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MORE ON DIGESTIVE HEALTH

In our previous newsletter the importance of digestive health was discussed and how this not only impacts dramatically on the health of horses but also on the cost of keeping them (view this newsletter on www.equusfeeds.co.za - click on *February 2010 newsletter*).

Horses have developed a symbiotic relationship with hundreds of different species of micro-organisms to help break down components of the feed thereby making the food available to both the "bug" and the host animal. A typical horse's digestive system harbors more than 500 distinct species of microorganisms. They are, however, extremely sensitive to changes in pH and any abrupt change in diet will cause a population shift which can lead to disaster.

Generally, the types of bacteria proliferating on very high grain diets cause a lower than normal pH in the gut which can potentially lead to all sorts of secondary problems, while research and practical experience show that the healthiest horses are those treated as horses should be treated – that is, fed quality fibre on a continual basis and fed correctly formulated concentrates which do not rely heavily on energy from grains.

In our Next Issue

Some tips on buying hay for the fast approaching Winter

How does this relationship with microorganisms impact on the modern horse?

In most cases, the modern horse cannot graze all day, and often the expected workload requires more nutrients than what is actually available from the roughage alone, and this, of course, is where the problems all start. The daily energy requirements for hardworking horses are about double the requirements for a horse that is not in work. There is thus clearly a direct conflict between how the horse has evolved on the one hand, and modern ways of keeping horses coupled with what is demanded from them.

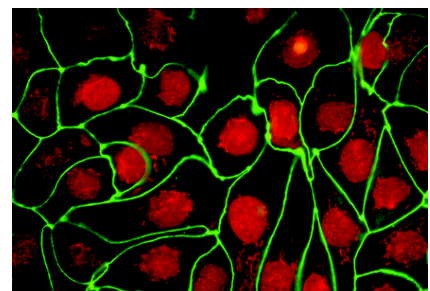
Nonworking adult horses can be maintained on high quality forages without grain supplementation. However, the horse's requirement for energy increases 25%, 50% and 100% as its work level increases from light, to moderate, to heavy.

Why does this often result in Colic and Laminitis?

Colic

In the mature horse, the exit and entrance to the cecum are separated by only about 5 cm. This creates a certain amount of difficulty due to the two-way movement of feed in this region.

Different micro-organisms (Lactobacillus and Clostridia species) in the equine digestive tract



As a result, the cecum can be a site of colic, which may develop when a horse is shifted from a poor quality ration to one which is rapidly digested.

Bacteria which are best at digesting high fibre type diets will be replaced with a population of bacteria which are more suited to convert high quality and easily digested fibre to soluble products. As easily digested hay enters the cecum, microbial populations flourish and there is an increase in fermentation rate. The coarse roughage will cause a relative occlusion at the exit of the cecum and will result in gas accumulation and the pain associated with colic. This is the principle behind the recommendation that "a horse should be shifted from one type of feed to another over a period of one to two weeks."

Badly formulated high grain rations would certainly cause undesirable population shifts and very low quality roughages could further predispose the horse to impactions.

Laminitis

The cause of a large percentage of equine laminitis is poor digestion. While various factors can predispose horses to this condition, the most common cause appears to be a carbohydrate overload in the small intestine. Carbohydrates escaping digestion in the foregut move on to the hindgut where a proliferation of lactic acid bacteria and an increase in acidity resulting from fermentation in the cecum occur. This increased acidity kills the beneficial fibre fermenting bacteria and causes irritation of the gut lining where endotoxins are absorbed into the bloodstream, resulting in impaired circulation, especially in the hooves.

Pitfalls and Recommendations.

- Do not overfeed grain! Excess grain not digested in the small intestine passes into the large intestine and ferments extremely well. The excess fermentation causes changes in the pH as well as excess gas which dramatically increases the potential for colic or laminitis. Choose a concentrate specifically formulated with lower grain content and which obtains the required energy levels from super fibres and oils (see www.equusfeeds.co.za and click on *Ingredients*).
- Make sure clean, fresh water is available at all times at the right temperature.
- Dirty water or water that is too cold in the winter or too hot in the summer will inhibit consumption. The large intestine also serves as a large reservoir providing a reserve of electrolytes and excess water essential for cooling the body to sustain exercise. A lack of water will reduce the water required in the reservoir and will inhibit fermentation and material flow.
- Fibre quality and quantity are primary in any horse's diet. Poor hay quality will cause loss of weight and hay bellies. Lack of quantity will cause an imbalance between grain and fibre and thus increase the potential of colic or laminitis. Another good rule of thumb is to make sure that the fibre portion of the diet is always a minimum of 50% of the total diet or a minimum of 1% of body weight.
- Reduce rapid fibre changes. Everyone knows not to change the type of concentrate overnight, but the same rule should also be followed with fibre. Ease into a new cutting or delivery of hay and gradually introduce the horse to new spring or different pastures.
- Allow adequate turnout time where possible. The same research that has proven that rapid fibre changes are a leading cause of colic, also indicates that lack of proper turnout is also a leading cause

Some early warning signs.

Some indications that the hindgut is not functioning very well and that alternative feeding options need to be considered for improved digestive health are:

- Hay belly – indicates that poor quality forage is being provided. The large intestine will retain poor quality forages longer while trying to get as much nutrition as possible. This will stretch the large intestine causing the hay belly appearance. Good quality forage will shrink the hindgut back to normal size.
- Cow flops rather than road apples. Manure that more resembles cow manure often indicates that the fermentation in the large intestine is not functioning optimally. This often occurs with rapid fibre changes, excess grain, or just poor intestinal health often associated with age. Do not overlook the potential for diseases or illnesses requiring the attention of a vet.
- Poor hair coat or hoof condition. Typically, these would accompany one or both of the problems listed above.

Research and practical experience has taught us that the healthiest horses are those fed on quality fibre on a continual basis. However, outside influences such as pasture availability, energy and work requirements, owner life styles etc. have an influence on the digestive system of the horse that is not always positive.

However, even with the more demanding and “unnatural” lifestyle which horses often have to endure, there is no reason for them to suffer from poor digestive health. Improved high fibre feeds are on the forefront of equine nutrition and are readily available – ensure, however, that you are aware of what constitutes the feed you buy or, if uncertain, discuss your horse’s diet with an equine nutritionist.

Read more about the importance of fibre on digestive health by visiting www.equusfeeds.co.za and clicking on *Articles of Interest*.

Feeding advice is freely available from Equus: call Hannah Roussel on 073 423 5491 or send your enquiry to info.equus@driehoek.co.za



HORSE FLIES HAVE COLOUR PREFERENCES!

Whiteness in horses an unexpected advantage!

Horse flies are from the family Tabanidae and the name refers to their attraction to horses and other large animals, including people. They rarely transmit diseases to humans, but it is possible to become infected from their bite. They usually attack livestock and this is a greater health concern. Amongst the serious diseases that a horse fly can transmit is the *Anthrax* virus.

The male horse fly stays among plants and feeds on nectar and pollen, but the female searches for a meal of blood. Flying fast, she can hit hard and the bite from a larger specimen is extremely painful. Unlike insects which surreptitiously puncture the skin with needle-like organs, horse flies have serrated mandibles which they use to rip and/or slice flesh apart. This causes the blood to seep out as the horsefly licks it up. They may even carve a chunk completely out of the victim, to be digested at leisure.

A group of researchers from Hungary, Spain, and Sweden have found that in the world of these blood-sucking horse flies, a white horse is not nearly as attractive as a brown or black horse. This interesting horse fly tidbit is likely to be welcomed by white horses and their owners, given that being white has its disadvantages: white horses are more sensitive to solar radiation, leading to skin cancer and deficiency of the visual system, and they are easily detected by predators.

Based on field experiments and a small number of choice experiments, the researchers found that white horses were less attractive to blood-sucking tabanid flies (including horseflies and deerflies) partly because of the polarization of light.

That is, horses with light coats reflect light with lower degrees of polarization than dark horses. As the authors explained, light colored horses have more backscattered light from the hair and skin tissues than dark horses, which ultimately reduces light polarization.

This research is important because blood-sucking tabanid flies are able to spread diseases such as equine infectious anemia (EIA).

