

Feeding the Racehorse

Dr J H Stewart BVSc BSc PhD MRCVS Dip BEP AAIM

Improving performance by avoiding dietary errors nutrition is of importance for racing thoroughbreds. Feeding strategies should aim to increase blood and muscle glucose and reduce heat production. Racehorses require more energy than can be safely provided with hay and grain. Use of advanced feeding techniques and manipulation of roughage can impact on performance.

Why feed steam-extruded and micronized feeds

Mitavite steam-extruded and micronized feeds involve advanced feeding techniques which offer many benefits. Increased feeding time, less feed needed compared to pellets and raw grains, a reduction in heat, acid and gas due to primary digestion in the small intestine are some of these benefits.

The international veterinary literature has recommended steam-extruded feeds and micronized feeds for:

- horses that require over 50% of the diet as grain to maintain body weight in intense training, those prone to gastrointestinal disturbances and geriatrics
- horses prone to 'tying up' early in exercise.
- lowering weight handicap by reducing water absorbing residue in the large intestine
- Horses working in hot conditions. Over 40% of oats and 50% of barley fed is converted to acid, heat, gas and ammonia due to low digestibility. Micronized and steam-extruded feeds are over 90% digested in the small intestine.

Increasing the feeding time helps to reduce acid build up in the stomach helping to reduce stomach ulcers.

Loss of appetite can occur due to several reasons: stomach ulcers, stress, high grain diets, limited access to roughage, increase in workload and subclinical pain. The stress of hard work and high raw grain diets can increase the incidence of ulcers. Studies in England, Ireland, Hong Kong and the United States report that 80-90% of racehorses and 84% of yearlings have stomach ulcers. A major cause of stomach ulcers is prolonged exposure of the stomach to high acid levels. Factors which can increase the acid level of the stomach are: high grain diets, feeding pellets and large infrequent meals. Feeding techniques, which can be used to decrease the incidence of ulcers, include : feeding adequate roughage, feed a steam-extruded and/or micronized feed and feeding small but frequent meals. **MITAVITE FORMULA 3** and **MITAVITE XLR8** are high oil, nutrient-dense racing formulations which contain steam-extruded grains.

Protein

When looking for a feed to aid building muscle you need to look at the protein percentage, quality and digestibility. Ideally the protein should be the correct percentage - approximately 10-14% crude protein is required by horses depending on their stage in life and workload. The quality of the protein should be optimal - protein should contain adequate levels of the ten essential amino acids, especially lysine, threonine and methionine. The digestibility of the protein should be high - steam extruded and micronized feeds are 90% digested in the small intestine, compared to raw grains such as corn which is only 29% digested in the small intestine, the remainder of the corn being fermented in the large intestine producing acid, gas and heat. Protein and essential amino acids that escape digestion in the small intestine are degraded to ammonia in the large intestine - rendering them useless to the horse. **MITAVITE TURBO SUSTAINA** and **MITAVITE FORMULA 3** are combination feeds which contain steam-extruded and micronized grains.

Roughage - A weight handicap

Each kg of roughage holds 6 to 8kg of water and electrolytes in the gut. This additional weight to a racehorse represents a weight handicap. An extra 23kg can slow speed by 0.64m/second and 66kg slows speed by up to 1.3m/second. Roughage intake should be kept at around 4-5kg to maintain appetite and prevent hind gut acidosis, it can be reduced by 0.5kg per day to 2.25kg per day for several days prior to racing - giving a weight advantage on raceday.

Energy-dense feeds

Racehorses have very high-energy requirements - which may exceed appetite limit. Increasing grain intake, feeding oils and providing a highly digestible energy-dense feed offers ways to increase energy intake. Up to 1/3 less feed needs to be fed when feeding steam extruded and micronized feeds due to the processing methods of these feeds.

Feeding Oils

High oil feeds offers enormous benefits for temperament heat load and performance. Oil provides a cool and steady supply of energy - allowing the horse to preserve blood glucose levels. This 'glucose-sparing' effect delays the onset of fatigue, so that although horses cannot increase their top speed, they can maintain it for longer. Grain intakes can be reduced when oils are fed. In addition to cool energy, preserving glucose levels and reduced grain intake, **Vitamite Omega 3** oils have an anti-inflammatory effect and red blood cell membranes become more supple and flexible, improving circulation and oxygen delivery.

Time of Feeding

Large concentrate meals should be fed no less than 4 hours before competition. Blood glucose levels are lowest 90 minutes after feeding. If exercising at this time, fatigue comes on sooner due to low blood glucose.

Optimal Weight

Where possible horses should be weighed and a record kept of performance to determine the optimum body condition for best performance. The higher the desired level of performance, the narrower the margin for error and horses should be maintained within 10kg of their optimum weight.

Muscle Recovery

Hard training and racing cause muscle damage due to lactic acid and/or over exertion. Intense exercise is a catabolic process involving the breakdown of body stores. By supplying the correct balance of carbohydrate, specific essential amino acids and anti-oxidants after an intense workout, the catabolic state can be switched to an anabolic (rebuilding of tissue) state, enabling muscles to recover and respond more quickly to training and racing. Feeding 0.5-1kg of **Mitavite Promita** one hour before work, post race and after hard work will enhance glycogen synthesis and aid muscle recovery by supplying anti-oxidants, carbohydrates and essential amino acids. To be effective the concentrate must be consumed no more than 2 hours before or 1 hour after hard work.

Mitavite, maker of Mitavite feeds, is not simply a horse feed manufacturer. Nutritionists, equine veterinarians and agricultural scientists combine their fields and using the latest international research, formulate better feeds and provide technical support. Steam-extrusion and micronisation have enabled new feeding strategies, which improve health and performance.