Whilst we know that horses have evolved to survive on forage alone, we have traditionally found that it is generally not sufficient to maintain, particularly in performance horses, a consistent, acceptable condition and to meet the increased demands their riders place upon them. However, the advent and more widespread use of modern preserved forages has sparked debate as to whether this now holds true and whether more nutritious fibre products could indeed be all that today’s horses need.

What does forage provide?

So what is it that forages provide nutritionally and, perhaps more importantly, is there anything they may be lacking that needs to be provided from another source? The obvious nutritional element of any form of forage is fibre, which helps meet two of the horse’s most basic needs; energy (calories) and physical bulk, without which the digestive system could not function. The development of so called “super fibres”, like soya hulls or sugar beet pulp which are highly digestible, has also seen an increased use of fibre as a slow release energy source in compound feeds.

Fibre – energy and bulk

Fibre is broken down by a population of bacteria, predominantly in the horse’s hind gut and caecum, and the energy derived in this way is released slowly so tends not to cause “fizziness” or excitatable behaviour. Energy is needed to fuel all body functions, from temperature maintenance to muscle movement, and horses will vary in how efficiently they use energy with any excess generally laid down as fat! One “spin off”, from the fermentation of fibre by bacteria in the hind gut, is the generation of heat, which helps to warm the horse from the inside out, so horses whose forage is limited tend to require warmer rugs to help them maintain condition.

Another great benefit, particularly to stabled horses, is the length of time it takes to eat both long (hay, haylage) and short chopped forages (oat straw and alfalfa chaffs) thus satisfying their physiological need to chew and helping to mirror natural grazing behaviour. This can help to reduce stereotypical behaviours such as cribbing as well as the incidence of gastric ulcers and other stress related conditions. A fibre-based diet will also encourage better utilisation of any compound feed as the gut is helped to remain healthy.

Protein

Another nutritional component essential to all horses, and contained to varying extents in different forages, is protein. This provides the building blocks for all body tissues so is in particular demand in the bodies of youngstock, broodmares and performance horses, as well as those recovering from injury. The quality of the protein in a horse’s diet is as important as the quantity, since some of its component amino acids cannot be manufactured by the horse’s body so have to be provided in the diet. Hay and haylage contain up to 6 – 8% protein, so are able to satisfy some, or all, of the horse’s daily requirement depending on his demands. Alfalfa, on the other hand, not only contains much more protein, at 12 – 15%, but the quality ie. the level of essential amino acids it provides, is also higher, making it much more suitable as a protein source for performance horses and breeding stock.

Vitamins and Minerals

Alfalfa is also a good natural source of some vitamins and certain minerals, including calcium, which is vital for the efficiency of certain body functions and an integral tissue component. What’s important here is its relationship with the mineral, phosphorus; an essential mineral in its own right but which, if present in the diet in excess, can reduce the availability of calcium to the horse. The diet therefore has to contain these two minerals in a particular ratio (in this case 1.8-2:1) to ensure that sufficient of each is available for the horse’s body to use. Many minerals have this sort of relationship and must again be present in certain proportions to be of use, so more of
For horses whose protein requirements are higher than average quality hay or haylage can supply, additional dietary protein source is necessary. As digestible, non-forage, or all of the forage with alfalfa, as this would be satisfying fibre needs whilst also providing the extra quality protein. However, since alfalfa does not contain a full spectrum of other essential nutrients, mainly vitamins and minerals, a supplement or balancer is recommended to address these shortfalls. Should a horse’s diet provide more protein than he requires, his liver will simply break it down and pass it on for excretion in the urine. Feeding large volumes of alfalfa (6 -10kg per day) could over supply protein which, whilst not necessarily causing health problems, will result in increased production of ammonia-rich urine; not ideal for the stable-kept performance horse!

What else can we feed?

Fibre from forages is essential to the functioning of the equine gut and, therefore, the survival of the horse, but is forage the best way to satisfy the fibrous needs a horse needs to stay healthy and perform to the levels we expect? We know it will provide slow release energy for work but a problem arises when the demand for energy exceeds the amount that can be digested by the horse: what is the horse’s appetite, which research has been shown to be 2 -2.5% of bodyweight, so a 500kg horse can be expected to eat 10 – 12.5kg per day. If 10 – 12.5kg of forage, however nutritious, cannot supply sufficient energy, or other nutrients for that matter, then part of it has to be replaced with a more concentrated source of energy and nutrients to keep the total feed quantity within the horse’s appetite capacity. This is where the use of non-forage feeds has proved its worth.

Cereals have traditionally been fed to meet the energy shortfall of an all forage diet. They are concentrated sources of calories in the form of carbohydrates, usually starch, which, unlike fibre, is digested by the horse in the small intestine, or for gut. As individual feed sources, none provides all the nutrients that a horse needs, which is why manufacturers have developed modern fully balanced “compound” feeds to be fed alongside forage. The starch content of these energy sources has increasingly been tarnished as its over or misuse is now implicated in the cause of metabolic and digestive disorders such as colic, laminitis and tying up. It is however present in some forages, particularly alfalfa, so is important to remember that is not necessarily an unnatural ingredient in a horse’s diet.

Safe Cereals

What varies among the types of grain fed to horses is the digestibility of the starch content, with oats being the most digestible, hence their enduring popularity. The starch in other cereals may be less easily digested in its raw state which is why feed manufacturers cook the grains to gelatinise the starch and make it more digestible to the horse. Micronisation has so far been found to be the most effective cooking method and renders up to 90% of the starch granules and therefore more digestible. These cooked cereals are much “safer” to feed to the horse than uncooked forage to fulfil his and the horse’s needs. For the horse whose energy needs are met by forage alone, supplementation with either a balancer, like Baileys No.14 Lo-cal or no.19 Performance balancers, will help ensure other nutrient requirements are met. Beyond this though, the best, and most cost effective, diet requires a combination of forage and a fully balanced compound feed.

Selecting energy sources

Choosing a compound feed, which has been developed and formulated to be as safe to feed as possible, minimises the risks associated with its feeding, even in larger quantities, providing each meal is kept small. There is now a wide selection of compound feeds available formulated to suit all workloads and temperaments so, by choosing the correct feed for the job and feeding it in the recommended quantity alongside forage, you can ensure that a horse’s additional energy and dietary needs are met. If the recommended quantity of a feed provides too many additional calories, it is best to choose a feed that is lower in energy content, or those with high energy demands. Indeed different types of energy are not necessarily the same and can be used to different types of work, with the slow release from oil and fibre being used at low intensity and quick release, from cereals, at higher intensities. It is worth remembering too that the main food for the brain is glucose which is obtained most easily from cereals. Eliminating all cereals from the diet of a performance horse could commit his ability to work to another kind of a long hard race, endurance ride or cross country course, with dangerous consequences.

All things in moderation

With new ideas and products appearing throughout our lives all the time, horse owners can be forgiven for some confusion over what is now the best approach to feeding, keeping and even riding their charges. Part of the challenge is the fact that horses, like us, are all individuals and what works with one horse may not necessarily work for the next. There is no doubt that whatever we feed, we have to work with the limitations and requirements not only of the horse’s physiology and instincts but also of where and how we can keep him and the size of our budget. The challenge is to choose a balanced approach that not only works for the horse but that also helps the rider achieve their goals of a happy, healthy horse able to meet their performance requirements.

For further information or a practical and individual diet for your horse, contact one of Baileys Nutrition team on 01371 850 247 (option 2) e: nutrition@baileyshorsefeeds.co.uk www.baileyshorsefeeds.co.uk