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# BOVINE NEWSLETTER

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## How Much Is Subclinical Ketosis Costing Your Herd?

### *What is Ketosis?*

Ketosis refers to abnormally high levels of circulating ketone bodies in blood, typically in the first few days to weeks after calving. Ketones are a byproduct of catabolism and high levels occur when the cow experiences a severe or prolonged negative energy balance. Clinical signs of ketosis include sweet smelling breath, lack of appetite, depression, weight loss, decreased milk production, and in severe cases may include neurologic signs such as excessive licking or incoordination. Clinical ketosis can lead to or worsen already present conditions such as metritis or mastitis as it impairs immune function. Incidence varies herd to herd, but on average ranges from 2-15%. Cows who have experienced clinical ketosis during the fresh period also have decreased first service conception of 5-10% - if they are not culled or marked DNB before that!

Subclinical ketosis occurs when cows have elevated ketone levels in the **absence** of clinical signs. It is estimated that **40% of fresh cows** suffer from subclinical ketosis, with high producing cows being the most at risk. Since these animals are asymptomatic, treatment is generally delayed or not given at all. Subclinical ketosis is associated with hypocalcemia, impaired reproduction, impaired immune function, displaced abomasum, metritis, mastitis and may progress to clinical ketosis.

Both clinical and subclinical ketosis are a significant cause of economic loss for dairy producers. However, **subclinical losses are far greater** than clinical as more animals are affected and they are rarely treated. The effects on immune status and reproduction can impair animals for their entire lactation, and can lead to an increased culling risk or even death.

### *How is Subclinical Ketosis Detected?*

Ketones can be detected either in blood, milk or urine. The most accurate testing we have is to measure beta-hydroxybutyrate (BHBA, a ketone body) in blood with a hand-held meter. Only a very small amount of blood is needed, and results are reported in numbers, so interpretation is easy. Milk testing is also available which is not quite as sensitive as blood, but still an excellent screening test. Milk is squirted onto a test strip and a colour change is noted and compared to the



bottle to determine the range of ketones present in the sample. Cost is similar between the two tests, at approximately \$2-3 per test.

Healthy fresh cows should be tested for subclinical ketosis twice during the first two weeks post-calving when they are at least two days fresh. An easy way to do this is to check all cows 2-16 DIM every Monday (or other day of your choosing).

### ***What is the Best Treatment?***

For mild subclinical ketosis, animals should be drenched with 300mL of 100% Propylene Glycol once daily for four days. Be sure to check the % of your Glycol - some sources may only be 66% and therefore more (500 mL per treatment) is needed. More severe subclinical cases benefit from the addition of B12, given as either pure B12 or a B complex injection once a day for four days. Extremely severe cases may require IV dextrose and an insulin injection as well. Please consult your veterinarian to ensure your ketosis treatment protocol is appropriate and is documented on your farm for CQM compliance.

### ***How Can We Prevent Ketosis?***

Prevention of ketosis requires a multi-pronged approach, and must be constantly monitored and potentially adjusted as feed ingredients, environments and other factors change. Important things to consider include monitoring body condition score (BCS) at late lactation\dry off and freshening, optimizing diet and intakes during the transition period, ensuring transition cows have adequate ventilation, bunk space and clean, dry stalls, as well as close monitoring of fresh cows. Running NEFAs (a blood test) in your close-up cows may also be a beneficial monitoring tool. Team discussions with your herd health veterinarian and nutritionist to establish your challenge areas and develop protocols appropriate to your farm will go a long way to nipping problems in the bud. Outbreaks of ketosis are frustrating and costly - a little investment in time, monitoring and management will pay off when your fresh cows are all rolling along!

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