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How the rumen works

This chapter:

Explains the role of the rumen, which allows breakdown and digestion of the forages consumed by cows.

The main points in this chapter:

- cows rely on rumen microbes to convert feed components into useable sources of energy and protein
- speed of digestion depends on the size of feed particles, digestibility of feed and level of intake
- growth and multiplication of microbes depends on rumen pH and the supply of energy and protein
- rumen microbes ferment carbohydrates to make Volatile Fatty Acids (VFA) and gases
- Volatile Fatty Acids are the major source of energy for the cow and the amount of each Volatile Fatty Acid produced depends on the diet
- microbes break down rumen degradable protein and non-protein nitrogen into amino acids and ammonia to build more microbial protein
- microbes are flushed out of the rumen and digested and absorbed in the abomasum and small intestine – this 'microbial protein' supplies most of the cow's protein
- dietary protein not broken down in the rumen can also be digested and absorbed in the abomasum and small intestine
- most fats are digested in the small intestine.

Unlike monogastrics, cattle have rumens, which allows them to make use of feeds that would otherwise be wasted if consumed, through the microorganisms (or microbes) living in the rumen. Therefore, the approach to feeding dairy cows is 'look after these microbes and they will look after the cow'.