



WHAT TO EXPECT WHEN ...

Preparing for Calving Season

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Calving season is an exciting time of year on any cattle operation, but it can be nerve-racking when things don't go right. The most common reason for calf loss in the beef cattle industry is calving difficulty.¹ Difficult births are referred to as dystocias, so characterized when labor is prolonged and cannot be completed without assistance.

In the U.S., the most significant cause of dystocia is fetal-maternal mismatch – when the calf is too large to fit through the birth canal due to a fetal oversize or maternal small body frame. Second on that list is fetal malpresentations – when the calf is not positioned correctly to enter the birth canal. There are many undesirable consequences of dystocia to both the cow or heifer and the calf. However, we can minimize those consequences with appropriate and early intervention.

The basics of normal calving

The average length of gestation in cattle is 280 days; the normal range is 273-296 days. To recognize dystocias, we first need

to recognize what is normal. From there, we can then recognize when things are abnormal, or when the timing is prolonged and intervention is needed.

The stages of labor are commonly split into three sections:

Stage 1 is characterized by the beginning of uterine contractions and dilation of the cervix. Mature cows may show minimal signs. It is not uncommon for the cow to isolate herself from the rest of the herd. A clear string of mucous may be noted protruding from the vulva, indicating liquefaction and expulsion of the cervical mucous plug. Heifers may be more dramatic in showing signs of stage 1, which can include restlessness, swishing of the tail, and standing and lying down repetitively. This stage usually lasts 2-6 hours.

The end of stage 1 and the beginning of stage 2 labor is characterized by the “water breaking,” also known as rupture of the chorioallantoic membrane. If a cow or heifer is suspected to have been in stage 1 for

more than 6-8 hours without progressing into stage 2, intervention is recommended.

Once the water breaks and stage 2 begins, a second water sac (amniotic sac) containing the fetus begins entering the birth canal, consequently increasing uterine contractions that force the calf further out. In general, cows should deliver a calf within 30 minutes, heifers within 1 hour.

Frequent observation and proper intervention are critical for successful outcomes when dealing with dystocias. Cows should be checked at least twice daily during the calving season, and heifers should be checked every 2-4 hours.

When to intervene or call your veterinarian:

- If you suspect the cow has been in stage 1 labor for more than 8 hours, call your veterinarian.
- If only the water bag is visible and no progress is made within 1 hour, call your veterinarian.
- If feet are showing with soles down and no progress within 30 minutes, call your veterinarian. A quick feel to determine if the head is present in the birth canal can be useful information.
- If a single foot or only the tail is visible, or if just the head with no feet is visible, call your veterinarian.
- If feet are showing and soles are up, call your veterinarian. This is either a backwards calf or the calf may be upside down. To determine if you have front feet or back feet, you can bend the legs at the joints.
 - Back legs: first and second joints bend in opposite directions.
 - Front legs: first and second joints bend in the same direction.
 - If two back legs are visible, tuck the tail between the back legs and assist the cow. A calf coming backwards will lose oxygen from the umbilicus much quicker than a calf being born in a forward position, and therefore, immediate assistance is needed.
 - If two front legs are visible and the calf is upside down, wait for the veterinarian.
- If the cow or calf is showing signs of excessive fatigue or stress during the birthing process, such as calf tongue swelling, staining of the calf with meconium (yellow/orange fetal feces) or excessive bleeding from the cow or calf, call your veterinarian.



Figure 1. *Obstetric chain is placed with loop above the fetlock joint and a half hitch below the fetlock to allow for even weight distribution across the joint when pressure is placed on the chain.*

- If the cow or heifer is sick or weak with foul smelling discharge coming from her vulva, call your veterinarian.

If you are going to intervene and help assist with the birthing process, you will need a few pieces of equipment, including two obstetric chains or straps, two handles, obstetric sleeves, lube, and dilute betadine. Obstetric chains or straps should be placed with a loop above the calf's fetlock joint and a half-hitch below the fetlock to allow for even weight distribution across the leg; this helps prevent fractures or dislocations of the joint (Figure 1).

Before pulling begins, careful consideration should be given to whether the calf will fit through the pelvic canal. A good rule of thumb is that if the calf is engaged into the pelvis with both front legs and head, and an average-size hand can be placed between the calf and the pelvis all the way around, then it will likely fit and assistance can be given. Before any extraction force is applied, make sure the cow is well lubed – it will not only ease the pulling process but prevent damage to the birthing canal. If there is no space or the space is tight, a veterinarian should be called.

If the calf is coming front feet first and the head is engaged in the birth canal, there should be no more than one person per leg pulling. The legs should be pulled alternately to allow the shoulders to work through the pelvis. Work with the cow or heifer, timing pulls to coincide with uterine contractions. When pulling, you should pull straight out from the cow (parallel to the ground) until the head is out. Then begin pulling down

in an arc-like motion until the entire calf is out. Once the chest is delivered, the calf should be turned 45° in either direction to prevent the hips from getting stuck (“hiplock”).

As above, if the calf is coming backwards, no more pressure than one person per leg should be applied. Make sure the tail is safely tucked between the back legs to prevent it from getting broken during the process of pulling. The calf should initially be rotated 45° to the left and right – and then traction can be applied straight back. If the back legs to the level of the hocks cannot be easily passed through the vulva, the veterinarian should be immediately called and no more force should be applied. If the hocks are easily exposed, then continuous progress should be made to quickly deliver the calf.

Once the hocks are outside of the vulva, gentle pressure can be applied in a downward arc-like motion while pulling. Calves that are born backwards have their umbilical cord clamped before they can breathe. Consequently, if the calf is not delivered quickly and becomes hypoxic, it will be at risk of inhaling fluid into the lungs.

A mechanical calf puller (calf-jack) is a helpful piece of equipment but can also be dangerous. That’s because it can put an exorbitant amount of pressure on the cow and calf, which can lead to paralyzed cows or broken legs on a calf. Calf pullers should not be used if two average-size people are available to pull the calf. The calf puller is useful in situations when you are alone. However, it should not be used to deliver a large calf that might require a Caesarean (C)-section.

Once the calf is delivered, it should be placed upright on its sternum (breastbone) to allow it to breathe easy. The nostrils and ears can be stimulated with a piece of hay or straw to stimulate the calf to breathe. Firm rubbing over the back and rib cage may also stimulate breathing. Calves should not be hung upside down or swung in efforts to clear the respiratory tract; they cannot fully expand their lungs in these situations. Once the calf is determined to be breathing well, the calf may be placed in front of the mother to allow for bonding. The umbilicus of the calf should be dipped with a dilute chlorhexidine or iodine solution (1:4 dilution) to prevent umbilical infections.



The cow or heifer should always be checked for trauma or a second calf before being released from the restrained position. The calf should be up and nursing within 2-4 hours. If the calf has not nursed by then, assistance is required to ensure adequate colostrum consumption and absorption within 12 hours of birth. Calves that experience dystocia may be slower and need more assistance than calves born normally. Calves that ultimately require colostrum replacement should be fed about 2 liters (L) of colostrum. Colostrum replacer of good quality should contain no less than 100 g of immunoglobulin G (IgG; also known as antibodies) to ensure that each calf has adequate passive immunity.

1. USDA IS. *Mortality of calves and cattle on US beef cow-calf operations*. Animal and Plant Health Inspection Service <http://nahms.aphis.usda.gov> 2010.