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## Feeding the Rumen Microbes

In most supplementation programs the aim is to feed the rumen microbes. The reason we do this is that when the rumen is functioning at the optimum level then fibre digestion is increased. This allows the beast to access the energy and nutrients that are locked up in the grass. A paddock of dry standing grass can hold as much energy as a tonne and a half of sorghum grain in every acre. The rumen microbes need the same nutrients that the beast requires, to maximize their growth and production. They in turn pass through to the abomasum where they are digested by the beast and provide the nutrients that it needs.

The major limiting nutrient in dry grass is usually nitrogen or protein. We need to feed a form of nitrogen that is available to the rumen microbes. Non protein Nitrogen sources such as urea and Cattle King Liquid Nitrogen provide ammonia, which the rumen microbes can utilise to form protein. Rumen degradable protein is natural protein that is broken down in the rumen to be used by the microbes as opposed to bypass protein that cannot be used by the microbes and passes through to the abomasum to be digested. This bypass protein is more important in high production feeding systems and is of limited importance in dry season feeding.

The microbes in the rumen need a constant supply of ammonia to produce protein and to maximize fibre (dry grass) digestion. Urea releases ammonia quite quickly while the ammonia from Cattle King Liquid Nitrogen and from rumen degradable protein releases over time, allowing it to be used far more efficiently than the ammonia from urea. Excess ammonia is absorbed and converted back to urea in the liver. This process costs the beast a large amount of energy. Some of this urea is recycled back through the saliva but much of it is excreted through the urine.

Frequency of supplement intake is also important when using urea based supplements as the more often that a beast takes in supplement the more time that it has elevated ammonia content in the rumen. Blocks and dry licks have been shown to have very uneven intakes with some cattle not eating them for days. Liquid feeds such as Quicklick tend to be eaten at least daily and so give a longer period of enhanced fibre digestion. Water dosing also gives at least daily intake and ensures that all animals receive supplement.

An easy way to judge the efficiency of fibre digestion is to look at the dung. A pat that is dry and stacked up is being held together by undigested fibre. A loose, but not liquid dung is ideal. Improved fibre digestion has an added benefit in that cattle generally eat to gut fill. As the digestion of fibre is increased it passes on from the rumen faster and allows room for more intake. Increases in forage intake of up to 64% have been recorded in recent research on feeding urea.

A source of ammonia for the rumen microbes allow the beast to access the energy locked up in dry feed. More frequent intake of the supplement and slower release of the ammonia help the microbes use it more efficiently and increase fibre digestion. If you have any queries about feeding nitrogen please feel free to give me a call.

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