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Feeding the Equine Athlete, Part II

*Frederick Harper, Extension Horse Specialist
Department of Animal Science*

Horses are incredible amazing athletes. To perform at a high level of competition or be ready for a Sunday afternoon pleasure ride, they must be properly fed. Part I of Feeding the Equine Athlete discussed the importance of energy, protein, minerals and vitamins for the mature horse at maintenance and light, moderate or intense levels of performance.

Water, body condition score, feeding plan, feeding equine athletes for specific levels of performance and feeding management will be discussed in Part II.

Water. Water is a nutrient. In fact, it is the most important nutrient. The horse's body is 65 – 72 percent water on a fat-free basis. A 1,200-pound horse contains 98 gallons of water. Horses normally drink 6 – 10 gallons of water daily. High intakes of protein and/or mineral diets increase the need for water. In moderate and intense performance horses, water balance is important. Protein in excess of that needed should be avoided.

Excess protein results in an increase in blood ammonia that causes nerve irritability and disturbs carbohydrate metabolism; urea levels also increases which may lead to intestinal disturbances; and higher ammonia levels occur in stalls.

Performance, high temperature and humidity will cause a horse to drink more than normal. Horses at intense performance in hot weather may lose as much as 8 gallons of sweat daily and can lose 5 – 10 percent of their body weight during strenuous competition. This weight loss is mostly sweat but also includes urine and feces.

Horses should have fresh, clean water at all times although it should be restricted immediately before performance and when horses are hot after performing. They can be allowed small drinks if kept moving while being

cooled-out. Stabled horses drink more after eating grain and within an hour of being fed hay.

Body Condition Score. One of the best tools that the performance horse owner/trainer can use is Body Condition Score (BCS). BCS is a visual, hands-on system that estimates body fat and indicates if a horse is being fed adequate energy. Horses that are too fat or too thin perform less effectively. Performance horses' BCS should range from 4.5 to 7.5. Pleasure horses doing light performance, such as trail riding and arena pleasure classes, can have a BCS from 5.5 – 7.5. Moderate to intense performance horses perform better at a BCS of 5 – 5.5. Occasionally, intense performance horses may have a BCS of 4.5 or be moderately thin. If horses have a BCS over 5.5, they may not perform as well at intense performance or the higher levels of moderate performance.

Thin horses cannot perform required tasks because of a lack of stored energy (Table I). If inadequate energy is fed, a horse will use stored energy for performance, resulting in a horse losing body condition and weight.

High-level horses performing in high heat and humidity in summer are likely to eat less and lose body condition, resulting in a BCS of about 4.5. Horses can be in a lean condition, but their ribs should not be readily visible. High moderate to intense performance horses have problems regulating body heat (thermal stress) if they have too much body fat, a BCS of 6 or above.

The Trevis Cup Endurance Ride of 100 miles in 24 hours over rough terrain in the Sierra Nevada Mountains is a most demanding equine event. As the BCS of these horses declined from 5.5, the number of horses that completed the ride also decreased (See Table I on the next page). All horses with a BCS of 5.5 completed the ride. No horse with a BCS of 2.5 or 3 completed the ride. These data show that as BCS decreases, horses have less energy reserves to complete such strenuous activity.

Each horse is an individual, and each owner or trainer must determine at what BCS a horse will perform specific events best.

Table I. Results of Trevis Cup Endurance Ride

BCS	Number of Horses	Percent Completed	Average Miles Completed
2.5	4	0	40.9
3.0	15	0	46.7
3.5	23	26.1	62.3
4.0	37	94.6	97.8
4.5	33	87.9	95.1
5.0	31	93.6	98.9
5.5	8	100	100

Feeding Plan. One must know the weight of a performance horse to properly feed it. It is likely that each horse has a weight at which it performs specific activities more effectively and efficiently.

A pleasure horse may perform well in a rail class at 1,200 pounds and a BCS of 6. When placed into moderate activities, such as barrel racing or jumping, the horse may perform better at a weight of 1,125 pounds and a BCS of 5.5.

Where one cannot easily weigh a horse, a weight tape or the following formula can be used:

$$\text{weight} = \frac{\text{heart girth}^* \times \text{heart girth}^* \times \text{length}^*}{330} \quad (* = \text{inches}).$$

Since most individuals are rather inaccurate at estimating a horse's weight, they should use this formula instead. An inaccurate weight results in over or under feeding, either of which can be detrimental to a horse's performance. Under fed horses will not have the energy to perform to their capacity, and over fed horses cannot perform as effectively, especially in hot, humid climates.

Feeding Equine Athletes. After you know your horse's weight and BCS, you need to determine its level of activity to feed it properly. Mature horses being ridden, even only occasionally, and performing can be placed in one of these categories: maintenance, light, moderate or intense performance. These are adult horses with no requirement for growth, reproduction or lactation. Feeding levels are expressed as pounds of hay or grain per 100 pounds of body weight, which is the same as percent.

Many owners think their horses perform more than they actually do. A number of horses are ridden only occasionally in winter. Such horses have a maintenance nutritional need. Maintenance horses, if at a proper weight and BCS, neither lose nor gain weight; and most do well on a forage only diet or need only limited grain (1 – 2 pounds).

If adequate pasture or hay is available, maintenance horses need little if any grain. Trace mineralized salt and clean, fresh water should be available at all times. In winter, good-quality hay should be fed. Feed grass hays at a level of 2 percent of body weight. If legume hays (alfalfa) are fed, most horses need only 1.75 percent of their body weight. A 1,200-pound horse should be fed 24 pounds of grass hay or 21 pounds of alfalfa along with trace mineralized salt and clean, fresh water.

Winter pasture, especially in the southeastern states, can provide considerable forage. High-quality cool season forages may provide as much as 0.5 – 1.25 pounds of forage per hundred pounds of body weight in the winter. The amount of hay fed can be reduced by 50 percent if good-quality, adequate winter pasture is available. Winter pasture and 12 pounds of grass hay would be adequate for a 1,200-pound horse in good body condition.

Most performance horses are in a maintenance category sometime during the year, usually in winter when they are ridden little if any. Some are turned out on pasture at these periods. If the amount of feed is not reduced, these horses will increase their BCS.

Light performance is the level of activity for most horses, especially those ridden on trails or shown in rail classes. Energy is the most important nutritional component in feeding performance horses. Light performance horses have a 25 percent increase in energy needs above that of maintenance. Some light performance horses perform well when grazing good-quality pasture or fed good-quality hay. A mineral-vitamin mix designed for pasture feeding would be the only thing that these horses will likely need in addition to trace mineralized salt and clean, fresh water.

You can feed an extra 5 pounds of good-quality hay or about 3 pounds of a typical grain mix that provides 1.4 – 1.5 Megacalories (Mcal) of energy per pound to meet the extra energy needs of light performance.

The protein level of the grain mix should be 12 percent. There is no need to feed a 16 percent protein feed to performance horses.

Moderate performance horses require 50 percent more energy above that of maintenance or double that of light performance. As a horse performs more intense activities, there are more nutritional demands. Most moderate performance horses cannot maintain their weight and BCS on forage alone. A 1,200 pound horse needs about 6 pounds of a balanced grain mix along with good-quality pasture or hay. The higher level of grain fed provides more energy, protein, minerals and vitamins. The minimum level of forage should be 1 percent of body weight, or forage should make up at least 50 percent of the ration.

Intense performance horses need 100 percent more energy than when at maintenance. Such horses are normally kept in stalls except when performing, training or exercising. Hay feeding is often limited and may be 0.75 to 1.5 pounds per hundred pounds of body weight. Depending upon the amount and quality of hay fed, intense performance horses may need 12 – 15 pounds of grain daily. This is 1 – 1.25 pounds of grain per 100 pounds of body weight.

Horses should not be fed more than 0.5 pound per 100 pounds of body weight (6 pounds of grain for a 1,200-pound horse) at one time. Intense performance horses are often fed two to four times per day. Small meals fed more often are similar to the normal grazing habits of horses.

Recent research has shown some effective methods to better feed performance horses. These include adding fat to rations, using highly fermentable fibers and using lower starch feeds. These concepts are being utilized in commer-

cial feeds today. Owners of performance horses can more readily find appropriate feeds for specific levels of activity.

Adding fat to a horse feed makes a more energy dense feed. Typical horse feeds contain only 2 – 3 percent fat. Fat-added grain mixes may have 8 – 10 percent fat. It takes about 3 – 4 weeks for horses to adjust to fat-added feeds. Some performance horses will not or cannot eat enough feed to meet their energy needs, especially in summer. Adding fat helps these horses get more energy, and they eat less feed. Horses fed extra fat are better at heat (thermal) regulation in hot, humid weather. A fat (5 – 10 percent) added grain mix for 2- or 3-year-olds should contain 14 percent protein.

Added fat helps horses from becoming fatigued, even with a reduced BCS. Fat-fed horses tend to be calmer and easier to handle. Moderate to intense performance horses should respond to fat-added rations.

Beet pulp or soybean hulls are being added to high-level performance rations. They are highly fermentable energy sources which are utilized in the horse's hind gut, the cecum and large intestine. These feeds allow one to feed less hay which is an advantage in upper moderate and intense performance horses.

Recently, it has been observed that high starch grain feeds result in increased risk of gastrointestinal problems in horses. Added fat, beet pulp and/or soybean hulls result in a reduction of the high starch grains that are typically fed to provide increased energy levels in performance horses. As a forage consumer, the horse's digestive system is not designed to handle high levels of grains. The grains typically fed horses, such as corn, oats and barley, contain 50 – 70 percent starch. High starch feeds may result in insulin resistance which can negatively affect performance.

Feeding Management. The type of feed and feeding management, such as timing of feeding and how horses are fed, becomes more critical as the level of performance intensifies. Future research should provide information that will allow us to better feed performance horses while reducing the risks of colic, founder and metabolic problems.

After knowing your horse's weight and its BCS, you must know how much feed you are feeding. Some owners feed "so many" flakes of hay and "so many" scoops of grain. This is not a good feeding management system.

Maintenance horses that perform little and infrequently can be fed hay free-choice in winter or when pasture is not available. Horses performing light, moderate and intense performance require known amounts of feed on a regular, scheduled basis.

Hay and grain should be fed by weight. For hay, weigh several bales (four to five bales), count the number of flakes per bale, then determine the weight of an average flake of hay. When changing type of hay or getting hay from another source, repeat this procedure. If you feed three flakes of hay in the evening and two flakes in the morning that weigh 4 pounds per flake, you are feeding 20 pounds of hay per day.

It is not bad to use a scoop to feed your horse, but you must know the weight of a scoop of your grain. Place several scoops (four to five) of your grain in a bucket, weigh

the bucket of feed and re-weigh the empty bucket. Let's say, five scoops of your feed weigh 6 pounds. A scoop of this grain weighs 1.2 pounds. If you feed your horse two scoops of grain, it is getting 2.4 pounds. If you want to feed 5 pounds of grain, feed four heaping scoops of grain.

If you change grain mixes, you need to determine the weight of the new feed per scoop. A feed containing more corn will be heavier while one with more oats will normally be lighter.

When and how one feeds is also important. Horses doing moderate to intense performance should be fed about 2 – 3 hours before performance and not fed grain until 2 hours after performance. Light performance horses should be fed 1 – 2 hours before performance and not fed grain until an hour after performance. Hay can be fed once a horse is cooled-out after performance.

Performance horses should be kept on a routine and fed on a specific schedule. Reduce the amount of grain fed on a horse's day off.

Performance at events and traveling often interfere with a horse's regular feeding schedule. Reduce the amount of grain fed at the first feeding after performance. The regular quantity of grain can be fed at the next (or second) feeding after performance. If intense performance or travel prevents feeding by several hours, feed only hay. Grain can be fed at the next scheduled feeding. Do not feed extra grain if a horse missed a grain feeding because of performance or travel.

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Current West Nile Virus Status

As fall begins, there have been only nine horses confirmed with West Nile Virus in Tennessee. At least four of these horses have died or been euthanized. Two-thirds of these cases have occurred in West Tennessee, and eight counties have reported cases.

At this time last year, 29 horse cases had been reported in 22 counties. The number of WNV positive horses is about 31 percent of last year with only 36 percent as many counties involved.

Twenty-nine WNV positive bird cases have been reported in 15 counties. Both of these numbers are lower than a year ago. Six human cases have been diagnosed with no deaths reported.

The largest number of horse cases is normally reported in September and October. There is still time for additional WNV positive horses to be confirmed. If the

current WNV trend continues, there could be less WNV activity statewide this year than in the past two years.

Hopefully, proper vaccination and mosquito control are reducing the incidence of this disease in Tennessee.



Associate Professor, Extension Animal Science

Tennessee Horse Express

From:

Leader/Agent

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