

Putting An End to Milk Fevers: Why Calcium Supplements Aren't Enough

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When I first graduated from veterinary school, I regularly attended to a client, let's call him Michael, who had a milk fever problem on his farm. Although not his herd vet, I frequently visited his farm on call in the wee hours of the morning to give intravenous calcium to down cows. After several months of regularly giving up my sleep for this, I got up the courage to ask him about some of the factors on his farm that might be contributing to the problem. My queries were not well received so I dropped the subject, finished treating the cow at hand, and went home to bed. Some people just don't want your help. I tried again on several other occasions to convince him we needed to look beyond the cow in front of us but he wasn't interested in pursuing things further. Michael was comfortable giving calcium under the skin but not intravenously. He was spending lots of time and money on calcium, yet he still ended up with down cows. I don't blame him for his frustration.

Hypocalcemia is definitely present on Ontario dairy farms and cows low in calcium after calving don't do as well as those who have a bit to spare. Cows have lots of calcium in their bodies, specifically in the skeletal system. The biology of giving birth involves a large draw of calcium abruptly for colostrum production which the cow must replenish from the skeletal system. But this takes a bit of time and 12-24 hours after calving many cows experience a period of time with low blood calcium levels.

Even if cows are not down with milk fever, low calcium status can be a contributory cause of poor health or performance. Administering preventative calcium therapies in the forms of boluses or injections have sky rocketed in popularity in the last decade for this very reason. In addition to being easy to give, many people feel administering them gives them a bit of insurance against cows going down, even if they aren't addressing the root cause of the problem. Although these products can be a useful strategy, I try to remind producers and advisors, they are band-aids and their use alone should not let us think we have solved anything.

I no longer work at my first job, but I have found myself thinking about Michael over the years. If I met Michael and his problem cows today, I think my persuasion skills have improved enough to demand we look deeper into the problem. Milk fever prevention is the real goal and there are a few key areas that need to be targeted to make this happen. When more than 10% of cows are affected by milk fever on an annual basis, I would consider this a herd problem.

I would insist mineral tests on forages be available and include calcium, phosphorus, magnesium, potassium, sodium, sulfur and chloride. In any problem such as this, I look to work with the herd nutritionist who can evaluate the present ration program and the feeding management practices. Forages that are high in potassium are problematic as they affect the anion-cation balance which alters the acid-base status of dry cows. Too much or

too little of calcium or phosphorus can also set up cows to fail. Low magnesium intake or feeding dietary magnesium that is unavailable hinders the cow's ability to mobilize calcium in her body. All of these possibilities need to be considered. Forage tests and diet analyses should be used to strategize how to feed harvested feeds most successfully. Examining feeding management strategies is important if cows are selectively consuming forages or free-choice mineral feeding is taking place.

Taking a blood sample before giving calcium treatment can be useful if the cow fails to respond to treatment. This can direct further treatment plans for individual cows as well as rule out other causes for recumbency. Over time, collected results can be examined together to give a picture of the herd problem.

A preventative strategy I would offer to Michael is to add anions to the diet. Put simply, this makes the cow's body slightly more acidic and tricks her into pulling calcium out of her bones ahead of when the body would normally begin mobilizing it. This helps avoid having a period of time after calving with very little calcium in the blood and available to tissues in the body. Feeding anionic salts to cows is not a new idea, but newer formulations have improved palatability to cows. The challenge behind anionic salts is you can't *sort of* feed them; you need to be committed to the method with dutiful precision and attention to timing and feeding groups (this means springing heifers shouldn't be grouped with mature cows). You must also monitor their effectiveness through urine pH testing twice weekly. The effort is certainly worth the results of few milk fevers to treat and improved health among transition cows.

Supportive calcium boluses or under the skin injections given after calving can be an adjunct to the preventative methods I've described already. For truly low cows like Michael's, these products aren't enough but can give a little boost for less affected cows. Giving intravenous (IV) calcium should be reserved for only those cows down with milk fever. A bottle of IV calcium given to cows that are standing can raise blood calcium to dangerously high levels as well as interfere with the cow mobilizing calcium from her skeleton resulting in low blood calcium later on. Like nearly all pharmaceuticals, when using any calcium product whether it is a bolus or injectable, the motto "if a little is good, a lot is probably dangerous" should be followed. Be sure you are dosing as directed by the product label or your veterinarian.

I keep in touch with colleagues from my old practice and am glad to report the milk fever incidence in Michael's herd today is at a much more reasonable level, but I'm sorry it took so long to get there. The real key is having the producer, veterinarian and nutritionist working as a team to find the cause and fix it. My advice to producers is don't be afraid to insist you are all sitting at the same table... all it probably takes is some coffee.