groups optimize calf health since calves in each group are all about the same age. A herd can quickly have increased sickness problems if new calves are in with older ones that may have already been sick.

“We have a cut-off date and start a new group,” he notes. “That way if we do have a disease problem in some calves, it’s generally confined to one group, and we might be able to keep it isolated.”

After approximately 30 days with a calf at the heifer’s side, the Shaws begin including higher quality hay in the diet. This increase in forage increases milking and prepares the heifer to rebreed. “We have very good breed-back, better than in earlier years,” he says. “When we changed our management, so we could keep them separate through breeding, we increased their conception rates by 10 to 15%. Now we have an excellent rate of conception on their first AI cycle as two-year-olds.” Shaw uses a cleanup bull on those young cows for another 30 days after AI.

Shaw keeps three-year-old females with the two-year-olds, as well. The older cows, don’t crowd the younger group yet, so he doesn’t see any problem with feed distribution. He says they work well together, and the three-year-old females can still benefit from the added care.

“You have so much money invested in young cows, getting them to this point, you hate to have them lose out just because they can’t quite compete with older cows,” he says. “They haven’t started returning your



Since three-year-old cows can still benefit from the added care, it may be a good idea to keep them with the two-year-old heifers during calving.

investment, and you don't want them to fall out of the program because they needed a little better management to stay in the herd."

By the time young cows are four, they can compete with the mature cows. He says young cows are still growing until they are three or four years old, so this program helps optimize their potential. They are not fed any more or any longer than the older cows — keeping them separate just reduces competition, so they can get their share.

"A tighter management on our heifers increases labor costs, but it gives the young cows a better chance," Shaw says. He also has a complete mineral

program for them, since mineral deficiency can be a cause of reduced reproductive success.

"We are very critical about fertility, however. If they are open, they are sold," he explains. "We don't make any exceptions. We don't want to produce infertile cattle or any that need a lot of pampering, like grain. We try to run them as 'real world' as possible. This helps our customers get the kind of bulls that will work well for them in their own programs and sire the kind of daughters they need." **HW**



## Heifer development research

Bart Lardner, DVM, Western Beef Development Centre, Saskatchewan, recently did a study on developing heifers. The way heifers are developed is important because the body condition score they have at first calving makes a difference in whether they will cycle on time to breed again.

The project evaluated developing heifers in an environment where they should prosper as mature cows. The researchers developed them in an extensive grazing winter system — from weaning until first breeding the following year. They were developed in two groups at two different target weights pre-breeding, getting one group to 55% of mature body weight and another group at 62% of mature weight.

The researchers collected data on the first, second and third calving, because a lot of the earlier work on heifer development only followed heifers to their first pregnancy diagnosis. The researchers kept tabs on them longer because they wanted to see if developing the heifers to 55% of mature body weight before breeding would have a negative effect on reproductive efficiency. The researchers ultimately found no difference in future reproductive success.

"Our conclusion is that maybe we shouldn't try to develop heifers in a feedlot environment to get higher rate of gain that first winter, or to have them weighing more at first breeding the next summer," Lardner explains. "They are never going to see that type of diet again as mature beef cows on a typical ranch."

Additionally, the researchers sought to identify any differences in longevity. They discovered 78% of the cows developed to 55% of bodyweight as heifers were retained in the herd after three years and 76% of the 62% bodyweight heifers were retained after three years, so there wasn't much difference. He notes this study gives ranchers alternatives on growing their heifers.

The main thing Lardner recommends for ranchers developing heifers to 55% of mature weight by first breeding is to make sure the quality of the breeding pasture is adequate to meet the requirements of heifers that are still growing.

Lardner also recommends ranchers give heifers a supplemental range pellet containing an ionophore. "The pelleted supplement gives them the extra protein and energy they need, and an ionophore improves feed efficiency," he explains. "It also helps shorten the post-partum interval between calving and rebreeding and gets them cycling again."

This process assures those cows are ready to rebreed, and they aren't lost after the first calf because they are less likely to come up open. Kathy Larson, a beef economist, has looked at how many calves it takes to pay for development costs on a heifer. In her study a few years ago, the answer was three or four calves. Considering today's economy, it's more like five or six calves before the heifer pays for herself.

Lardner's team is starting another study in this area now. "We are providing heifers with an energy supplement that differs in type and form of fat from most supplements, and providing this from calving until breeding," he explains. "We are sourcing two types of fats, looking at mono versus polyunsaturated fats from either canola or flax — common crops in western Canada. We are looking at whether fat in the diet will improve conception rates for that second breeding season."

They are hopeful this study turns into another strategy for producers. "As a research facility we are always trying to investigate ways of feeding heifers," he says. **HW**