



When Will She Calve?

Tips for producers on predicting a calving date.

by Heather Smith Thomas

Cows generally calve nine months and seven days after conception. The average length of pregnancy is approximately 283 days, but this figure is just an average and very few cows calve on their estimated due date. Gestation length is partly a matter of genetics. Some breeds and some family lines within breeds tend to have varying gestation lengths, and this is a factor in calving ease. Cattle with shorter gestation lengths generally give birth to smaller calves since the fetus is growing fastest at the end of gestation. A 278-day gestation usually results in a smaller, lighter calf than a 288-day gestation. One study showed that for each extra day of gestation, there is approximately one pound of increase in the size of the calf.

Controlling gestation length

One reason bull calves are usually larger and heavier than heifer calves is they tend to be carried longer — partly due to hormonal factors. A cow that calves a few days before her estimated due date often gives birth to a heifer, whereas a cow that goes overdue often has a bull calf.

Buddy Westphal is a seedstock producer in Montana with a herd of 600 cows. He says he pulls less than 10 calves per year, but 90% of the time when he assists with the birth it's a bull calf. "They usually go a few days past the due date and tend to be a little bigger," Westphal explains.

Actual due date can vary depending on gestation length of certain individuals. Some cows consistently tend to calve earlier or later than their projected due date. In contrast, some bulls sire calves that are regularly born earlier or later.

Fetal development and rate of maturation is influenced by the genetics of both the sire and the dam. One reason a low-birth-weight bull tends to sire smaller calves is his calves inherit a shorter gestation length than average. If both the sire and dam tend to have short gestation lengths, the calf will be born earlier. If either the sire or the dam has genetics for a longer gestation, the results may be mixed depending on which trait is inherited by the calf. "Birthweight of the cow has an influence on the birthweight of her calf no matter what you breed her to," Westphal explains. "The calf may be larger than you hoped."

He has been interested in gestation length for many years — particularly as it applies to calving ease, more time for the cow to recover from calving and to breed back on time. When he started his purebred operation 45 years ago after attending Colorado State University (CSU), the cows on the ranch he bought had significant calving problems. The bulls he was using sired big calves that consistently went a week or two past their estimated due dates.

"My professors at CSU, including Dr. Wiltbank who did a lot of research in Miles City with Dr. Bellows, taught us that a cow had to have a calf every 365 days to be profitable," Westphal says. "It doesn't matter whether you calve in spring or fall, she needs to calve on the same schedule every year." Otherwise she falls behind with a calf that doesn't fit the producer's program, and she may eventually end up open.

"When a cow is calving 10 days or two weeks late, especially if she has a big calf and a hard birth, she's losing that amount of time to recover and rebreed on schedule," he explains. "She'll calve two to three weeks later the next year, and her calf will be 20 lb. lighter than the others." After a few years of that cycle, she will inevitably come up open. As a result, Westphal looks for bulls that sire calves with a shorter gestation. Using those bulls enables him to get his cows bred back quicker.

"I went to the Canadian Conception to Consumer test, where they verified bulls of many breeds through their testing program, and they had exact gestation lengths on all of them," he notes. "I was looking for bulls that had a 283-day or less average gestation length. I found some bulls that fit into that category and started using those. Instead of siring a 120-pound calf, they'd sire an 80-pound calf, and it would be born a lot easier."

Thus, the calving problems were reduced, and that reduction solved the dilemma of getting the cows bred back on time. Forty years later, his calving season is much easier and 75% of his calves are coming from the



To increase calving ease, a producer can select bulls with a shorter gestation length to use on the cow herd.

first heat cycle. “This adds fertility to the herd,” he notes. “If a cow has a huge calf, even if you don’t have to pull it, she often won’t clean up as quickly or breed back on time.”

Smaller calves jump right up to nurse and stay healthier. In his experience, the smaller calves grow just as big by fall as the ones that are bigger at birth. “Many of my bull customers calve out on range pastures and can’t afford calving problems,” he says. “The key to success is having short gestation and easy-born calves.”

The big question when using a new bull is what the gestation length of his calves will be. Records are kept on birthweight, but finding records on gestation length is not always possible. However, Westphal says every good breeder should be able to furnish that information, and most of his customers demand it.

Predicting calving

Even with an accurate breeding date based on gestation records, the cow or heifer may calve a few days ahead or a few days later. He says predicting when she will calve can sometimes be a challenge to producers.

There are some clues, however. As a cow or heifer nears the end of gestation, her body makes changes to aid the birth process. One of the first signs of approaching calving is development of her udder. It may begin enlarging as early as six weeks before she calves, or it may suddenly fill during the last few days of gestation. Some cows and heifers have so much udder development that the producer would think calving is imminent, but they go many more days before the actual event — often becoming miserably uncomfortable from the udder swelling. Others may “bag up” overnight, and they may calve before the producer realizes they are ready.

“Even when you have a breeding date and know that it is correct, there are a handful of cows that can fool you,” Westphal explains.

One clue that calving will take place within about 24 hours is the teats filling. Even if the udder has been large for many days, the teats themselves often don’t become full and distended until the cow is nearly ready to calve. Occasionally the plug in the end of the teat will start to come out, showing a bit of secretion on the end of the teat.

Other signs of impending labor include mucus discharge from the vulva as the cervical plug softens and is expelled. A long string of clear mucus may hang from the vulva. The tissues around the birth canal become soft, and the vulva is enlarged and loose so the calf can more easily push through. The loose vulva is a sign the cow or heifer is approaching her calving date, but it is important to keep in mind some individuals become enlarged and loose several weeks before calving.

Another sign of calving is relaxing of the pelvic ligaments. If producers look closely at the area between a cow’s tail head and the pin bone on each side, it is relaxed, appearing somewhat loose and sunken. One of the surest ways to predict calving is to feel those pelvic ligaments. They are about an inch in diameter, connecting the pin bones to the spine. They attach to the vertebrae just ahead of where the tail starts and are easily visible on most dairy cows and on thin beef cows.

The ligaments are normally very hard and tight, except for a few hours just before labor begins and just after calving. They loosen as part of the birth process that enables all parts of the birth canal to expand so the calf can come through. If a producer is checking for relaxing ligaments, the cow has to be standing for the producer to adequately feel the ligament. An adequate assessment will not be achieved if she’s just gotten up; it takes a few minutes of standing before the ligament assumes its normal tightness or looseness. Labor will usually begin approximately 12 hours after complete relaxation of those ligaments.

By keeping good breeding records, producers can have a projected due date. However, the sex of the calf, age of the cow, season of year, heritability of gestation length and nutrition of the dam can all be factors in whether calves come ahead of or after their projected due date.

Winter-born calves tend to go a little longer than summer-born calves. Winter-born calves may also be bigger, especially if the winter was cold. This increase in size occurs not only because they are carried longer, but also because during cold weather the cow’s blood circulation is concentrated more around the internal organs rather than the extremities. As a result, the fetus in the uterus gets more nutrients. In general a cow calving the same time every year and bred to bulls with similar bloodlines will have roughly the

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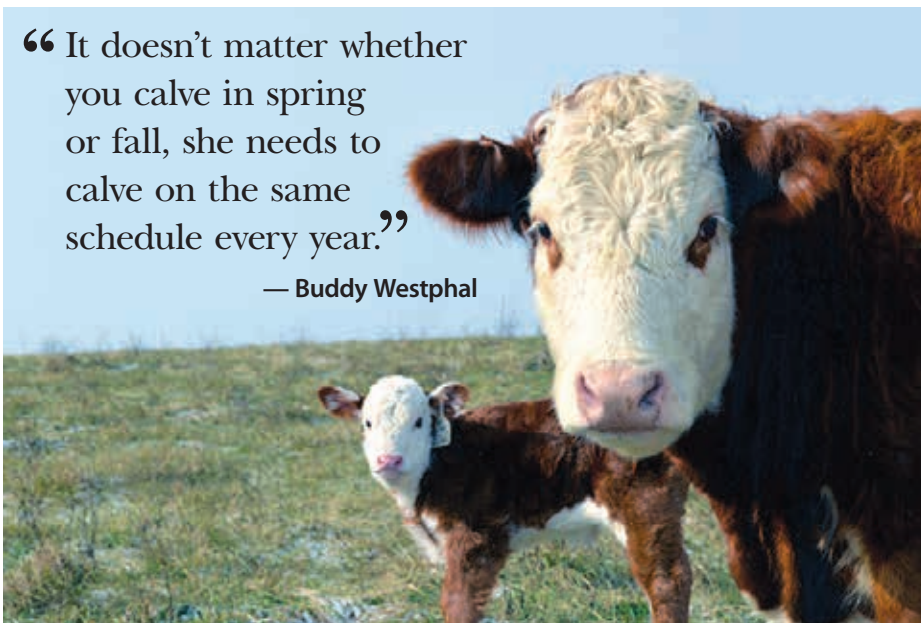


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same gestation length yearly unless she is bred to a different bull with a longer or shorter gestation length.

Weather also makes a difference. There is often a flurry of calving just before a storm. The calves that might have arrived over a several-day period may all come at once. When the barometer is falling, producers can expect a lot of calves. Many cows that are ready to calve will begin labor in a low-pressure period rather than when the barometer is rising. It is very common to have an abnormally high number of cows calve just before a storm and then less calving activity in the herd for the next 48 hours. **HW**

Body temperature drop

Robert Callan, Ph.D., Colorado State University, says producers who have worked with cattle and calved a lot of cows can become extremely good at noticing the details indicative of a cow that is getting close to calving.

“There has also been some research — primarily in dairy cows — that shows pregnant cows undergo a drop in core body temperature during the 12 to 24 hours preceding calving,” he explains. “In beef cattle, the body temperature can be monitored with use of temperature sensor boluses.”

The bolus is given orally, and it ends up in the reticulum — similarly to how a magnet is put into the cow to prevent hardware disease. The bolus transmits the cow’s temperature, which is picked up by a receiver. These temperature transmitters are useful for detecting fever and early stages of illness including pneumonia and mastitis, but they were first used during heat stress research.

“This could also be a way to flag the cows that might be in early labor,” he notes. “The temperature research, relative to calving, is still in its infancy in developing the appropriate algorithms, but the technology is there.”

In situations where the herd is small, the animals are valuable and near a receiver for the transmitted signals, using these boluses could be a way to detect temperature drop as a clue for calving. “The one system that I know of here in Colorado is called DVM Systems [in Greeley, Colo.] At this point in time, their TempTrack remote temperature monitor is marketed primarily for dairy cattle but might be an option for genetically valuable beef seedstock. These boluses would probably last for the life of the cow,” Callan says. **HW**

