The Cost of Low Blood Calcium in Dairy Cows

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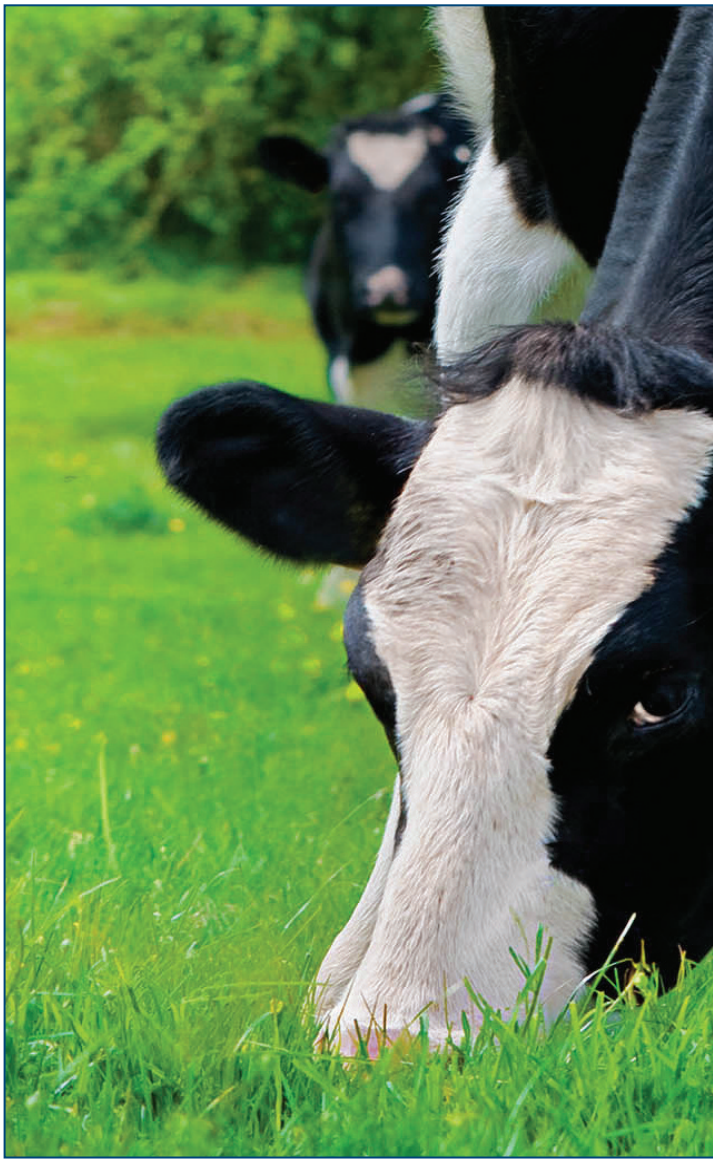
Dairy farmers know the signs of milk fever and how it can impact transition cow performance, but few are aware of the negative impacts of mildly low blood calcium levels. New research is shedding light on how fresh cow blood calcium levels affect fresh cow performance and production.



Normal Blood Calcium Levels: 9.5-8.5 mg/dL

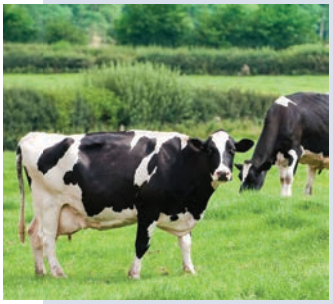
Mildly Low Blood Calcium Levels: blood calcium levels that are lower than normal, but the cow looks healthy and otherwise normal. These cows have blood calcium ranges from 7.0 to 8.5 mg/dL.

Dangerously Low Blood Calcium Levels: blood calcium levels that are so low the cow has muscle tremors, is unsteady or cannot rise. This condition is commonly referred to as milk fever. Typical blood calcium concentrations are below 5.0 mg/dL.

Research done in 2011 at the University of Wisconsin's School of Veterinary Medicine shows that many recently fresh dairy cows that look normal and healthy may actually be suffering from mildly low blood calcium levels.

So what if some cow's have mildly low blood calcium? They look healthy and normal.

A mild depression in blood calcium levels of fresh dairy cows has been linked to increased fresh cow diseases such as ketosis, metritis and displaced abomasum. ***Cows with blood calcium levels below 8.5 mg/dL after freshening are 3x more likely to have a displaced abomasum.*** Often times these cows look normal, but a blood test reveals mildly low calcium levels. There is an associated milk production loss ranging from 5 to 15 pounds of milk per day for the first three weeks of lactation with blood calcium levels below 8.5 mg/dL.



Blood calcium concentrations on 2,365 cows (55 Holstein herds in Canada and the United States) were monitored during the first three weeks of lactation. ***None of these cows were treated for milk fever and were classified as healthy and normal.*** Of this group of cows:

23% of the cows were below 8.5 mg/dL during the **first week of lactation.**
Average milk production loss was 5.7 lbs per day for the first week.

8% of the cows were below 8.5 mg/dL during the **second week of lactation.**
Average milk production loss was 10.6 lbs per day for the second week.

4% of the cows were below 8.5 mg/dL during the **third week of lactation.**
Average milk production loss was 15.6 lbs for the third week. (Chapinal et al., 2012)

What costs my herd more money; down milk fevers or mildly low blood calcium levels?

As a disease, mildly low blood calcium levels cost dairy producers more money because it affects a greater percentage of the cows in the herd. On average only 2-4% of cows become down with milk fever, ***while roughly 30% of cows second lactation and greater suffer from mildly low blood calcium levels.*** On many dairies, around 65% of the herd are in their second lactation and older; which means roughly 1 out of every 5 lactating animals on that dairy experience mildly low blood calcium levels during the first three weeks of lactation. ***Each case of low blood calcium has an estimated cost of $125 from milk yield reduction and increased disease costs from ketosis and displaced abomasums.*** For every 100 cows, mildly low blood calcium levels cost the dairy $2,500 per year while clinical milk fevers cost the producer $600 for the same time period.

What are the preferred treatment options for mildly low blood calcium levels?

Oral calcium supplements are the treatment of choice. Cows can absorb an effective amount of calcium within 30 minutes after treatment. Depending on the type of oral calcium product used, the blood calcium levels will remain elevated for 4 to 12 hours. Although IV calcium is warranted in cattle with milk fever, it is not recommended for use in cows with mildly low blood calcium levels because it can elevate the blood calcium levels too rapidly.

What groups of cows are at risk of low blood calcium levels upon freshening?

Two groups of cows are especially sensitive to low blood calcium levels.

1. **Cows with high milk production in the previous lactation.** Cows >105% relative value in Dairy Comp 305 or cows with milk production >105% of the herd average yield should be targeted for oral calcium supplementation post freshening.
2. Any cow that was **lame at dry-off, close-up or freshening.** It is well documented that lame cows do not eat as much dry matter as their sound herdmates. This dry matter reduction leads to a reduction in dietary calcium derived from feedstuffs and predisposes the cow to low blood calcium not only at freshening, but into the first three weeks of lactation as well.

How do I apply this new information on my dairy?

First, identify cows in your herd that are at high risk. They are any cow that was:

1. lame during the dry period or at freshening
2. a high production cow during the previous lactation
3. treated for milk fever at the beginning of this lactation
4. a cow with three or more lactations

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Second, apply a treatment strategy that works on your farm. Cows identified to be at risk should be treated with oral calcium twice daily for the first two to three days in milk. Crystal Creek® has a line of supplemental calcium products available in liquid, powder and bolus formulations; providing greater treatment flexibility.

In conclusion, 20% of cows that look normal and healthy after freshening suffer from mildly low blood calcium concentrations. These mildly low blood calcium concentrations have been linked to production losses and increased disease incidences. By identifying cows at risk, oral calcium supplementation can be used when the cow is just fresh to combat the negative effects of low blood calcium levels.

References

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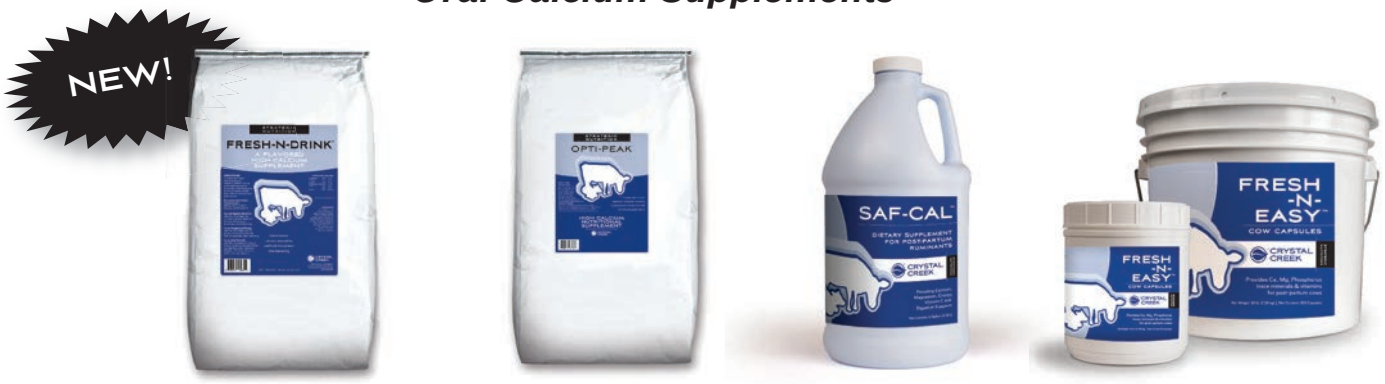
Oral Calcium Supplements



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Administration:	Drinkable Free Choice Or Pump	Mix with Feed or Oral Drench	Oral Drench	Oral Bolus