

Feeding For Success

By Dr Darren Arnold
Morphettville Equine Clinic

A division of Horsemedsa

Nutritional needs of the Thoroughbred and how to supply them.

The nutritional needs of horses in different life stages, workloads and environments vary tremendously. Supplying the correct balance of feed is paramount to success from breeding through to racing.

The basis of any equine diet is;

Forage (from pasture, chaff or hay), concentrates are then added to compensate for deficiencies in the forage. Given the opportunity a horse will graze forage for up to 20 hours a day however, despite the horse's excellent ability to ingest and digest forage not all forage is created equal and horses in work rarely graze for extensive periods. Great variations in protein, energy, vitamin and mineral content is present in forage depending upon variables such as the regional area of growth, rainfall, soil characteristics, type and maturity of plants, etc

Concentrates are supplied mainly in the form of grains to make up the extra protein, energy, vitamin and mineral content needed. Unfortunately most of the time the needs of the horse is often not met by the forage and concentrates alone and additional supplementation is needed to balance the diet.

Fat has been shown in studies to be advantageous when added to the horse's diet. Corn oil, dried fat or rice bran can all be used effectively in rations for exercising horses at a rate of up to 10% of the daily grain ration. Horses digest fat well, the addition has no detrimental effects on either health or exercise response and may help delay fatigue in intense exercising. The energy supply in a low starch form has been shown to reduce tying-up in some horses by increasing the availability of free fatty acids for metabolism in muscles.

Vitamins, minerals and amino acids are essential in any horse diet. The contents of a traditional ration fed to a horse in work of approx 5-8kg of grain and 6kg of good quality hay will be deficient in the horse's needs in 13 of the 14 vitamins, 7 trace elements and at least 3 amino acids. This has seen the advent of the "complete" feed however, studies have shown that many of these feeds lose their initial vitamin concentration levels over time and in some cases up to a 90% decrease of some of the label claimed vitamins within 6 months of packaging.

The Athletic Horse

Generally the harder or longer a horse works the more vitamins and minerals the horse is going to need.

B Group vitamins are used during the energy production cycle and will be consumed at a higher rate by the body when working concurrently; oxidative stress of work will call upon vitamin E and selenium to work as antioxidants to help restore muscle integrity.

The stress of intense exercise especially in young horses may increase the need for minerals important in bone integrity such as calcium, phosphorous, magnesium, copper and zinc. The proteins of the normal diet of the horse contain at least 21 different amino acids. Horses cannot manufacture 11 of these within their own metabolism and these are known as the essential amino acids. The remaining 10 can be adapted from other amino acids within the horse; these are the non essential amino acids.

Most amino acids are supplied in good quality feed however the 1st limiting amino acid that may fall short of supply in feed is Lysine and supplementation with this is required to ensure a good balance for cell protein production. Methionine + cystine are the 2nd limiting amino acid that supplementation of may be beneficial, it is also considered that it may also be advantageous to supplement the marginally supplied threonine and histidine (although cost may prohibit feed grade histidine being available).

The essential supply of these vitamins, minerals and amino acids should be constant and regulated for horses in work and specially scientifically formulated supplements such as TWYDIL RACING achieve this. They supply the 14 vitamins, 7 trace elements, 3 amino acids (lysine, methionine threonine) and magnesium in the right proportions of readily absorbed micronutrients needed by athletic horses in a daily 75g dose.

Calcium

Unless large amounts of Lucerne hay or chaff are fed, an additional calcium supplement should be considered in horses in race work receiving high grain or bran diets. This is due to the fact that high grain rations fed to performance horses contain an excess of phosphorous relative to calcium, so extra calcium should be supplemented also young growing horses, such as 2 year olds in their first preparation, require extra calcium for bone modelling and strength as their bones adapt to increased loading. Horses trained under hot climates or over long distances will require extra calcium to meet increased needs and replace losses from sweat, depletion due to stress and turnover in bones as they remodel and repair on a daily basis. Calcium supplements, such as Cal-Plus or should not be mixed into bran mashes, as bran contains a calcium-binding agent that will reduce the absorption of calcium into the blood. Calcium supplements such as TWYDIL Mineral Com-

plex are relatively cheap and are a great source of bioavailable calcium.

Electrolytes

Horses use sweat to dissipate heat and cool the body this is most profound during periods of stress such as work, in high temperature conditions or travelling. A horse trotting at 20km/h can lose about 15 L of sweat per hour under moderate conditions. The electrolytes sodium, potassium, chloride, magnesium and calcium are also lost with this loss of fluid. These electrolytes are responsible for the transfer of water through cell membranes, for nerves to fire and muscles to contract. Large losses of electrolytes can result in several neuromuscular and systemic disturbances including muscle cramping, tying up, synchronous diaphragmatic flutter (thumps) and systemic alkalosis. Horses do not "store" sodium, potassium or chloride. Prevention of electrolyte imbalances and dehydration in the performance/stressed horse through proper fluid and electrolyte replacement is essential for optimal performance. A good balance can greatly prolong reaching the point of fatigue and also decrease recovery time. Electrolyte availability can become a problem when the rate of loss exceeds the rate of replacement. If the horse sweats for a prolonged period of time, due to extreme weather conditions (high humidity, high heat), prolonged exercise (endurance type work), heavily worked/trained horses (race horses in training) or stressed horses (transporting), electrolyte needs will not always be met through their feed. For these horses, electrolyte supplementation becomes necessary to maintain body functions at an optimum level and to increase water intake preventing dehydration. When feeding an electrolyte formula it is important that it is palatable as unpalatable electrolytes added to water may lead to the possibility of decreased water consumption. Adjustments should be made with changing weather conditions with additions often needed in hot conditions to replace extra losses and at least a maintenance dose in colder weather to stimulate water intake.

Iron

Iron supplements are commonly given to performance horses to help maintain their body iron reserves. Iron is a vital component of haemoglobin, which carries oxygen around the body and also myoglobin, which stores oxygen in muscle cells. Horses performing stressful, high intensity exercise require greater amounts of dietary iron than less active animals. Iron reserves may also be depleted due to blood loss caused by injury, surgery, heavy worm burdens, bleeding stomach ulcers or lung bleeding. Iron is also lost in sweat. Horses in training, those under stress and those with ongoing blood loss may benefit from an iron supplement however; underlying medical conditions leading to anaemia should be addressed primarily. Iron can be supplied either by injection (eg Hipiron, Preferrin etc) or by oral supplements, which are available as liquids, pastes, granules or powders. Combination products that contain iron, copper, cobalt and blood-building vitamin co-factors (e.g. TWYDIL HAEMATINIC) are ideal

products to use early in training to meet the bone marrow nutrient needs as the blood count responds to training. These products are also excellent daily supplements to maintain mineral reserves. Don't add iron supplements to the same feed as vitamin supplements, particularly Vitamin E. Iron and copper can be damaging to some vitamins, especially when they are added together in damp feeds.

Appetite

The highest quality diets scientifically balanced with the best possible supplements are of little use if horses under work stress will not eat. With the increase in post and pre race drug screening in recent times many previously commonly used therapeutic drugs can no longer be used in horses close to competition.

Commonly used anabolic steroids have had withholding times increased significantly along with many "tonics" containing caffeine and other appetite stimulants greatly reducing trainers and veterinarians ability to keep "poor doers" on their feed. A product currently available that appears to achieve this is.

Overall nutrition of the racehorse is the corner stone of success, whilst costs are always important the quality of feed and supplements will often be directly proportional to the money spent on these. The best horse trainers in the world are usually noted for feeding well and using high quality supplement products.

Honolulu returns to scale:21/06/08

A P O'Brien & J Murtagh's 6th winner for the week of ROYAL ASCOT fuelled by TWYDIL Products.

A huge range of specific feed additives designed to be used in individual conditions are available these days.

The following products in the TWYDIL range have been scientifically tested for quality, absorption/bioavailability, effect and safety. They all come in individual daily sachets.

For more information on these products please visit www.twydil.com or www.horsemedsa.com.au

ARTRIDIL-Joint Supplement

CALMIN-Calming agent for nervous horses HIPACAN +C-

Immune System Stimulation

OMEGADIL- Omega-3 fatty acid supplement

PROTECT PLUS-For use in horses that are "Tying up"

TWYBLID-For use in respiratory tract disorders

VIGORADE -Extra Vitamin and Mineral boost