

Special Delivery:

Calving Out Heifers

BY HEATHER SMITH THOMAS

The goal of most stockmen is a herd of easy-calving cows. Each new crop of heifers can be a challenge, however. Even with carefully selected genetics and bulls selected for low birth weights, some of those heifers may still need assistance when calving.

First-calf heifers generally need more assistance than cows. A heifer has not yet attained her full growth and is somewhat smaller in the pelvic area. A large calf and a small pelvic opening make for a bad combination.

Research at the Fort Keogh Livestock and Range Research Laboratory, Miles City, Mont., and studies in Colorado analyzing 24,000 births from 73 ranches showed that 41% of calf losses were from first-calf heifers. And 31% of all losses occurring from birth to weaning were calves that experienced difficult births.

These calves can be safely born, however, if you are there to give assistance at the proper time. This means monitoring heifers closely, so you know exactly what's happening.

■ When to assist

If you watch a heifer, you'll notice she becomes restless and uncomfortable as she begins early labor. Her water will break, and she will strain when she starts active labor.

A cow out at pasture will go off to find a secluded spot; a confined cow may pace the fence. She may show a lot of discomfort, switching her tail and kicking her belly or getting up and down — especially a heifer that never has been through this process. The restless stage, in which uterine contractions begin and the cervix opens, takes about two to six hours, sometimes a bit longer in heifers.

Once the calf starts to enter the birth canal, the contractions come more swiftly, and the heifer augments these with an abdominal push.

Sometimes a heifer will break her water and do nothing because the calf is not entering the birth canal.

"Strong abdominal straining is only stimulated when some part of the calf starts



SHAUNA ROSE HERMEL PHOTO

If the calf is presented properly and the heifer is working hard at pushing it out (calf's feet and nose are showing), she will be down on the ground in hard labor and less likely to try and get up.

through the pelvis," says Heidi Smith, large-animal veterinarian at Terrebonne, Ore. "If the cow does not begin hard labor, the calf is malpresented and cannot start through."

If you suspect she has been in early labor more than six to eight hours and has not begun straining, you need to determine the problem.

The "water bag" (a thin membrane filled with dark amber fluid) often breaks at the

beginning of the second stage of labor — preceding the calf through the birth canal. It may protrude from the vulva or break before it gets there (you would just see the amber fluid rushing out).

The water bag is not to be confused with the clearer, whitish amnion sac that encases the calf; when it protrudes from the vulva, the calf's feet should soon be visible within it.

"If the heifer is not working hard to calve

Dutch method for pulling calves

Bob Mortimer, a veterinarian and associate professor at Colorado State University, has been teaching obstetrics for a number of years and giving demonstrations at ranches to help stockmen improve their methods for delivering calves.

Mortimer uses the Dutch method developed at the University of Utrecht in the Netherlands because he feels it saves more calves. The main emphasis with this method is working with the cow instead of against her. It is different from traditional methods in cow position and in the direction of pull on the calf.

Mortimer says that it works best

to have the cow down on the ground, lying on her right side.

"If a cow is standing up, she can't help you as much with her straining," he explains.

The only time it's helpful to have the cow standing is when you are trying to get a calf's turned-back head up and into the birth canal. In that case, when the cow is down, there is too much pressure on the calf from her abdominal contents, limiting the amount of room for maneuvering the calf.

While the cow is still standing is the time to wash her hindquarters, check her and correct any malpresentation. Once you get the

malpresentation corrected, however, it's best to have her down.

Mortimer suggests that if you use a headcatch, it should be designed with sides that swing away so you can put the cow down on her right side after she's caught. This can be done with a rope around her flank. When she is down, her pelvis is more straight up-and-down, making a straighter opening for the calf to come through, especially as she strains.

"If she's not straining, it's harder — taking more strength — to pull the calf," says Mortimer. You should only pull when she strains, and use the force of only one person per leg. "Pull on the lower leg first, to pull that first shoulder through," he advises, then the other one. The direction of traction should be straight out, and this is difficult unless the cow is lying down.

Once the shoulders are out, two people can pull at the same time, one on each leg. He says it also helps if you rotate the calf about 45° to 90° as it comes out, to bring the widest area of its hips through the widest part of the pelvis.

"You can often do this just by crossing the chains and rotating him as you pull," says Mortimer. Pull straight out or slightly upward, relative to the backbone of the cow.



The Dutch Method

1. The cow should be lying down, on her right side. Traction (one person per leg) should be applied to one leg at a time, starting with the lower (the left) leg of the calf, to "walk it through" the pelvis one shoulder at a time.
2. After the calf's shoulders are through the pelvis, a large calf can be rotated (clockwise) to bring it

through the widest part of the cow's pelvis. Once its ribcage is free, stop pulling for a moment so its chest can expand and it can start to breathe.

3. Pull the calf on out by applying traction on both legs at once — with one person on each leg, pulling straight out or slightly upward relative to the cow's backbone.

HEATHER SMITH THOMAS ILLUSTRATIONS

within two to four hours of breaking her water, get a hand inside her to determine what is going on," advises veterinarian Robert Cope, who has a large-animal practice in Salmon, Idaho.

Breaking of the water is not always a reliable guide as to length of labor, however. Sometimes the water bag comes alongside or even after the calf.

If a heifer is not getting down to business, don't wait too long to help. Sometimes a nervous, confined heifer will pace the stall or pen and will not settle

down to serious labor. If she puts it off too long, the placenta will start to detach and the calf will be at risk. After a certain point, it's better to catch her and assist with delivery.

If a heifer is in the second stage of labor and straining hard but making little progress, this is also cause for intervention.

"A heifer should remain in hard labor no more than one hour before assistance is rendered," says Cope. "Even if feet and nose are showing, go ahead and pull the calf by the end of this time. Several studies have

shown that heifers who have to work a shorter period of time to calve will breed back earlier."

Labor is hard work, and the cow or heifer will generally stop and rest a bit between sessions of hard straining, but five-minute breaks are a sign she is getting tired. If she takes more than 10 minutes for a rest period, it's best to help.

Another sign that it's time to help is if the calf's tongue is starting to swell. This indicates it's been in the birth canal,

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subjected to too much pressure, too long.

It can be a hard decision — whether to intervene on a heifer who is obviously calving but not yet in hard labor or making slow or no progress.

“It’s better to assist one who doesn’t need help than to neglect a single heifer that does,” says Cope. “As long as you stay clean and well-lubricated, you’re unlikely to cause damage by examining her manually. If she’s been acting in a suspicious manner or laboring without progress, check her out.”

Wash her hindquarters, and use clean hands and equipment. Always wash chains and any other equipment between uses.

It’s best to detect and correct problems early, while you still have a live calf. In first-calf heifers, a malpresentation may mean there is not enough room for the calf to come through. A small pelvic opening may be the reason the head or leg is turned back. Giving assistance too early is not nearly as damaging or as potentially fatal as giving assistance too late.

■ How to help

If the heifer is not yet in hard labor, she will still be mobile — getting up and down and capable of running off. You’ll need to restrain her (tied up, or in a chute or headcatch) in order to get a hand in her to check.

If the calf is presented properly and she is working hard at pushing it out (calf’s feet and nose are showing), she will be down on the ground in hard labor and less likely to try to get up. In these instances you may be able to sneak up behind her (especially in a small area like a barn stall) to attach chains to the calf’s legs and begin pulling.

“Generally once you begin pulling on the calf, she will settle down to hard straining and not try to get up,” says Smith. “You can then pull as she strains and rest as she rests. Many heifers need only minimal assistance, which can be given without a calf puller. The strength of one or two people is usually adequate, and you are less apt to hurt the calf or the heifer, pulling one leg at a time to ease the shoulders through the pelvic opening one at a time.”

After the calf’s head emerges, the cow may take a short rest before she resumes straining; and she may also stop straining for a short while after passing the calf’s ribcage. This is usually not a problem; even though the umbilical cord may be pinched off, the calf can start breathing if its ribcage is free of the birth canal.

If the calf is trying to start breathing, ease



HEATHER SMITH THOMAS PHOTOS

The strength of one or two people is usually adequate to pull a calf, and you are less apt to hurt the calf or the heifer.



A heifer may progress nicely until the feet and possibly the nose of the calf begin to show, then stop. If you reach in, you’ll find a strong band of connective tissue a few inches inside the birth canal. These rings of tissue, called a persistent hymen, are common in heifers. Stretching or breaking these is a painful, but necessary, process.

off a minute on your pulling. Constant pulling at this point will hinder the expansion of its chest, and it may suffocate. Get the calf to breathe, then finish the delivery.

Most veterinarians use obstetrical (OB) chains rather than nylon straps, since handles can be attached anywhere where needed along the chain for proper traction.

Chains are also more easily cleaned than nylon straps and can be boiled.

■ Is the calf too big to be pulled?

If you see feet but no head, and the head doesn’t soon appear, the calf may be a tight fit through the pelvis.

“Reach in to find if the head is turned back or starting to enter the birth canal,”



Pull one leg at a time to ease the shoulders through the pelvic opening one at a time — walking the shoulders through.



To deliver the hips, pull straight down toward the cow's feet and then pull the calf between her legs, toward her belly. This raises the calf's hips to the highest point of the cow's pelvic opening, where it is widest.

advises Smith. "If positioned properly and starting to come, you must determine if it will fit."

Experience is the best teacher in this decision, says Cope, but there are tips that may help. "Try to feel over the top of the calf's forehead. Usually, if there is not enough room for the calf's head, it will hit on the bony pelvis. A good rule of thumb: If

the cow's pelvis hits the calf between the eyes, a cesarean should be performed," he says.

Often you'll encounter a heifer in which labor progresses nicely until the feet and possibly the nose begin to show, and then progress stops. If you reach in, you'll find a strong band of connective tissue a few inches inside the birth canal.

"As a general rule, a calf that appears to be a tight fit, even though his nose is visible, is hung up on a persistent hymen," explains Cope. These rings of tissue are common in heifers, and the stretching or breaking of these is a painful process.

"Some heifers will simply quit pushing when this pain occurs. This is one reason I like to pull a calf whose nose is showing, even if the heifer does not appear to be in trouble," he says. "Applied traction will usually pop him out rather quickly."

In these instances it often works well to have one person pulling on the calf's legs with obstetrical chains and handles while another person stretches the rings of tissue each time the heifer strains.

■ Using a calf puller

In most cases, heifers' calves can be pulled by hand. There is less danger of hurting the cow or of killing or crippling the calf by pulling on a calf that should have been delivered by cesarean because it is too large to fit properly through the pelvis.

Two strong people can often exert a force of more than 400 pounds (lb.), while a calf puller may apply more than 2,000 lb. Traction with a puller should only be used when the cow is actively straining.

Cope says that every year he sets broken pasterns, fetlocks and cannon bones that have been fractured through use of a calf puller. These injuries "are quite common, but never necessary," he adds. "When you put OB chains on the calf, make sure the first loop is above the fetlock joint. Then merely half-hitch the chain around the calf's pastern. This procedure takes mere seconds and can save weeks of recuperation for the calf.

"A single loop may pull the calf's leg at an awkward angle, causing joint damage or a fractured bone," he continues. "Double looping results in a straight pull on the leg, making less chance for a broken leg."

The most common misconception about calf pullers is that they are merely "a come-along" to apply more pressure on the calf, says Cope. "If that were the case, there would be no reason to mount the winch on such a long pole. The puller is designed to be used as a lever, with the added advantage of allowing the operator to keep whatever progress the cow has made from slipping back.

"The most important aspect of the puller's use comes from its up-and-down

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motion. After chains are applied to the calf's legs, shorten the puller or extend its cable as much as possible to obtain as much leeway as possible for pulling."

Cope says this is especially true if the calf is backward. "Few things are as frustrating as the sudden realization that you have run out of pulling room and the calf's shoulders and head are still inside the cow. At that point, it is very difficult to reset the puller and extract the calf before he suffocates."

To avoid running out of room to winch on a backward calf, some stockmen routinely halt for a moment after the calf's hocks emerge from the vulva and reset the chains from the feet to above the hocks, to give more leeway for pulling a big, long-legged calf. Thus the calf can be pulled completely out without risk of running out of cable.

Time is crucial once you start the hips through the birth canal, since the umbilical cord will be pinched off or broken. You have less than two minutes to get the calf out before it runs out of oxygen and has to start breathing.

When you are ready to pull a calf on a frontward presentation, have the puller straight out from the cow's back, Cope says. After taking up all available slack, slowly bring the end of the puller toward the level of the cow's feet as far as possible. "Lift the



Once the calf is delivered, follow through by cleaning the mucus and membranes away from the calf's nose and making sure it is breathing.

puller back up to its original position, take up the slack you gained, and repeat the process until the calf's head pops out. Now you can use the winching properties of the puller to get the calf on out."

■ Hip lock

If the calf's hindquarters are large, you may get him out as far as the hips, and then

he's stuck; his hipbones are too wide to come through the pelvic opening. Don't panic.

"You can take time at this point to get him breathing, once his ribcage is free of the birth canal," explains Smith. "This will buy you time to get him on out. If pulling by hand, pull straight down toward the cow's feet and then pull the calf between

Splitting the pelvis

There is an alternative to doing a cesarean on heifers with a calf too large to fit through the birth canal. This option is cheaper and less risky. It involves splitting the heifer's pelvis at the fibrous joint at the bottom of the pelvis, allowing it to "spring" wider, giving room to pull the calf through.

Terrebonne, Ore., veterinarian Heidi Smith learned this technique while in vet school at Washington State University during the 1970s. As she explains, "There is a notch in the back of the pelvis, where the two sides meet on the bottom. In heifers this joint is not yet fully calcified, so it can be easily split apart."

The heifer is confined in a chute and the procedure done with her standing, after being given a spinal to anesthetize the area. "The vet feels for the notch in the pelvis and makes a 2-inch vertical incision in the skin below the vulva," says Smith, "inserting a long wedge-shaped chisel through the incision. It takes two people to do the splitting. The vet sticks one hand into the birth canal to feel the position of the chisel and guides it with the other hand, while the other person pounds

on the end of the chisel with a large wooden hammer."

Once the pelvis is split, the calf can be pulled. Recovery from splitting the pelvis is quicker and easier than recovering from a cesarean. "There is no risk of shock, excessive bleeding, or infection, as there is with a c-section," says Smith. "You haven't invaded the uterus." There is no damage or scarring in the uterus that might interfere with a heifer's future fertility.

"They heal up well," she says. "The heifer might be a little wobbly for a few days, but within a week she's fully recovered. The pelvis is fairly rigid even with the joint split apart; this just springs it open another inch or two, and it tends to go back into place afterward, like a clothespin.

"The reason this works on heifers is because they are still growing and the pelvis is not yet solid. It won't work on 3-year-olds or mature cows, and it won't work on a heifer that is trying to deliver a monstrously huge calf. In those cases you'll need a cesarean. But for most 2-year-olds, splitting the pelvis is a preferable option."

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her legs, toward her belly. This raises the calf's hips to the highest point of her pelvic opening, where it is widest, and he will usually pop out."

If you are using a calf puller, loosen the tension on it and roll the cow onto her back. "By the time enough tension has been applied with the puller to determine that the calf is hip-locked, the cow will no longer be on her feet," says Cope. "With the cow on her back, bring the puller to an upright position and tighten the tension as much as possible. Now, bring the end of the puller across the cow's belly, pulling toward her head. This has the effect of rotating the calf's hips so that the upper portion is brought ahead before it hits the lower part of the cow's pelvis.

"When the puller rod passes center and starts down toward the cow's head, the breech spanner will slide off the cow and into the calf's abdomen," he continues. "While this looks possibly harmful to the calf, it merely helps push the calf out."

■ Paralysis

If a calf is large or pulled with excessive force, the cow may be temporarily paralyzed after the birth. This is due to the position of the cow's obturator nerve, which runs along each side of the pelvic cavity, explains Cope. "If this nerve is stretched during the birth process ..., the cow may be unable to pull her legs inward to stand properly." Often one hind leg is more affected than the other, depending on which side the cow was lying. The paralysis may last a few hours or a few days.

This condition usually results from pulling or attempting to pull a calf that is too large for the birth canal, says Cope, who adds, "It may occur simply from the cow's own efforts to expel the calf."

Pulling a calf that should have been delivered by cesarean almost always will leave the cow paralyzed and kills the calf as well, he says.

After any difficult birth you should encourage the cow to get up as soon as possible. The longer she lies there, especially if she is in an awkward position, the more likely she is to have trouble with her hind legs or to prolapse her uterus if she continues to strain.



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