



CEDAR GROVE VETERINARY SERVICE NEWSLETTER



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CALCIUM NEEDS IN YOUR HERD: MORE THAN JUST MILK FEVER

When most farmers hear the word calcium, their immediate thought is to milk fever. They may even think they don't have a problem since they haven't treated any cows recently. The reality is even if you don't think you have a problem, studies have shown that more than 50 percent of cows and 25 percent of first lactation heifers have blood calcium concentrations after calving in the range considered subclinical.

Milk fever, in both the clinical and subclinical, occurs due to a loss of calcium at the time of calving. Colostrum requires a calcium concentration that is 8-10x greater than is found in the blood supply. This rapid need for calcium without adequate mobilization from other places in the body results in the signs associated with milk fever. Calcium is essential for normal cellular activity and function of almost all cells. Cows that become hypocalcemic are more susceptible to infection

and disease because immune cell activity is impaired. This can lead to increased risk for retained placenta, metritis, DA's, mastitis, and premature removal from the herd.

A common way for farmers to reduce the effects of hypocalcemia in their herd is through utilization of a DCAD diet. By feeding a diet higher in the negative ions (chlorine and sulfur) and lower in the positive ions (sodium and potassium), the cow's blood becomes mildly acidic. This stimulates the physiological processes needed to mobilize bone calcium stores and initiate dietary intestinal calcium uptake necessary for meeting the calcium demands associated with transition.

Another strategy that farmers will utilize is the use of calcium supplementation to cows at the time of calving through the uses of IV/SQ calcium, calcium pastes, calcium drenches, or calcium boluses. These treatments may be considered either

DO YOU KNOW YOUR ANTIBIOTICS?

Spectramast LC

Use: Indicated for use in lactating dairy cattle for the following treatments:

- Clinical mastitis associated with:
 - Coagulase-negative Staphylococci
 - Streptococcus dysgalactiae
 - Escherichia coli
- Subclinical mastitis associated with:
 - Coagulase-negative Staphylococci
 - Streptococcus dysgalactiae

Dose: Infuse one (1) syringe into each affected quarter. Repeat this treatment in 24 hours. For extended duration therapy, once daily treatment may be repeated for up to eight consecutive days

Special Notes:

-Reinfection may occur unless good herd management, sanitation and mechanical safety measures are practiced.
- 72-hour milk discard period and a 2-day pre-slaughter withdrawal period following the last treatment.

Categories of 2nd or greater lactation animals and their potential return on investment from Bovikal[®] administration at calving and 8-12 hours later

Category	Lame Cows	High Producing Cows	Lame Cows and High Producing Cows	All Cows that are 2 nd or greater lactation
Percentage of 2 nd or greater lactation cows that would require treatment	11%	43%	51%	100%
Return on Investment	+650%	+110%	+180%	+30%
Net Return on Investment (over 1000 calvings)	\$5,812	\$4,425	\$8,313	\$3,065

treatment or preventative since calcium levels of individual cows cannot easily be known on-farm.

So, what is the best course for a farmer when choosing options to limit hypocalcemia on their farms? Well, there is no one strategy that will work on all farms, but some important data regarding the options may make the difference in what each farmer chooses.

The DCAD diet is a good choice if the farm can mix and feed a special ration for the close-up dry cows. However, housing and feeding options

may make this a difficult choice for smaller farmers.

Treating animals with calcium at calving is also a good option to use on its own or in conjunction with a DCAD diet. However, the calcium source does matter. Calcium chloride has the greatest ability to support blood calcium concentrations. It has high calcium bioavailability and ability to invoke an acidogenic response in the cow causes her to mobilize additional calcium from her skeleton. This is like how the DCAD diet works. Bovikal[®], one of the most common boluses used for hypocalcemia, utilizes a combination of calcium chloride and calcium sulfate delivered in a fat-coated bolus. These calcium sources are both acidogenic, which causes the cow to mobilize more of her own calcium. Calcium propionate is not acidogenic and is more slowly absorbed than calcium

chloride. Calcium carbonate mixed with water and given orally does not increase blood calcium concentrations at all, and in fact, it lowers them slightly.

If treating every animal seems like a daunting task, new research has analyzed the economic benefits of treating certain high-risk groups of animals so farmers can prioritize who should get calcium supplementation. The figure above summarizes the different treatment strategies, approximate percentage of the herd affected, and return on investment. The important thing to remember that these numbers reflect using the Bovikal[®] bolus both at time of calving and 8-12 hours later.

Using the information provided here and input from the both a veterinarian and nutritionist, a farmer should be able to devise a plan that will benefit their farm and work in their management system.

