

Assisting the Beef Cow at Calving Time

Calving difficulty has received much more attention in recent years, primarily because of the mating of larger European breeds of bulls to local breeds of cows. Increased calving problems are also being encountered within purebred breeds, as genetically large bulls are often mated to cows of only average size.

Factors Causing Calving Difficulty

Calf Effects. Heavy birth weights account for most of the problems related to the calf. Birth weights are influenced by breed of the sire, bull within a breed, sex of the calf, age of the cow

Cow Effects. Several factors associated with the cow influence dystocia, the major ones being her age and pelvic size.

Age. Two-year-old heifers require more assistance in calving than do cows, because they are usually structurally smaller.

Pelvic area. Pelvic area (birth canal) increases as the female develops to maturity. Thus, a higher proportion of calving difficulty in 2- or 3-year-old cows is due to smaller pelvic openings. Heifers and cows with small pelvic areas are likely to require assistance at calving. However, even heifers with large pelvic areas may need help delivering large calves.

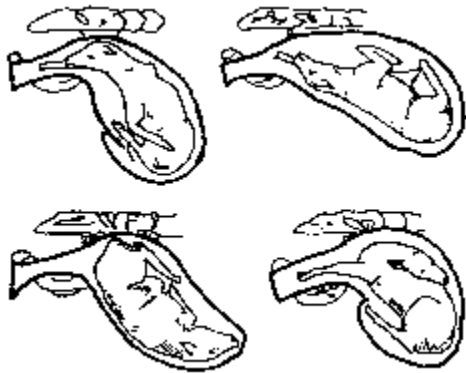


Figure 1. Abnormal positions of the calf for delivery.

The calf's birth weight and cow's pelvic area have a combined effect on dystocia. Degree of dystocia is determined primarily by the size of the calf (birth weight) in relation to the size of the cow's pelvic area. Pelvic measurements can be obtained on yearling heifers and the size of the deliverable calf estimated before breeding. If preferred, measurements can be obtained at pregnancy exam. The pelvic area trait is about 50 percent heritable and can be increased through selection of both heifers and bulls. Therefore, calving problems can be reduced by decreasing calf birth weight and increasing cow pelvic size through bull and heifer selection, in addition to selection and development of large heifers.

Foetal Position at Birth. Abnormal positions, such as foreleg or head turned back, breech or rear end position, sidewise or rotated, etc. (*Figure 1*). This requires the assistance of a

veterinarian or an experienced herdsman to position the fetus correctly prior to delivery. If fetal position cannot be corrected, the veterinarian may have to perform a caesarean section.

Stages of Calving (Parturition)

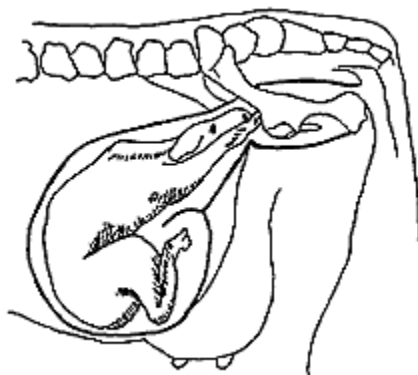
Normal calving can be divided into three general stages -- preparatory, fetal expulsion, and expulsion of the placenta or afterbirth. The time interval of each stage varies among types and breeds of cattle and among individuals of the same breed. Although the exact stimulus that initiates parturition is unknown, it does involve hormonal changes in both the cow and fetus as well as mechanical and neural stimulation in the uterus.

A general understanding of the birth process is important to proper calving assistance and, therefore, is presented here and summarized in *Table I*.

Table I. Stages of Calving	
<i>Stage and time</i>	<i>Events</i>
Preparatory (2 to 6 hours)	<ol style="list-style-type: none"> 1. Calf rotates to upright position. 2. Uterine contractions begin. 3. Water sac expelled.
Delivery (1 hour or less)	<ol style="list-style-type: none"> 1. Cow usually tying down. 2. Fetus enters birth canal. 3. Front feet and head protrude first. 4. Calf delivery completed.
Cleaning (2 to 8 hours)	<ol style="list-style-type: none"> 1. caruncle-cotyledon (button) attachments relax. 2. Uterine contractions expel membranes.

Stage 1. Preparatory (Two to six hours). During pregnancy, the fetal calf is normally on its back. Just prior to labor, it rotates to an upright position with its forelegs and head pointed toward the birth canal (*Figure 2*). This position provides the least resistance during birth.

Figure 2. Normal position of the calf just prior to delivery.



Stage 2. Delivery (One hour or less). This stage begins when the fetus enters the birth canal, and usually occurs while the cow is lying down. Uterine contractions are now about every two minutes and are accompanied by voluntary contractions of the diaphragm and abdominal muscles.

Stage 3. Cleaning (two to eight hours). The caruncle-cotyledon, or button attachment between uterus and placenta, relaxes and separated after parturition. The placenta is then expelled by continued uterine contractions. Cows normally expel the placenta within two to eight hours.

Preparing for Calving Assistance

Normal delivery should be completed within two to three hours after the water sac appears in heifers, and one to two hours in cows. If prolonged, the calf may be born dead or in a weakened condition. Clean pulling chains and handles should be placed in a bucket of water with disinfectant before use to reduce bacterial contamination. Disinfectant, soap and lubricant should be in plastic squeeze bottles to enhance use.

Steps in Calving Assistance

1. After observing a delay in delivery, a pelvic examination should be done to determine the extent of cervical dilation. Determine the position of the fetus (*Figures 1 and 2*). If it is in an abnormal position, experience and judgment must be used to determine if a correction can be made or if professional help should be summoned.
2. Examine the size of the calf relative to the birth canal. A large calf forced through a small pelvic opening may result in death of the calf and injury (including paralysis) to the cow.
3. Attach the obstetrical (pulling) chains to the front legs of the calf, placing the loop of each chain around each leg. Then slide the chains up on the cannon bone two to three inches above the ankle joints and dew claws (*Figure 3*). Make sure the chain pulls from the bottom of the leg (dew claw side).

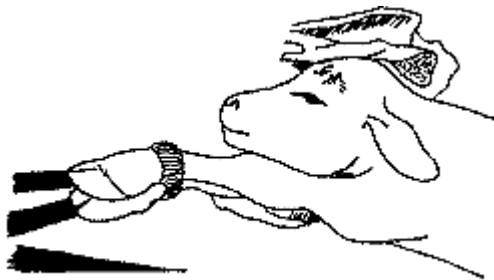


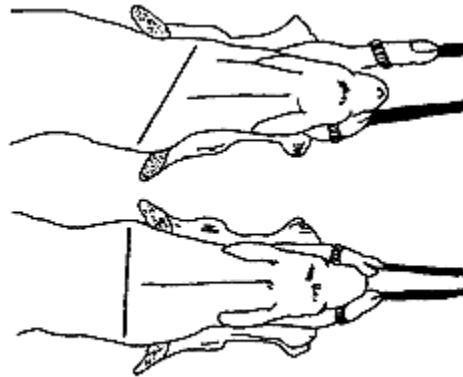
Figure 3. Proper attachment of the pulling chains. Chain should pull direct from bottom (ventral) of the leg.

4. Attach the obstetrical handles and pull gently, making sure the chains have not slipped.

Although some calves can be delivered by pulling both legs evenly, it's usually best to alternately pull on one leg and then the other a few inches at a time (*Figure 4*). This is called "walking out the shoulders."

5. Once the head and shoulders are exposed, pull the calf downward at a 45° angle, or nearly parallel with the rear legs of the cow. This tends to raise the calf's hips and lessens the chance of hip lock.
6. "Hip lock" can be a problem serious enough to cause loss of the calf. If this happens, push the calf back a short distance and rotate the calf a half a turn and pull downward and forward between the cow's legs. If the cow is lying down, roll her on her back and pull the calf forward over the udder between the hind legs. Make sure the calf begins breathing normally as the umbilical cord will be pinched closed. Call your veterinarian if the hip lock cannot be readily delivered.
7. Posterior presentations (backwards calf) occur in less than five percent of calves born. The posterior presentation is a problem because the calf's hind legs and hips do not dilate the cervix as well as the front legs and head. Due to premature rupture of the umbilical cord, early assistance and rapid delivery is needed. A backwards calf in the setting position with feet and legs up under him (breech presentation) must be detected early in labor and corrected. Cows will start labor but nothing will show externally except occasionally the tail of the calf. If not detected, labour will cease and will not start again until the calf is dead three to seven days later.
8. Cows with torsion of the uterus (posterior uterus and cervix twisted) will act similar to cows with a breech presentation; however, they will usually show much more pain. On examination, the calf is difficult to palpate and the twisted opening can be determined. If detected early, the torsion can be corrected or a caesarean performed to obtain a live calf.

Figure 4. Applying traction at delivery by "walking out" the shoulders.



9. A calf puller should be used correctly and only by experienced people. A calf puller can apply traction equivalent to the pull of seven men. First examine the cow, making sure the calf is in the proper presentation and position, lubricate the vagina, then apply gradual traction. If no progress, a caesarean may be needed. Excessive traction may kill the calf, traumatize the cow and both may be lost.
10. Correcting abnormal presentations and positions after extended labor usually requires professional help. Remember: be clean, learn your capabilities and learn when to call for help.

Potential Post-Delivery Problems

Uterine Prolapse. This is an inversion of the uterus that can occur following calving. Prolonged labour, difficult birth, excess traction and subclinical milk fever are predisposing factors. Uterine prolapse should be treated as an emergency. Contact a

veterinarian for treatment and necessary drugs. Cull heifers or cows that prolapse because of the probability of it happening again.

Retained Placenta. The placental membranes are normally expelled within two to eight hours after birth. Occasionally, however, they fail to separate from the uterus. If not treated, this condition may pose a health threat to the cow and cause problems in rebreeding. The reason for retained placentas is not known, but high incidence may indicate a disease problem. They also commonly accompany difficult births, multiple births, short gestations and bull calf births.

Summary of Calving Management Recommendations

1. Observe the herd closely during calving season, especially first-calf heifers, because they will require the most assistance. Be there and be an good observer.
2. Have the proper equipment and facilities available and in clean, working order prior to calving.
3. Give assistance during delivery or call a veterinarian when needed. Do not wait more than a few hours after labour begins to act.
4. Correct any abnormal fetal positions in the early stages of delivery.
5. When pulling a calf, loop the chain or rope above the ankle joint. Apply gentle traction on one leg at a time to facilitate passage of the shoulders through the birth canal.
6. Remove mucus from the calf's nose and mouth immediately after birth. If the calf does not start to breathe normally, tickle the nostrils, hold it up by the hind legs and shake it, or apply artificial respiration with a short piece of hose or by alternating pressure and release on the rib cage.
7. Disinfect the navel cord with iodine to prevent infection. Make sure the calf nurses within an hour after birth or give colostrum to weak calves.
8. Keep birth weight and ease-of-calving records to identify those sires and dams responsible for calving problems. This information is especially important for selecting sires to breed yearling heifers. When possible, cull those females with a history of calving problems and avoid selecting replacement heifers from such cows.