

# Calving Process and Assistance

Calving brings new life to a dairy farm, a new calf is born and a new lactation begins for the cow. These great beginnings start with managing calving successfully. It is important to have a good understanding of the following:

- Recognize the signs and stages of parturition (the act of giving birth or the calving process when pertaining to cattle)
- Proper training needed to reduce stillbirths and metritis
- Identify the signs needed for assisting parturition
- Accurately keep records for all calvings on the farm

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

The calf moves into position as the cervix and birth canal begin to dilate. Signs that may or may not be noticeable include: restless behavior, frequent transition from laying to standing, raised tail head, vocalization, increased urination and defecation, full udder, and mucus discharge.



## Stage 2

The cow or heifer has a fully dilated cervix and the calf moves through the birth canal. The appearance of the membranes (“water bag”) and abdominal contractions are evident as the calf’s legs become visible.



## Stage 3

Expulsion of the fetal membranes (placenta) occurs 8-12 hours post calving. If it takes longer than 24 hours, it is considered retained membranes or placenta. Dystocia, twinning, induction, hypocalcemia (milk fever) and abnormally long or short pregnancies increase the incidence of retained placenta.



Recent research (Proudfoot et al., 2013) investigated the interference of the calving process when cows were moved during different stages of labor. Cows were housed in a close-up pen (bedded pack) and were moved into nearby individual pens during one of the three stages below:

- Before any signs of labor
- During early Stage 1 labor, about 12 hours before calving when cows were showing signs of Stage 1 labor (i.e., raised tail, engorged and leaky udder, or relaxed pelvic ligaments)
- During late Stage 1 labor, about four hours before calving when cows were showing imminent signs of labor, such as bloody mucous and the start of abdominal contractions

This project concluded that cows moved before labor and during early Stage 1 labor had very similar Stage 2 labors of about 60 minutes and were also laying down during the final hour of calving. This behavior is comparable to other research projects looking at length of labor.

However, when cows were moved during late Stage 1 labor, they had 40 minutes longer Stage 2 labor and spent 50 percent less time lying down. This longer Stage 2 labor was associated with increased inflammation post calving and in other studies has been associated with stillbirths and dystocia. This requires close-up pens to be monitored 24/7 as well as moving cows calmly during active signs of labor. Even the most experienced worker will miss a cow's estimated labor, as 10 percent of calvings will still occur outside the maternity pen. Training employees to properly handle these situations is imperative.

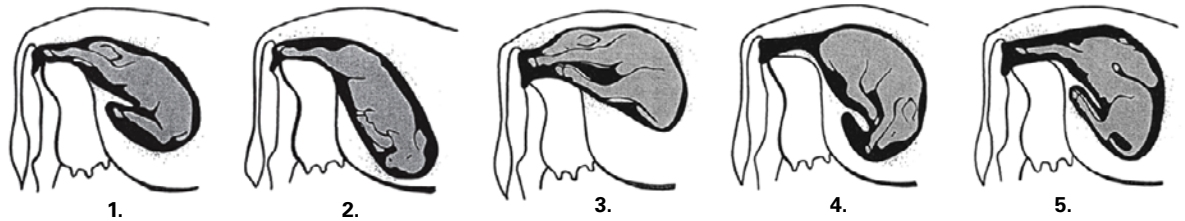
While 70 percent of cows will deliver without assistance, only about 50 percent of heifers will deliver without assistance. Recognizing an abnormal or difficult delivery and assisting properly means the difference between a successful delivery and one with injury or death to the animals. All calvings should be carefully monitored with the position of the calf determined early in labor as described in Figure 1. Many of these positions can be corrected if found early enough in the labor process. The nutrition and body condition of the pregnant cow can also have an impact on the calf delivery process as well as using calving ease sires. An obese cow or heifer can have excessive fat deposits around the reproductive tract, thus restricting birth canal space.

**Normal delivery presentations:**

1. Normal anterior presentation
2. Normal posterior presentation

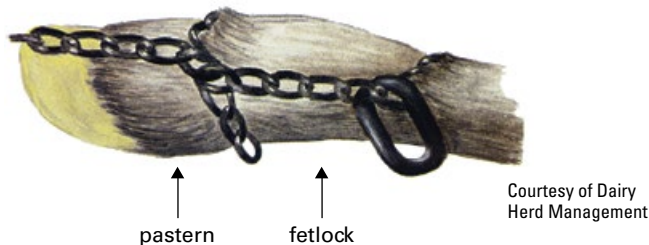
**Abnormal delivery presentations:**

3. All four feet and head presented.  
Do not apply traction before correcting presentation.
4. Posterior presentation without feet. Correct position before applying traction.
5. Feet presented but head in back. Correct position of head before applying traction



**Figure 1.** Delivery presentations.

Veterinarians and producers often use sterile chains or straps to better grip the calf when applying pressure during uterine contractions. Proper placement of chains and straps illustrated in Figure 2 will reduce injury to the calf. Calf jacks and manual extractions can easily exceed 600 pounds of force. Even this amount of force can fracture leg bones or vertebra in calves.



**Figure 2.** When using chains during delivery, place one loop of the chain above the calf's pastern and another loop above the calf's fetlock.

It is important for each farm to establish their own standard operating procedure when assisting during calving along with proper employee training. However a few guidelines for assisting a cow in labor are important and include:

- If a cow is restless for more than 4-6 hours but does not go into labor (no straining)
- If a cow is straining but no part of the calf is showing after two hours
- If feet and/or nose is showing but the calf is not delivered after two hours
- Abnormal presentation illustrated in Figure 1

Proper record keeping will aid in calving management. It is important to know who (cow ID and person assisting), when (date), how (calving score), and result (calving ease score, stillbirth, retained placenta,) to manage the dairy operation's protocols and training process.

## Acknowledgements

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Resource used: Effect of moving dairy cows at different stages of labor on behavior during parturition (Proudfoot, et al., JDS, 2013)

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