

EARLY RUMEN DEVELOPMENT pays off

Development of the rumen occurs during the first four to eight weeks of a calves life. It is primarily driven by the consumption of dry feed, provided the feed is easily digested by rumen microflora. This allows the components essential for rumen development to be present from an early age.

THERE IS A VERY SMALL WINDOW OF OPPORTUNITY TO develop the rumen, so it's important that the best feeds are provided immediately after the colostrum period, i.e. from five days of age. This ensures rumen development occurs to its greatest potential, and provides a solid foundation for greater feed conversion efficiency and milk production later in life.

There are four requirements for ruminal development:

1. Establishment of micro bacteria population in the rumen
2. Liquid in the rumen
3. Outflow of material from the rumen (muscular action)
4. Absorptive ability of the tissue.

This article focuses on maximising development of the absorptive surface of the rumen.

Absorptive ability of the rumen tissue

The rumen wall consists of epithelial and muscular layers. Each layer has its own function and develops as a result of different stimuli. The muscle layer moves ruminal contents in the rumen.

The epithelial layer is the absorptive layer of tissue inside the rumen which is in contact with rumen contents. This tissue contains many small finger-like projections called papillae. The size and volume of these papillae determine the amount of absorptive surface in the rumen.

At birth, the papillae are small and non-functional. Volatile fatty acids (VFA's) are the essential 'ingredients' required to grow the papillae of the rumen. Starch is one of the primary contributors of VFA's in the diet. However, amylase – an enzyme produced by the pancreas – is required to break the starch down into a form that the rumen bacteria can ferment to release the VFA's for absorption by the rumen.

Normally, the calf does not produce amylase until the third week of life, so is unable to digest starch in the form it is presented in

conventional meals, thus limiting the time for papillae development.

The starch in RumenX has been processed into a form that is easily fermented by the rumen bacteria, so papillae development begins from a much earlier age. This allows a longer period for the papillae to develop, resulting in an overall increase in the number, width and length of papillae that develop. As a result, a much greater absorptive surface area will be present in the rumen allowing greater absorption of nutrients.

In order to obtain the maximum benefit from RumenX, a low volume milk programme must be followed. This encourages the calf to eat a greater amount of RumenX, resulting in a higher level of VFA's. As RumenX is a completely balanced feed with 93% digestibility, the calf is not compromised by the lower level of milk. With the fibre content of RumenX, and evidence that the scratch factor does not contribute to ruminal development, no other fibre (i.e. hay/straw) is required in the diet until week four.

The superior rumen development with RumenX means that calves are taking in 1kg of DM at the end of week four and can be weaned off milk completely. This development also means that the rumen is ready at the beginning of week six to go on to pasture, resulting in good average daily weight gains with no weaning check!

Because RumenX provides fermentable carbohydrates that are easily digested to provide VFA's, it's a good choice to ensure maximum rumen development leading to a sound foundation for improved milk production in the future.

To learn more about the benefits of using RumenX to maximise rumen development this season, talk to your local RD1 store or your RD1 Technical Sales Representative.

Article supplied by Dr Claire Nicholson, Marketing and Business Development Manager, Agri-feeds Ltd