



RUMINATION MONITORING

Ruminants are well known for 'chewing their cud'. This action is not just a sign of a happy cow but a critical function in maintaining a healthy rumination.

The rumen is effectively a large fermentation pot with an immense population of bacteria. It requires a stable pH level to ensure optimum intake of feed to meet the requirements for energy and protein while reducing the risk of metabolic diseases.

Key to maintaining this balance is the function of rumination, a process where the cow regurgitates its feed to mechanically break it down for fermentation. This chewing produces large amounts of saliva, 100 to 200 litres per day, which is rich in bicarbonate that buffers the rumen to keep it healthy. In order for cows to achieve their genetic potential for milk production this pH balance must be maintained.

The *HR tag* monitors the rumination time of the cow in 2-hour time slots and downloads the data to the *PC* at milking time (see [7.2.2](#)). Ruminant data is used in four different ways; events, nutritional balance, production efficiency and roughage levels.



EVENTS

Rumination information provides a new dimension when monitoring cow events. Rumination time can be used to diagnose a cow for mastitis, it is also used to ensure that the treatment is effective. Once the antibiotic is administered, the rumination starts to return to normal, failure to do so could mean that the antibiotic is not effective. Furthermore, rumination is effected during many other events like heat and calving for example.

NUTRITIONAL BALANCE

Whether your farming system is purely Pasture Based (PB), Partial Mixed Ration (PMR) or Total Mixed Ration (TMR), rumination time is a key component in each system. Stable rumination levels in your animals suggests a balanced diet, with effective fibre levels leading to healthy rumen function. With the *HR tag* you can monitor the effect of changes in your cows diet whether this is intentional or accidental. Within each farming system special challenges exist.



PB

Managing *Pasture Based* systems is difficult due to the seasonal changes in feed quality. However you can monitor your pasture management techniques, stage of growth and grass types and how they effect your rumination function.

PMR

With *Partial Mixed Ration* systems you can supplement the diet to compensate for the quantity and quality of pasture and nutrient composition. With rumination monitoring you can validate that the supplements being fed are having the desired outcome and when next to alter the feed mix to further compensate the diet.

TMR

Total Mixed Ration systems are more controlled than other farming systems and therefore the rumen environment is generally more stable. However, economics often decide the types of rations that are fed or are available throughout the year. Nutritional balance is often a complex picture with *TMR* systems, the *HR collar* allows you to monitor the response to feed composition and how it is mixed and delivered.

PRODUCTION EFFICIENCY

The production response by your cows changing diet is an important one. Rumination monitoring offers more possibilities to explore why some cows are better converters of feed to milk, have less milk deviations, better health and are more profitable.

EFFECTS OF NUTRITIONAL IMBALANCE AND DEFICIENCY

- Rapid nutrient degradation in the rumen
- Quick nutrient passage and 'loose' manure
- Reduction in milk yield
- Large variation in yields from day to day
- Suppressed milk fat percentage
- Low body condition score
- Increased risk of metabolic disease such as acidosis, ketosis etc
- Plus many more...