



## Fresh cow problems - Milk fever and bloat

### Introduction

Apart from mastitis, the other two important disease conditions which can cause high economic losses are milk fever and bloat.

### Milk fever

Milk fever rarely occurs among first-calf heifers and seldom at second calving. There is a progressively higher incidence with each freshening.

### Symptoms

The name “milk fever” is a misnomer because the cow does not have a fever. Calving paralysis would be a better name. There is a lack of appetite and an inactive digestive tract. Often the cow is dull and lethargic with cold ears and a dry muzzle. The first specific symptom is lack of coordination when walking. This progresses to where the cow may fall or lie down and be unable to rise. The progress of the disease is in three stages; (a) standing but wobbly (b) down on chest and drowsy (c) down inside and unresponsive.

The major change in the blood of milk fever cows is in blood calcium. Normal fever is 10 mg per 100 ml. Normal cows drop to about 8 at calving. Milk fever cows drop to about 6.5 to 4.5 mg/100 ml. It is likely that the drop in blood calcium, accompanied by a drop in phosphorus and an increase in magnesium levels, brings on the symptoms.

### Causes

The cause of milk fever is the extra calcium drain from the blood into the milk at calving. This is coupled with the inability of the cow to change her metabolism rapidly enough to keep blood calcium levels up. She has some built-in mechanisms to do this, but they sometimes do not work fast enough. The way she is fed during the dry period influences the speed of response.

Two ways a cow can get more calcium are: mobilize it from bone or absorb it from the digestive tract. The two important compounds in the body which influence these

processes are parathyroid hormone (PTH) and active vitamin D. PTH comes from the parathyroid gland located in the cow's neck. Its release is triggered by low blood calcium. The hormone's major effect is to cause calcium to move from the bone into the blood. Although this hormone becomes elevated in the milk fever cow, the lag in the bone response prevents rapid replenishment of blood calcium. Active vitamin D has the primary effect of improving calcium absorption from the gut. Higher production of vitamin D is triggered by low blood calcium, as well as low blood phosphorus. High phosphorus apparently tends to inhibit synthesis. This active vitamin D also is elevated in the milk fever cow, but apparently the lag in response prevents it from doing its job in time.

In summary:

- Excessive intake of calcium during the dry period delays the response from these two compounds and is undesirable.
- Excessive phosphorus feeding during the dry period may also delay formation of and response to active vitamin D.
- Calcium has to be present in the digestive tract in for absorption to take place. This means that keeping cows on feed and providing a good calcium intake right after calving is desirable.
- But too much calcium during the dry period makes the mechanisms for replenishing blood calcium lazy, and their response is delayed. Then a cow comes down with milk fever.

### Treatment

The method of choice for treating milk fever still remains the intravenous injection of a solution of calcium gluconate. Response usually is rapid but relapses are common in about 30 percent of cases.



Preventive procedures for milk fever are:

- Avoid feeding excessive calcium during the dry period. The daily requirement of a 600 kg pregnant dry cow is about 40 grams of calcium and 30 grams of phosphorus.
- Studies show that up to about 100 grams of calcium per day usually does not create problems.
- Feeding excess legumes, such as clover and tree legumes which are high in calcium can aggravate the problem.
- Limiting feed intake. Probably the best solution is to use low-calcium forages (grass hay or silage, cornstalks or cornstalk silage). Feeding very low levels of calcium (about 15 grams per day) for about 10 days before calving could prevent milk fever.
- Avoid feeding excess phosphorus during the dry period. Feeding too much phosphorus to correct excess calcium adds to the problem.
- Avoid excessive fatness in dry cows. This and any other conditions that reduce feed intake at calving tend to cause more milk fever.

## Bloat

Bloat is caused by an accumulation of gas in the fore stomach (rumen) of ruminants. The abdomen becomes distended and appears swollen on one side. It is easy to control but animals can die very quickly if not attended to. When feed is digested in the rumen, a large quantity of gas is produced. This is normally expelled from the body by frequent belching. If the oesophagus (food pipe) becomes blocked or the rumen contents become frothy, the rumen will start to swell with froth or gas. When an animal has bloat, its stomach becomes clearly distended, swelling on the left side behind the rib cage. The animal will stop eating and have difficulty breathing. Sometimes green froth comes out of the mouth and nose and some animals have mild diarrhoea. Sometimes the animal kicks its side or lies down and sticks its legs out. After a while the animal will collapse and lie on its side with its head stretched out. It can die if left for long in this position.

## Treating bloat

Do not feed the animal for a few hours. Instead make it move or run about. Give anti-bloat medicine by mouth and rub the left side of the abdomen to help mix it up. Give the medicine once a day for 2–3 days until the animal recovers, administering small amounts at a time slowly. If the animal will not swallow, tie a rope across the animal's mouth and around the head to make it chew at the rope and stimulate

belching. If the animal is very distressed and looks likely to die, an emergency operation can be undertaken.

Using a trocar and cannula (a hollow instrument designed to puncture the bloated rumen and allow excess gas to escape) or a knife, puncture the skin and the distended rumen on the left-hand side of the cow to let the gas out. When a knife is used, a hollow tube is inserted into the puncture hole to allow air to escape. A bloat treatment chemical can be put into the rumen via the puncture hole to prevent further gas accumulation. Push hard at the distended abdomen to let the gas out. It is advisable to put a tube into the hole to keep it open. Pour some anti-bloat medicine or vegetable oil through the tube into the rumen to prevent bloat from recurring. When the tube is removed, the hole will close on its own. Avoid infection by applying some antibiotic powder, disinfectant spray or anti-fly grease.

## Preventing bloat

Feed animals with dry grass before they go to new, wet green pastures. Do not give them water just before going to wet pastures. Do not put animals on wet green pasture early in the morning; wait until the sun has dried the grass. Introduce animals to young, green pastures gradually, initially for an hour or two per day and then slowly increase the time. When changing their feed, do it gradually.

Bloat can be caused by any of the following:

- eating a lot of wet, green pasture, especially if it has many legumes, at the beginning of a wet season
- eating ripe fruits and fruit waste
- eating feeds that ferment easily such as brewers' waste and grains
- eating certain toxic plants
- the food pipe being blocked by large pieces of feed
- certain diseases (e.g. tetanus) that paralyse normal breathing.

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