

Ensuring A Successful Calving

Dr. Kalie Bernardo

Calving marks the start of a new lactation for the dairy cow, and the life of her calf. The successful beginning of both these events starts with properly managing calvings. It is important to have a good understanding of the process of calving.

Parturition is initiated by hormonal and physical changes at the end of gestation, approximately 280 days in dairy cattle. A dairy cow will gradually progress through three stages to deliver her calf.



Stage 1: Dilation (4-24 hours duration)

The calf moves into position as the cervix and birth canal begin to dilate. The cervical plug is dissolved at this point, circulating progesterone decreases, and the uterine muscles become more sensitive to oxytocin. After the mucus plug completely dissolves, it may be 24 hours before the cervix is fully relaxed. This stage is normally unnoticed until the end, where more behavioural changes occur.

Signs: restless behavior, frequent transition from laying to standing, raised tail head, vocalization, increased urination and defecation, full udder, and mucus discharge. Abdominal straining begins at the end of stage 1.

Stage 2: Expulsion of Calf (30 minutes for cows, 60 minutes for heifers)

The cervix is fully dilated and the calf moves through the birth canal. The appearance of the water bag (amniotic sac) and abdominal contractions are evident as the calf's legs become visible. The amniotic sac should break at this point – if it does not rupture, the calf may die due to asphyxiation. Assistance should be considered after there has been no progression in 1 hour for cows, or 1.5 hours for heifers.

Stage 3: Expulsion of Fetal Membranes (up to 24 hours)

Expulsion of the fetal membranes (placenta) occurs within 24 hours post calving. If it takes longer than 24 hours, it is considered a retained placenta. Dystocia, twinning, induction, hypocalcemia (milk fever) and abnormally long or short pregnancies increase the incidence of retained placenta.

Dystocia

Dystocia refers to a long or slowly progressing labour. There are two categories – maternal and fetal dystocia.

In maternal dystocia, the cow is unable to eject the calf due to lack of space in the birth canal. Reasons may include incomplete cervical dilation due to hypocalcemia, uterine torsion, over-conditioning of the dam (causing increased fat deposits), and stress.

In fetal dystocia, the calf is unable to exit the birth canal due to an abnormal size or presentation. This may be due to genetics, sex, overdue calf, twins, or an abnormal presentation.

When to Assist

Recognizing the signs and stages of parturition is important for knowing when to offer assistance. Frequent monitoring (every 15 – 30 minutes) of animals in labour is key to a successful outcome. If a cow or heifer appears restless for 4 – 6 hours but does not start straining, or if no progress has been made in stage 2 of labour in 1 hour for cows or 1.5 hours for heifers, it is time to stick an arm in and see what is going on.

In particular, uterine torsions can be difficult to recognize, as active labour may never begin. These animals are the ones you think are starting to calve in the morning, and then notice later they have not made progress. In these cases, it is very important to intervene early. Do not wait more than two hours to reach in after first signs of calving (tail up, small pushes – these should continue and get more intense in a normal case).

How to Assist

1) Restraint

This is a must to ensure the successful delivery of a calf. You should be able to quickly restrain the cow without undue stress. Restraint facilities ideally would be designed so that you can restrain the animal while alone.

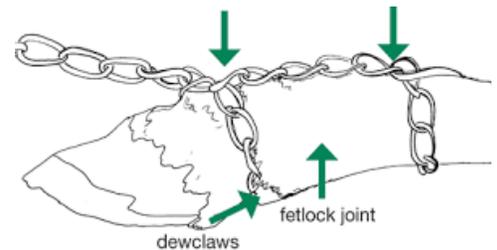
If an animal is caught in a headlock or chute, they should be haltered, tied, and then allowed to back out, with the headlock closed in front of them to prevent them going through again. This is safer than having an animal go down and become strangled by a closed headlock.

2) Hygiene

- Warm water + soap: Wash the vulva and surrounding areas before reaching in
- OB sleeves to keep yourself and the animals clean

3) Secure and Remove the Calf

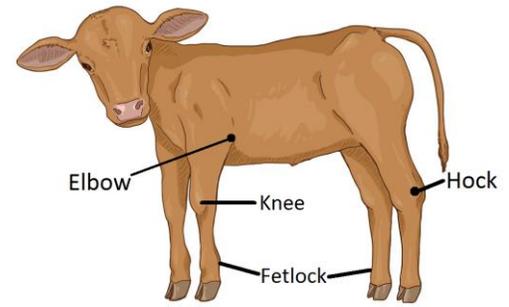
- Tools:



Calving Chains or Ropes	Ensure they are wrapped twice around the legs in a double half hitch to prevent breaking bones
Lubricant (NOT J-Lube)	J-lube is irritating to the abdomen in the case of going to c-section.
Calving jack or pulley	For tough pulls – use great care and go <u>slowly</u> to prevent tearing or nerve damage. A calf jack used normally applies up to 400kg of force, or more when used as a lever! For reference, normal expulsive force by the dam is 75 kg. One person pulling provides 160kg – 200kg of force. A massive amount of damage can be done to the cow if they are used in the wrong way.
Cold water	Use this to pour into the calf's ear in order to stimulate it. Cold water in the ear causes the calf to shake its head and helps to dislodge mucus.

- What to feel for:
 - Cervical Dilatation: If you feel a ring inside the vagina, the cow is not fully dilated. Use calcium supplementation and gentle cervical manipulation to encourage dilation.
 - Uterine Torsion: If you feel your hand twisting inside the vagina on your way to touch the calf, you have a uterine torsion. These frequently require veterinary intervention to correct.
 - Calf Size: If you cannot pass your hand around the calf in the birth canal, it may be too big. Large calves may need to be jacked out using an epidural, epinephrine, and plenty of lubrication. If the calf is too large, it may need to be delivered via c-section.

- The rule of 3
 - Do not remove a calf unless you can feel three things:
 - 2 front legs and a head
 - 2 back legs and a tail
 - Telling the difference between front or back legs is essential, and the elbow and hock can feel the same inside the cow.
 - Front Legs: have two bendable joints (fetlock and knee) that come before the elbow + first two joints bend in the same direction
 - Back Legs: have only the fetlock that bends before the hock + first two joints bend in opposite directions

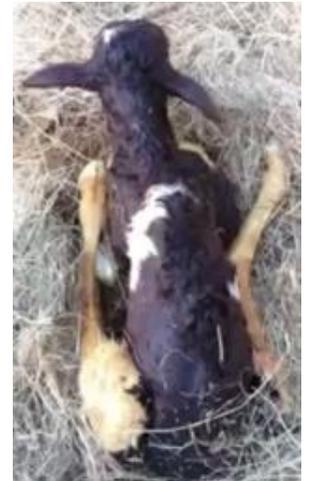


4) When to Call for Help

- If you have been attempting to correct the dystocia for 20 minutes and have made no progress, call your veterinarian!
- It is better to call earlier, as excessive manipulation can cause significant swelling within the dam, and make a vaginal delivery difficult or impossible

After Calving

The calf should be born onto dry, clean bedding, and immediately be dried and placed in sternal position. Put the front legs base wide to stabilize the calf, and bring the hind legs up by the ears. Calves should NOT be hung upside down to clear the airway – the fluid you see coming out is from their stomach. Not only does that fluid increase their risk of aspiration pneumonia, but all the weight of their intestines puts pressure on their lungs, making it harder to breathe.



Check the cow for signs of excessive bleeding, or tearing. You should also always check for another calf! If you pulled one, check for a twin. If you pulled a twin, check for a triplet. If you pulled a triplet, check for a fourth. If you find a fourth, it is your sign to buy a lottery ticket. It is best practice to check again 6 – 8 hours later, as twins can hide in the depths of the uterus, and may not be accessible immediately after calving.

If you had to assist the cow, give her pain relief (NSAID), warm water, and some time to rest. Calves also benefit from an NSAID after a difficult calving.

Finally, move the calf into a clean, dry, and segregated section of the pen, where the cow can lick them clean but the calf can not suckle and is not exposed to the manure.

Calving Goals

- Stillbirths in the herd should be less than 5%
 - Stillbirths are more common in heifers (7%) than cows (3%)
 - Risk of stillbirth in heifers can be mitigated by ensuring heifer growth is optimal, and waiting for heifers large enough to breed and in proper body condition at calving.
 - Early intervention and recognition of dystocia is key to reducing stillbirths