



Calving difficulties in beef cattle

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Calf death at or shortly after calving results in losses of over 3.5 million calves annually in the United States. About 45% of these losses are caused by dystocia (delayed and/or difficult parturition). The two principal factors involved in dystocia are size of calf and age of cow.

With only 16% of all calving problems occurring in mature cows, it's apparent that the greatest concern is in younger cows, especially the 2-year-old heifers. Size of calf is largely controlled by genetics.

Stages of parturition

A review of the stages of parturition and the calving process will help you make wise decisions on how to handle calving problems.

Stage 1: Preparation for parturition

Parturition actually begins a few days before delivery of the calf. It's usually not possible to know exactly when the cow will deliver, so you should use the following indicators: relaxation of the ligaments around the genitalia, swelling of the vulva and udder, and dripping of colostrum from the teats.

Stage 2: Parturition

Early in the parturition stage, the liquid cervical seal or water bag will extrude from the vulva, and the membrane walls will break. The cow will become restless and leave the main herd. Contractions continue, and the calf is pushed against and through the cervix.

As this stage continues, usually for 30 minutes to 1 hour, the calf's feet should be the first thing you see. The nose and head should soon follow.

The position of the feet as they become visible will give you an indication of the calf's position. In a normal, forward-position delivery (feet and head first), the soles of the front feet are pointed down, and the joint of the leg bends down (figure 1).

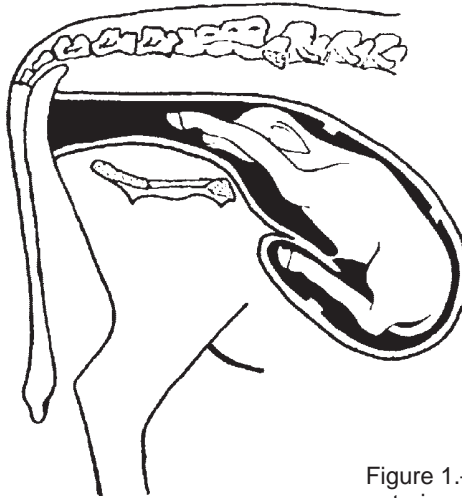


Figure 1.—A normal anterior presentation

In a backward delivery, the soles of the feet are up, and the first joint of the leg (pastern) bends upward.

As the process continues, a cow may lay down or stand and move around in a nervous, restless fashion. Many times, she will lay back down and continue with the delivery. As the normal delivery continues, you can see the nose of the calf.

With the presentation of the calf, delivery moves quickly to completion. Sometimes, a cow will stand during this phase. Standing as the calf's shoulders pass through the pelvic canal assists in positioning the calf for delivery:

1. this arches the calf's hips high through the wider part of the pelvis; and
2. the use of gravity helps in completing the delivery.

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In most cases after delivery, the cow will clean and dry the calf off by licking the hair coat. This helps remove the membranes from the calf and helps stimulate blood circulation.

When you don't see progress after 2 hours of labor, find out what's going on. In first-calf heifers, you should determine possible causes for delay after an hour. You'll need to determine the position of the calf, whether or not it's still alive, and what's causing the delay in delivery.

If all calves were presented in the normal position, there wouldn't be any problems except in the heifers with calves that are too large to pass through the birth canal.

Stage 3: Cleaning after calving

In this stage, the placenta (afterbirth) is passed. This normally occurs within an hour or two, but it can be retained for several hours. Cases of retention involving normal delivery are often the result of fatigue.

If your herd has high rates of retained placentas, you should check diet ration for protein and energy values. Any of several mineral deficiencies—selenium, for example—may also cause this problem.

Preparation for calving

Having the proper equipment available at calving time can mean the difference between a dead or a live, healthy calf. Consider carefully this list of equipment that you should have available at calving time:

- OB (obstetrical) chains, 30- and 60-inch
- OB handles
- OB wire and handles
- Calf jack
- Scalpel
- ½ inch tube with funnel or pump
- Plastic sleeves
- Commercial brand lubricants
- Umbilical tape and sewing needles

In addition to the standard calving equipment, you should also consider the following pharmaceuticals:

- Dopram (breathing stimulant): 2 cc for newborn calf
- Oxytocin: 5-10 cc after calving; it contracts uterus.
- Rompun: ¼ cc IM (intramuscular); it helps mother graft calf.
- Terramycin powder
- Long-acting penicillin
- Tincture of iodine 7%: calf navel
- Noluason (disinfectant)

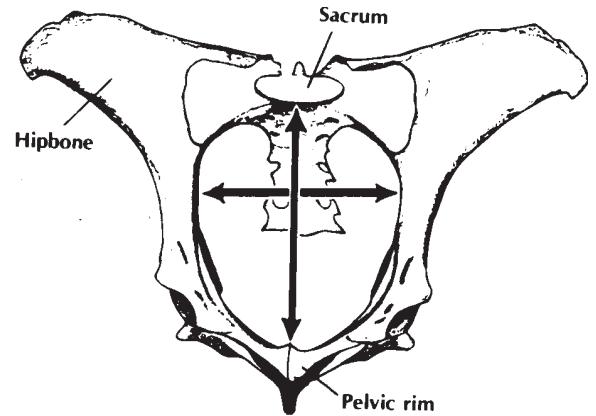


Figure 2.—A typical pelvic opening of the beef female

Using calving equipment

To have the proper equipment—but not know how to use it—isn't very much help.

When you use the stainless steel OB chains, it's important to place them properly on the calf's legs to reduce the chance of a broken leg or injured foot.

The best arrangement is a double half-hitch, where the first loop is placed above the fetlock and the second half-hitch is placed below the dewclaws. Apply traction steadily, alternating the pull from one leg to the other.

This procedure helps to walk the shoulders of the calf through the pelvis of the cow. It's important to apply the traction in an upward direction until the calf's shoulders are through the pelvis. Then a downward pull is needed to help move the calf's hips through the wider portion of the cow's pelvis. Always use plenty of lubricant during this procedure.

It's important to remember the shape of the cow's pelvis (figure 2). The narrowest part of the pelvis is at the bottom where it's pinched together. The upper portion of the pelvis is wider, and the widest portion is an angle of about 45° across from top to bottom.

By pulling downward after the shoulders leave the birth canal, the calf's hips are raised up toward the top of the pelvis, where it's wider. Sometimes a hiplock occurs. In this situation, a quarter turn of the calf will move it to a position where the pelvis is widest and (therefore) provides extra room for the delivery.

When the calf is large or its head tends to move down or to the side during delivery, a head snare can be quite effective in a normal forward presentation. Slight traction on the head

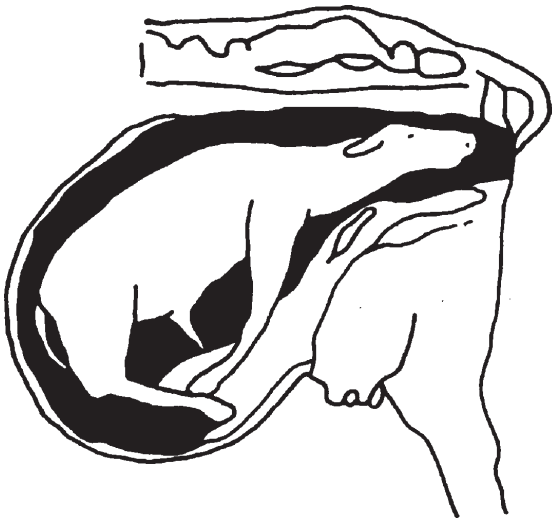


Figure 3.—Calf presented with its head in the birth canal but with one or both forelegs retained

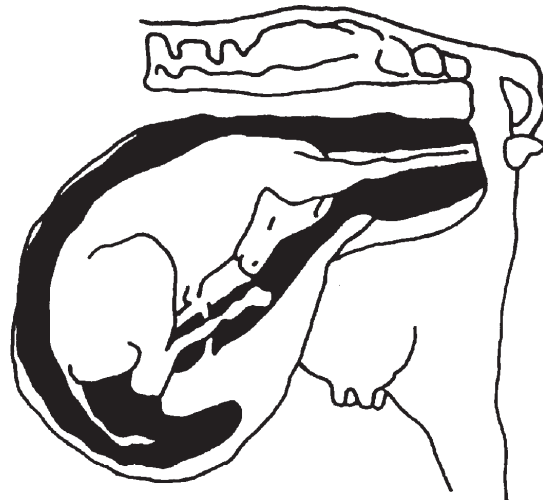


Figure 4.—Two front legs presented with calf's head down between legs

will stretch out the neck and close up the shoulders to allow the calf to slip through the pelvis of the cow.

Proper placement of the head snare is important in reducing the chance of neck or spinal cord injury. Place the loop behind the poll, under the ears and through the mouth. This may cause the mouth to gape open, so be careful to ensure that the incisors *do not cut* the birth canal.

This needs to be emphasized: Apply only *slight* traction to the head—only enough to keep it in the proper position. The pressure is placed on the legs of the calf.

Knowing when and how to use a mechanical puller is important. Most of the calves that die during assistance, die because of improper use of a mechanical puller. Experience is the best teacher!

Proper placement of the strap on the cow's rump allows for some downward pressure on the lever end of the puller, to help lift the calf up to the wider part of the pelvis.

Always use plenty of aseptic lubricant before and during assisting procedures—it's vital for easy delivery as well as for protecting the delicate tissue of the birth canal and vagina.

Abnormal presentations

Forefeet back

One of the most common calving problems—and the easiest to correct—occurs when one or both of the forefeet are back and the head is presented in a normal position (figure 3).

To correct this problem, push your arm into the point of the shoulder and elbow of the calf.

Push the calf backward a little and lift the foreleg up a little at a time.

You may need both arms for this maneuver. You should try to cover the calf's hoof with your hand to prevent injury to the uterine lining of the cow.

Difficult head positions

Some presentations are more difficult to solve. For example, a calf that has his nose down, and the bridge of the nose is butting up against the brim of the pelvis, may be harder to correct (figure 4). If you don't correct this position, the calf's head can fall down between the forelegs, which will prevent the delivery from continuing.

This is generally easy to correct early in delivery by grasping the calf's mouth or nostrils and pulling the head up into the normal position in the pelvis. If the calf's head is to one side, use the same procedure to correct it.

However, there's a chance of breaking the jaw of the calf if you use excessive force to pull the head into the canal. It's generally recommended that after correcting this malposition, you should proceed with a gentle assisted delivery.

Backwards calf

This is another problem that's sometimes seen (figure 5). The first step in attempting to solve this problem is to make sure that what you think is going on is in fact the case. Put your arm inside and along the top of the legs until you find the tail. The tail should be next to the top of the pelvis.

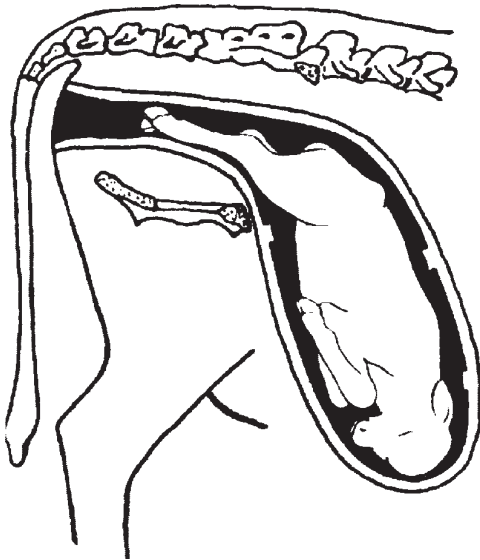


Figure 5.—A normal posterior position

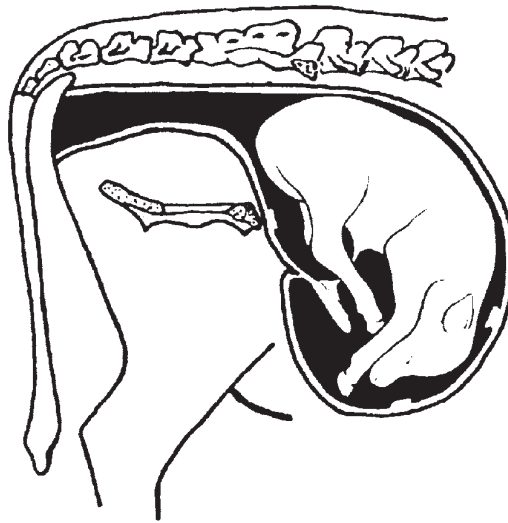


Figure 6.—Calf presented in a breech position

After locating the tail, bring your arm out to the hock joint. If it's the hock, the joint should bend downwards toward the cow's feet.

Calf upside down

Sometimes, you may find a calf that's not backwards but coming forward and upside down in the birth canal. An upside-down calf will, of course, have a knee joint there, and it will bend upward only.

After you determine that the calf is indeed coming backwards, apply plenty of lubricant and deliver the calf, as is, backwards. Be gentle and work as rapidly as possible.

Never try to turn a backwards calf around. There's not enough room or time, and you can cause tremendous damage to the uterine tissue in attempting this maneuver.

As you're pulling the calf backward, you must remember that the umbilical cord of the calf is going to impact on the rim of the pelvis much quicker than in a normal delivery. This will cut off the circulation of blood to the calf for a short time—and may be life-threatening.

Once you've decided to pull a backwards calf, you must move quickly to deliver a live calf.

Breech calf

This differs from a backwards calf—the calf is backward, and the legs are down (figure 6). In other words, the calf's back is being presented at the entrance to the birth canal with no feet visible.

The only assistance is to enter and raise both rear legs up and deliver the calf backwards. In a backward pull, as in a forward pull, it's advisable to alternate the tension from one leg to the

other to walk the hips through the pelvic opening.

Remember to use plenty of lubricant, be gentle, and be quick. *Do not* try to turn the calf around.

Hiplock

This is another problem that causes concern. As we mentioned earlier ("Using calving equipment," page 2), you can sometimes avoid this by arching the calf through the pelvis with a downward pull. If the hiplock is severe, rotating the calf a quarter turn will place the hips in the widest dimension of the pelvis.

You can do this easily by grasping the calf around the head and pulling the forelegs around. Use plenty of lubricant. Sometimes, you may need to push the calf back a little ways to correct the problem (this isn't always possible).

Very abnormal presentations

Sometimes you'll see a calf upside down, forward or backward. You can either do a C-section, or try to rotate the calf to an upright position, then deliver the calf.

This may mean rolling the cow over to get the calf moving so you can bring the legs of the calf to a position where it can be turned over. Always use plenty of lubricant whenever you work with a delivery.

Caesarean sections

There may be times when a C-section is the only solution. A C-section may be the only means of saving the life of the cow and, therefore, protect the investment in the cow or heifer.

A C-section is major surgery, which means that you'll probably sell the cow, and you won't keep her around in the breeding herd for another year. If the calf is lost, you can still protect your dollar investment in the cow by selling her.

Post partum care—the calf

Helping the calf after it's on the ground is important, especially if the cow doesn't get up to clean the calf. Make sure the calf can breathe and that its mouth and nose are free of mucus and phlegm. By tickling the inside of a nostril, a reflex action or sneeze helps to clear out the mucus.

Sometimes, if you're strong and tall enough, it helps to clear the air passageway by holding the calf upside down and swinging it back and forth. Often, you'll need a dry rag or glove to keep a tight grip—the legs may be very slippery.

Grasp the hind legs at the hock joints and swing the calf. Be sure the head is off the ground. Centrifugal force will help gravity in clearing the airways and allow the calf to breathe. If this doesn't work, respiration may be needed.

Respiration

There are several types of respirators available commercially. The least expensive method of reviving a calf is to place your hand around the mouth, close off one nostril, and blow into the other nostril at about 6- or 7-second intervals.

This is very effective in getting the calf to breathe after a difficult birth. As you continue this attempt, someone else should be drying the calf or rubbing its body vigorously to stimulate circulation.

Use iodine

Treat the navel with an iodine solution—especially calves born in a muddy or wet environment.

Colostrum milk

Make sure the calf gets it within the first 2 to 3 hours after birth. Colostrum is the calf's only source of protection from many infectious agents. Research indicates that newborn calves are only able to absorb the immunoglobulins in colostrum within the first 24 to 36 hours.

A rapid decrease of the immunoglobulins in colostrum is also noted within the first 12 hours after calving. The antibody concentration in the first milking is twice that present in the second, five times that in the third milking, and ten times that in the fourth milking.

A calf should receive 10% of its body weight in colostrum in its first 24 hours of life. This is about a gallon of colostrum for an 85 lb calf. You could freeze and store colostrum for situations when none is available.

To ensure a high quality and concentration of immunoglobulins, you should consider using a colostrometer to test colostrum obtained from other sources. Superior-rated colostrum will contain greater than 50 mg/ml of total immunoglobulins.

Post partum care—the cow

Many times, problems associated with birth can create additional challenges. As a precaution against infection, you should give an antibiotic to any cow that has needed assistance at birth, especially when assistance was prolonged or when you were required to place your hands inside the vagina or uterus.

A recommended treatment is tetracycline powder (5 grams), mixed with sterile water and pumped into the uterus after calf delivery.

Retained placenta

Treatment is indicated if the placenta doesn't fall out after 24 hours. Remove only the membranes that will come out easily. *Don't pull hard!* Treatment should include terramycin uterine boluses, an intramuscular shot of penicillin or terramycin, and an injection of prostaglandin or estrogen.

Prolapse

Two types of prolapse can occur, vaginal or uterine. Vaginal prolapses occur most often before calving, and they can be corrected by using a Johnson button or a loose sew with umbilical tape. Uterine prolapse can pose an emergency situation.

Try to keep the cow as quiet as possible to avoid bleeding. In most cases, you can reverse the womb like a sock and reposition it back into the cow. Drug treatment could include the use of terramycin uterine boluses, penicillin or combiotic, and oxytocin to help contract the uterus.

If professional help is needed, clean the tissue with a warm saline solution and wrap in a wet sheet until help arrives.

The tendency to prolapse can be associated with specific cows or blood lines. Therefore, it's recommended that you identify heifers and cows that have prolapsed and cull them to help alleviate the problem.

A high percentage of uterine prolapses can be avoided:

1. Synchronized pulling with the cows' own contractions will minimize uterine exhaustion and injury.
2. After difficult births, cows are prone to prolapse unless they're encouraged to stand—which allows gravity to pull the uterus deep into the body cavity and causes a relaxation of the contraction processes. Experience will convince you that you *must* get cows on their feet in a standing position within minutes of difficult births, to reduce the frequency of prolapse.

Remember. . .

As producers, we're concerned about the welfare of both the cow and the calf. When assistance at birth is needed, it should be given by trained individuals. Excessive force should *never* be used.

Proper facilities and equipment, and applying practical skills, can help minimize many calving problems.

Give consideration, too, to management practices that allow for the proper development of replacement heifers and the selection of bulls that sire lower-birth-weight calves.

For further reading

Pirelli, G., and W.A. Zollinger, *Weaning Management for Calves*, Oregon State University Extension Service Circular 1371 (Corvallis, 1991). 50¢

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