

Feeding in Hot Weather

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Some minor feeding adjustments are useful during the summer months to help a horse perform better and avoid heat stress and fatigue. **A horse which is in heavy condition, or one that is nervy or excitable, or worked over long distances, is more likely to be affected by hot weather. A heavily sweating horse is also prone to electrolyte loss and dehydration which could hamper its performance.**

The ration can be modified to reduce the amount of 'waste' heat produced in the hindgut during the fermentation and digestive processes. Hay and fibrous foods, such as oats and wheat bran, produce more wasteful heat during hindgut digestion as compared to dense carbohydrate feeds such as corn and barley, and (least of all), fats. The fermentation process in the large bowel which digests roughage, fibrous foods, and excess protein is heat producing, which can be useful to keep a horse warm in cold weather. In a working horse, extra digestive heat increases the 'heat load' which needs to be lost during hot weather and immediately after exercise. This can cause elevated heart and respiratory rates as the body temperature is elevated during exercise and the animal pants after exercise for up to 10 minutes to lose heat. In turn, this leads to higher sweat loss and increased risk of dehydration, body salt depletion and overall heat stress in a working horse.

Feeding to Minimise Heat Waste

In a horse being exercised, the amount of hay or fibrous feed can be reduced to a minimum safe level of 0.5-1% bodyweight of roughage, or around 2.5-5kg per 500kg horse - but **no less than 0.5% of body weight.**

An adequate amount of fibre is essential for digestive function. It also traps water in the bowel and provides a fluid reservoir for exercising horses. Therefore it is important that adequate roughage, such as cereal chaff or hay, even though it produces high amounts of heat waste, is given to a horse which is likely to sweat heavily during exercise. Lucerne in large amounts produces more heat waste because of its combined high protein and fibre content. It also holds less water reserve in its fibrous structure in the hind gut than cereal grass, chaff or hay, often making the droppings appear as green "cowpats", with 'anal' dribble down the inside of the hind legs after droppings have been passed.

Handy Hint

Reducing 'Heat Waste' in feeds

Ensure the total amount of roughage as hay and chaff is maintained at a minimum of 25-30% by weight of the ration. Reduce the weight of oats by at least half or completely in a hard working horse, then substitute to maintain an equivalent energy content by replacing the oats removed with 80% by weight of cracked corn, steam rolled barley, an extruded feed, or add 3% fat (30g/kg), such as in **Kohnke's Own Energy Gold™**, progressively in the ration. These types of feeds give a smaller volume, less fibrous mixture of higher energy density and reduced heat waste. In endurance and long distance training, it is a practical advantage to substitute 10% (up to 400 mL) by weight of the grain portion of the ration with oil to further minimise heat waste.

Handy Hint

Energy Loss as Heat in Feeds

As a guide, energy loss as heat produced during fermentation wastes around 20% energy from barley, 23% energy from corn, 30% from oats, 40% from protein meals and 70% from fibrous roughage, such as cereal hay and chaff and especially a larger bulk of lucerne (provides fibre and high protein), as the feed ferments in the large bowel. Fermentation of excess protein overloaded into the hindgut produces **6 times more heat** as compared to the same amount of carbohydrates and fibre. Oils and fat supplements have no heat waste during digestion as they are digested by enzymes in the small bowel.

Ration Guidelines

Ration adjustment for hot weather is of benefit to horses performing intense or extended exercise such as harness training and racing, polo / polocrosse, eventing, endurance, camp drafting and any horse which sweats heavily when worked. The guidelines outlined below are provided for rations based on oats as the major grain for energy. If you are currently feeding corn, barley, or fat for energy and a smaller amount of roughage, then the heat waste from the ration will already be minimised.

Feeding Frequency

Feeding smaller, more concentrated feeds, with the bulk of the grain in the morning (50:50 grain and chaff by volume), may help to reduce overall heat waste in the following 24-36 hours. A smaller volume of more concentrated feed is also helpful after a morning workout as a horse's appetite may be reduced.

Every horse has individual feeding habits and the change to the feeding program may take 2-3 weeks and therefore it may not be practical in all working horses. Divide the total feed volume of concentrate (grain, protein meals and chaff), hay and electrolyte replacement into 2-3 feeds. Measure out the total feed into its individual constituents, and then make up the feed mix for each meal as follows:

- Morning feeds: 60% grain or concentrates, 40% roughage (chaff and hay)
- Evening feeds: 40% grain or concentrates, 60% roughage

Try to minimise high protein and high roughage diets (ie those based on large amounts of lucerne hay or chaff) which may increase the heat produced by fermentation in the hindgut. This leads to increased heart and respiratory rates, sweat loss and risk of dehydration in horses in hard training.

Other Feeding Guidelines

1. Dampen all feeds, particularly the evening feed to provide more overall fluid intake in hot weather.
2. Provide a rehydration drink, such as **'tepid' or lukewarm water** (tap water with the chill taken off by adding warm water) **with 10g (2 teaspoonsful) of fine, plain cooking salt/litre** (ie 5 litres of lukewarm water with 50g plain fine salt) after work in the wash bay in a bowl. This will encourage the horse to drink after exercise and assist rehydration within 10 minutes. Offer this drink after each day's work and after travelling to help the horse to cool and rehydrate.

3. Locate feeders in a shady place – not in the hot sun.
4. Supply cool, clean water at all times in a cool, shaded area.
5. Maintain a short hair coat to facilitate sweat evaporation.
6. Cool out by hosing off promptly (under the belly) after exercise. (Refer to Handy Hint - hosing under the belly)

A higher rate of shallow respiration or panting (termed the ‘puffs’) is common in horses housed or working under hot tropical conditions. They also lose the ability to sweat efficiently. A more serious form of this condition is the disease referred to as ‘anhidrosis’, ‘dry coat’ or non-sweating syndrome in tropical climates (refer to a separate Fact Sheet C8- ‘Anhidrosis’ or “Non-Sweating Disease”). The risk of heat overload and collapse hampers performance and increases stress on the horse. For horses working under hot tropical conditions, extruded feeds and fat boosted diets may reduce the overall heat load where a horse develops the ‘puffs’ or dry coat syndrome.

Additional management guidelines after exercise in hot weather

1. Remove all gear, particularly heavily padded bandages from the limbs, to allow the tendons to lose heat accumulated during exercise. Wash, sponge or hose down a hot horse after exercise with cold water to quickly cool down the body.
2. **Scrape off the ‘warm’ water retained in the coat, including under the belly, after 30 seconds. Do not leave a hot horse in humid weather to drip dry.** The body temperature will decrease more slowly due to the insulating effect of the water trapped in the coat. Walk the animal to promote air flow and aid evaporation, as well as heat redistribution via the blood during hot, humid weather after hosing. Hose under the belly as described at right to assist cooling.
3. **Allow cool-out before travelling.** It is important that a hot horse is cooled out for at least 10-15 minutes before travelling. Confinement in a trailer, particularly with another recently exercised horse, can increase the amount of heat trapped within the trailer space and promote extra sweat loss. Ensure adequate airflow through vents when travelling.

Handy Hint

Hosing Under the Belly

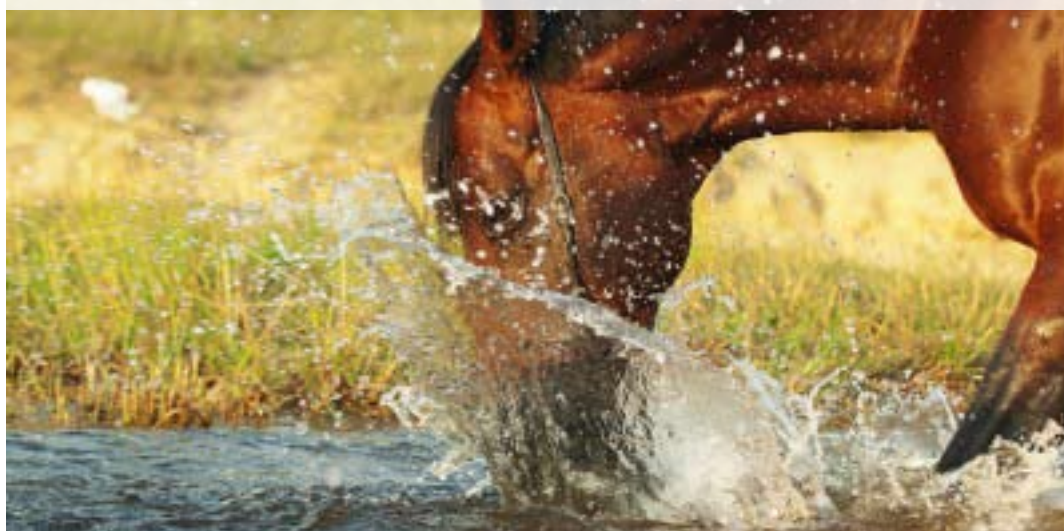
Studies suggest that hosing well under the belly for 1 minute during the “cool off” from exercise accelerates heat loss from the heat transferred (dumped) into the water reserves in the hindgut contents after exercise and helps recovery and limits panting in horses working under hot conditions. Walk the horse for 1 minute to redistribute the blood heat to the gut, then hose off under the belly again for 30-60 seconds to complete “cooling out”.

Handy Hint

Drinking During Exercise

If a horse is to immediately continue working, such as an endurance horse, and is given a drink at a creek or dam on a ride, free access to cool water is unlikely to cause stomach cramps. However, if a horse is to be rested, then it is wise to offer the thirsty horse only 2-4 litres of luke-warm water with salt (10g salt/litre of water) within a few minutes.

4. **Avoid offering very cold water immediately after hard exercise. Water has an important function in replacing sweat loss and also cooling the core heat within the body after exercise.** It is unwise to allow horses that have finished exercise access to large volumes of cold water as it may cause stomach cramps and distress.
5. **Exercise in the Cool Part of the Day.** It is best and causes less stress, if a horse is exercised very early in the morning, or in the cool of the evening during very hot and humid weather. Horses take up to 4 hours to cool down after work and evening work-outs result in faster cooling down as ambient temperatures normally drop after sunset.
6. **Pre-cool before exercise or training.** Pre-cooling the horse, by wetting it over (cover the saddle area with a plastic sheet) with cold or iced water just prior to exercise, will delay the accumulation of body heat as the horse warms up and evaporates the water from the coat initially as the horse works and may help reduce sweat loss under hot or tropical conditions.
7. **Keep the stables well ventilated in hot weather.** Cover horses with a light, porous sheet to minimise insect bites overnight if necessary. A ceiling fan high in the roof may assist air circulation under hot, still weather conditions.



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