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Changing how they eat influencing digestive physiology and metabolism by diet in livestock

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How is that two identical animals can eat the same diet yet have different production outcomes? Much of the answer lies in the animal's digestive physiology – its ability and mechanisms to digest, absorb and metabolise the diet consumed. Digestion, absorption and the motility of the gastrointestinal tract (GIT) are all controlled by intrinsic and extrinsic mechanisms designed to obtain the maximum nutritional benefit from the diet consumed. Some of these neurocrine and endocrine mechanisms are regulated from secondary tissues like the liver, pancrease and hypothalamus. Many more though are locally controlled through autocrine and paracrine secretions, focusing directly on the functioning of the GIT. It has long been known that dietary regulation and supplementation is capable of manipulating the regulation of the digestive physiology in livestock. The addition and extraction of key components of an animal's diet can have a profound effect on its ability to digest and absorb nutrients, impacting greatly on the animal's production performance. The purpose of this review is to investigate the neurocrine and endocrine regulators of digestive physiology and how they can be influenced by dietary manipulation to provide a greater production outcome.

Biography

Mark completed his PhD at the University of New England in ruminant physiology and nutrition investigating the impact of digestive physiology on methane production and nutrient utilisation in sheep. He then undertook a senior research fellowship assessing the effectiveness of a novel biological compound, designed to regulate key gut kinetic regulators, in mitigating methane production and improving nutrient uptake from ruminants. Mark has since developed a new technique for determining faecal concentrations of non-absorbable digesta kinetic and digestibility markers in sheep and cattle. Currently he is the Lecturer of Animal Nutrition at Charles Sturt University, Wagga Wagga.

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