KETOSIS IN ORGANIC CATTLE

Guidance

Ketosis is a metabolic disorder in which a cow will break down body fat when feed consumption is not enough to meet high energy demands. This condition can result in reduced milk yield and increased risk for other health disorders.

Ketosis occurs in cattle when energy demands (i.e. high milk production) exceed energy availability and result in a negative energy balance and low blood glucose levels. Cows with ketosis are suffering from low blood sugar at the cellular level. This can be caused by either a carbohydrate deficiency or inadequate carbohydrate metabolism. When energy demands are high, the cow will utilize body fat as an energy source to support production. When the breakdown of body fat exceeds the rate at which the liver can metabolize it, ketones are formed and become present in the bloodstream.

In a beef cow, this is most likely to occur in late pregnancy when the cow's appetite is at its lowest and the energy requirement of the growing calf near its peak. In a dairy cow, the mismatch between input and output usually occurs in the first few weeks of lactation, because the cow is not able to eat enough to match the energy lost in the milk. Cows are also at risk of developing ketosis if they have either gained or lost body condition during the dry period, were lame at any point in the dry period or transition period, calved with twins, have a retained placenta, or freshened in with milk fever. The majority of ketosis cases occur between 5 and 30 days after freshening.

NOP REGULATIONS AND PCO POLICY

The National Organic Program (NOP) regulations require that livestock producers establish and maintain preventive livestock health care practices. When preventive practices and veterinary biologics are inadequate to prevent a sickness, such as ketosis, a producer may administer synthetic medications, provided that such medications are allowed according to the NOP regulations. If allowed medications fail, you must not withhold a medical treatment from a sick animal in an effort to preserve its organic status. All appropriate medications must be used to restore an animal to health when methods acceptable to organic production fail. Livestock treated with a prohibited substance must be clearly identified and shall not be sold, labeled, or represented as organically produced. *§205.238*

ADDITIONAL INFORMATION

SYMPTOMS OF KETOSIS

Ketosis can be characterized by:

- Reduced milk yield. In many cases, this is the only symptom. These cases often go undiagnosed, resulting in milk production suppression, poor reproduction, and ultimately, losses in profits.
- Reduced appetite and weight loss
- Dull coat Fever
- Some develop nervous signs including excess salivation, licking, aggression etc.
- Acetone (pear drop) smell of breath or milk. Do not rely solely on this method to detect ketosis. By the time ketosis can be smelled on a cow’s breath, she is severely ketotic.

Test strips are commonly used to test for ketosis using milk or urine. Meters can also be used to test blood. Tests can likely be purchased at your local farm store or through your local vet.

BEST MANAGEMENT PRACTICES

The best practice to manage ketosis is to prevent it from occurring, rather than treating cases as they appear. Prevention is largely dependent on adequate feeding and proper management practices. The quality of dry cow rations is very important in the prevention of ketosis. In some cases, supplementary feed with adequate amounts of carbohydrate is essential, especially for dairy cows at calving. The nutrition of cows up to calving should be increasing with the goal to calve in good condition. Avoid obesity or body condition scores greater than 4 (1 to 5 scale) in dry cows and springing heifers. Ensure that cows are not overcrowded, make sure that they have appropriate feed volume, and prevent empty bunk syndrome.

After calving, the cow has the potential to reach maximum efficiency in milk production, but feed requirements for high production are often greater than the voluntary intake of pasture can provide. Therefore, an energy supplement is required to prevent the onset of ketosis. The best supplements are good quality hay, silage, or cereal grains. Supplements should be fed at least until the peak of lactation is reached or longer depending on the quality and quantity of available pasture.

TREATMENT PRACTICES

The primary goal of treating ketosis is to restore a lack of glucose in the body and balance energy intake to meet demand. As a first step, an intravenous dextrose solution may be administered by a veterinarian to initially restore glucose levels. However, continued treatment/supplementation will be required to prevent relapse in the long term. Forms of glucose such as sugar, molasses, and dextrose would be allowed for an organic cow as a medical treatment.

APPROVED INPUTS

All inputs must be reviewed and approved by PCO prior to use, so be sure to check with us or consult a current PCO Approved Materials List, OMRI, or WSDA list prior to purchasing or using a product. PCO does not endorse any of the products listed in this guidance document. This is not an all-inclusive list and other inputs may be allowed. Please contact PCO if you have any questions on materials or restrictions.

- **Ketonic** by Agri-Dynamics Consulting
- **Super Boost Cow Capsules** by Crystal Creek
- **Propylene Glycol** is now allowed as a ketosis treatment for ruminants only.

PCO is not endorsing the efficacy of any of the approved treatments, and producers should work with a trained professional to treat any distressed animals.

RESOURCES

- http://artcles.extension.org/pages/70310/minimizing-the-risk-for-ketosis-in-dairy-herds
- http://www.thecattlesite.com/diseaseinfo/194/acetonaemia-ketosis/
- http://crystalcreeknatural.com/wp-content/uploads/2014/07/04The-Who-What-When-Where-Why-And-How-Of-Ketosis-In-Dairy-Cows.pdf