

# *Ketosis in Cattle (also called Acetonaemia)*

Glucose is the most essential energy source in the body. Energy drives every system in the body, and low energy will slow the ability to grow, reproduce, produce milk and allow progeny to grow.

The demand for glucose and its precursors outstrips the ability to deliver whenever the feed quantity and quality is poor. This imbalance will occur in all stock during droughts and in all seasons in cows during and following calving.

## **How?**

The energy demands of the cow outstrip the energy supply of the feed and the cow looks for other energy sources. Fat reserves are then utilised as a glucose source, but without a concurrent balanced energy supply from the diet, this process is inefficient and leads to a dramatic build-up of ketone bodies and other by-products in the bloodstream.

High levels of these products cause brain damage and disturbance of the nervous system which themselves are dependent on glucose. Excessive amounts of ketones in the bloodstream will lead to death.

## **Why? (Disease development and primary/tertiary effects)**

Primary cases may be limited to cows in poor condition soon after calving and in early lactation and are due to poor feed supply. Losses do occur at a tertiary or hidden level and result in poor fertility, increased susceptibility to disease, lower milk production and poor growth rates in progeny.

Stress events and management events during this period such as yarding and transport limits available grazing time and thus availability of energy derived from feed. In addition, elevated stress levels divert existing energy reserves away from milk production.

Failure to meet energy demands means drastically reduced supply available for milk production and because milk is the major energy supply for the calf, poor growth rates in the calf follow.

Energy is required to drive the reproductive hormones and viability of developing ovarian tissues including a healthy egg. Depleted energy levels following calving, leads to delays in hormonal processes and thus a delay in return to oestrus as well as an increased number of non-viable eggs.

Controlling energy intake, particularly during high risk periods can minimise primary and tertiary losses. This can be achieved by an increased understanding of the contributing factors as well as a diagnostic assessment of feed resources prior to these risk periods. Control and understanding can dramatically increase production traits like conception rates, milk production and calf growth and lead to massive increases in farm profitability.

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## **Signs of ketosis**

There is a decrease in appetite and milk production. Weight loss occurs and faeces are firmer than normal and the cow is depressed. Recovery is very gradual. In some cases nervous signs are seen when the cow will lick excessively, chew or grind their teeth. They may wander aimlessly and appear blind and become recumbent.

## **Treatments**

Repeated drenches of propylene glycol and glycerine are needed with a supply of good feed. Veterinary intervention may be needed.

## **HOW TO MANAGE OR PREVENT THE PROCESS**

1. Avoid having cows too fat before calving
2. Feeding transition rations (**ELMS Pre-Calving and Pre-Lambing Supplement Pellet**) that reduce the risk of milk fever, dystocia and retained foetal membranes
3. Add cereal grains as they produce propionate (the glucose precursor) more readily than grains such as lupins which contain less starch. Rates of feeding will depend on pasture and cow conditions – contact your local **ELMS Manager** to discuss the most appropriate amounts of supplement for your situation.
4. Introduce grain gradually over 7 days – increase volumes by 10-20% per day until at full rate by 7 days
5. Use **ELMS Intensive Cattle Pellets** - these have been specifically designed to prevent tertiary and primary effects of ketosis. They are also designed to prevent other complications like grain poisoning with outstanding buffering properties. For further information see you local **ELMS Manager**.
6. Ensure vaccinations are up to date and that parasite control is adequate.

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