Gastro-Intestinal physiology

Normal gastro-intestinal function - its physiology, biochemistry and microbial interactions – is irrevocably linked with diet. It depends, in the horse, on grazing.

The horse is a diurnal animal; it feeds mainly during daylight hours, less so during dark. Gastro-intestinal secretions mirror this imperative.

The horse's stomach continuously secretes hydrochloric acid in the glandular, fundic region. This area also secretes a mucoid substance, from goblet cells, that coats the stomach wall, providing a physical barrier. The acid is part of the normal process of converting food into absorbable nutrients that can cross the gut barrier in the small and large intestines.

The feed in the stomach buffers the hydrochloric acid from pH 1 to an ideal level of pH 4; when the stomach contents are transferred to the small intestine this level of acidity is optimum to help exogenous enzyme release.

Fresh forage is the ideal source to maintain this level. Grass also has relatively useful levels of soluble fibre, including pectin; research has shown that this is released by gastric acid (optimally at pH 4) and can reinforce the mucin layer in the stomach. Likewise, it has been shown to be involved in the production of mucus lining the intestinal lumen by increasing baseline secretion. Also, the fermentation of soluble fibre by hind gut bacteria (slow release energy), increases baseline secretion.

The acid binding capacity of various feedstuffs, its ability to buffer acidity and so maintain normal gastric environment, varies. Alfalfa, for example has high values and is recommended under BETA Feed Approval Scheme for products suitable for horses prone to Equine Gastric Ulcer Syndrome as a potential gastric buffer. Independent research has shown that alfalfa can obviate the poor acid binding capacity of cereals, can maintain its buffering capacity over several hours and so can support the integrity of the gastric environment when continuous feeding is not possible.

Discreet meals may not support the natural environment of the stomach unless they are of a high buffering, high soluble fibre nature. Long lasting acid binding and mucus lining reinforcement are natural benefits for a grazing animal.

It is these components that have been included into Fibre-Beet.