



Ketosis (Acetonaemia)

What is Ketosis?

Ketosis is a metabolic disease that can affect cows in very early lactation.

It occurs as a result of failing to properly metabolise carbohydrates and volatile fatty acids.

The problem can be pinpointed to the negative energy balance created shortly after calving by the cow's inability to eat enough to match the loss of energy through high milk production. This lack of natural source of glucose and glycogen can sometimes force the cow to mobilise her body reserves too quickly causing liver gluconeogenesis. This occurs when the level of ketone bodies formed rises to a higher level than is usually tolerated. High levels of ketone bodies are toxic as they are generated in the liver. The liver also generates lipoproteins that move fat around the body so if it is overwhelmed with ketones, liver cells can be damaged, killed or filled up with fat, which will prevent the cells functioning properly.

The negative energy balance most early lactation cows are in means they are all suffering a level of ketosis albeit very often subclinically. An increase in dietary protein at this point can make the situation worse by adding to the demand on energy reserves for metabolism.

An increase in clinical cases is seen over the winter months.

Ketosis can also occur as a complication in other deficiency diseases and where a loss of appetite has occurred.

Diagnosis

A number of signs can add up to the diagnosis of clinical ketosis.

A gradual decline in milk yield sometimes followed by a sudden drop is evident, along with a decrease in appetite and often, a refusal of concentrates. Weight loss can be quite dramatic during this time.

Faeces become stiff and dry and the cow's coat can become dull and stary although temperature, pulse rate and respiratory rate will usually remain normal.

In many instances, a smell of acetone ('pear drops') can be observed on the breath or from the milk or urine.

Sometimes, a nervous form of the disease may be seen with incoordination, licking and salivating, aggression and making noise.

Certainty that the ketosis is not a secondary condition, for example, as a result of a displaced abomasum, is essential.

Treatment

Measures of prevention are the best option as one clinical case can indicate the possibility of many more subclinical cases. This would include drying cows off at a condition score of 3 to 3.5 and introducing the milking ration a couple of weeks before calving as fat cows have no appetite and therefore mobilise more body fat. These are the animals most at risk of ketosis. It is estimated that as much milk, therefore profit, is lost through subclinical as clinical incidence of disease.

Intravenous glucose will produce a rapid response in all circumstances but will need repeating. Oral sources of glucose are an acceptable form of treatment for most cases but animals showing nervous signs are best treated intravenously.

Corticosteroids can be very useful in maintaining the response.