



Winter Care for Horses

Bulletin #1007

As the weather turns cold, many horses are ridden less and less. It is easy to become relaxed in a horse's daily care since they are not being used as often. However, horses still require much care and attention throughout the winter.

Effects On Energy Requirements

Falling temperatures, wind and wet conditions cause a tremendous demand on the horse's body for heat production. How much body condition a horse loses depends on the severity and duration of the cold season and the amount of energy the horse receives from its feed. As with all warm-blooded animals, horses must maintain their body temperature to survive. The environmental temperature and the heat produced within the body determine the extent to which heat must be conserved. The body does little to regulate heat generation and heat loss when the environmental temperatures are within ranges of the animal's comfort zone or the "thermal neutral zone." As environmental temperatures fall below the minimal temperature of the comfort zone or "critical temperature," heat production is increased by the body by speeding up chemical reactions which produce heat.

The critical temperature can be used to estimate changes in a horse's nutritional requirement relative to falling temperatures, cold winds, and wet hair coats. Estimates for the lower critical temperature for horses are between 30 and 50 degrees Fahrenheit depending on hair coat, body condition, wetness and windchill. The critical temperature for cattle

Table I. Estimated Lower Critical Temperature for Horses in Moderate Body Condition

Hair Coat	Lower Critical Temperature (F)
Wet or short	60
Moderate	50
Heavy	30

ranges from 18 degrees F for dry weather and heavy hair coats to 59 degrees F for animals with summer or wet hair coats. Estimates for the lower critical temperatures for horses are given in *Table I*.

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For each decrease in coldness of one degree Fahrenheit below the critical temperature, there is an increase in digestible energy requirements of one percent for body temperature maintenance (*Table II*). The best estimate of coldness is windchill temperature, as this combines the effect of temperature and wind. For example a horse with a heavy winter hair coat has an estimated critical temperature of 30 degrees F (*Table I*). Thus, if the wind chill is 20 degrees F, the horse would have an increased energy requirement of 10 percent or 2 Mcal/day and should consume approximately two additional lb of hay per day



(Table II). This 1,000 lb horse should already be consuming approximately 15 lb of hay per day, and now should consume 17 lb of hay to avoid any loss of body condition. Wet weather combined with wind greatly increases a horse's energy needs (Table III). A horse in 32 degree F weather, without shelter and subjected to rain and 10 to 15 mph wind, would need to consume an additional 10 to 14 Mcal per day or a total of at least 25 lb of feed. Some horses would not be able to consume this volume of feed in hay alone.

Alterations In Feeding

Many adult horses can maintain body condition on a complete forage diet with access to free choice trace mineralized salt. Adult horses should consume between 1.5 and 2 percent of their body weight in hay or a 1,000 lb horse will eat 15 to 20 lb of hay per day. Supplementation with grain is only necessary if horses have difficulty in maintaining body condition. Therefore, horses maintained in extremely cold conditions for an extended period, with minimal shelter may need grain supplementation to meet their energy demands.

In most cases, an all-forage diet is a more desirable way to meet a horse's elevated energy requirements. Forages contain a much higher fiber content than grains. Fiber is utilized through bacterial fermentation within the cecum and large intestine.

Much more heat is produced in bacterial fiber fermentation than in digestion and absorption of nutrients within the small intestine (cereal grains). This results in a greater amount of heat being produced through the utilization of forages than utilization of grain. Thus, a horse's increased energy requirements are better met by providing horses all the forage they will consume without waste.

Although winter conditions will greatly increase some horse's energy requirements, the duration of the cold, windy, wet conditions should be considered before alterations are made in the feeding program. The amount of a ration (grain) a horse is fed cannot be suddenly adjusted without increased risk of colic and laminitis (founder). Horses should be preconditioned by gradual increases in the amount of energy fed per day. Increases in hay are much more readily tolerated by horses. If the cold spell only lasts one to two days, alterations in grain may not be needed. However, if the cold spell is over an extended period of time, adjustments may gradually be made.

Preconditioning horses before the onset of cold temperatures helps to reduce the effect of cold weather on nutritional needs. Fat cover acts as an insulator and provides energy reserves during stress. It may be difficult for horses to increase body condition during extremely cold weather. Additionally, during long bouts of freezing temperatures, most

Table II. Estimated Feed Energy Increase at Different Magnitudes of Cold Below the Lower Critical Temperature of Mature Horses

Difference in F Below Critical Temperature	Digestible Energy Increase (Mcal/days)	Feed Intake Increase ¹ (lb/day)
0	0	0
10	2	2
20	4	4
30	6	6
40	8	8

¹Assuming an energy density of 1.0 Mcal/lb, which is typical of many hays.



Table III. Effect of Wind and Rain on Digest Energy Requirement for Horses at Maintenance

Average Temperature		Additional Mcal/day	Additional Hay
32 degrees F	10 - 15 mph wind	4–8 Mcal/day	4–8 lbs/day
32 degrees F	rain	6 Mcal/day	6 lb/day
32 degrees F	rain and wind	10–14 Mcal/day*	10–14 lb/day

*May not be able to consume enough hay to meet requirements.

horses will experience some loss of body condition, no matter how well they are fed.

Water Requirements

Horses will tend to reduce their water intake as temperatures fall. This reduced water intake, combined with increased forage consumption can lead to a greater incidence of impaction and colic. Water should be maintained between 45 and 65 degrees F and any ice crystals should be removed. Water should be checked twice daily and provided at all times as horses will drink eight to 12 gallons a day. Forcing a horse to produce moisture by eating snow is counterproductive. Six times as much snow must be eaten to provide an equal amount of water. Furthermore, calories are used to melt the snow that should be used for body warmth.

Hair Coat

A heavy winter hair coat is a horse's first defense from the cold. When allowed to grow, a horse's natural hair coat acts as a tremendous insulator and provides as much warmth as the best blankets. Horses that are to be maintained outside should be allowed to grow a long hair coat, plus the hair within the ears and around the fetlocks should not be clipped throughout the winter months. Cold weather causes the hair to stand up, trapping and retaining body heat. Once the hair coat becomes wet, the hair lies down and loses its insulating ability. A long fuzzy hair coat can be deceiving of a horse's true body condition. The most accurate assessment of body condition is done through feeling the condition over the horse's ribs, plus visual inspection of overall condition.

Shelter Requirements

Although stalling is not necessary for all horses, some protection from the winter elements is desirable. Horses acclimate to winter conditions extremely well but need to be able to escape the bitter winds and moisture. A small, three-sided shed or timberline is sufficient shelter for pastured horses. This will enable them to minimize the effects of strong winds and snow or ice. The net effects are that horses will require less feed, can more easily maintain body weight and are less stressed. These effects make the cost of sheds and windbreaks more attractive by reducing feed bills and reducing stress-related sickness.

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If a three-sided shed is used, the open side of the shed should be opposite the prevailing wind. Each mature horse should have at least 80 square feet. The back wall should be 9 feet high, and the opening needs to be 11–12 feet tall. A 4–6 foot overhang will help prevent rain and snow from blowing into the shed. Sheds should be located so they have adequate drainage. If horses are to be indoors throughout the winter, stalls must be cleaned daily and the bedding kept dry. Good ventilation is crucial. Damp stalls, ammonia buildup, and poor ventilation all contribute to respiratory problems. Horse owners will have much less labor, and at



times healthier horses if they are turned out during the winter months.

Care should be taken when leaving younger, less experienced horses on winter pasture. Running an older horse as a “baby sitter” can help teach the youngsters how to find shelter, food and water. Additionally, the “baby sitter” often has a calming effect on the young herd and reduces the chances of them running through fences and such.

Hoof Care

Hoof care must be kept on schedule throughout the winter. Many horse owners prefer to “pull” shoes throughout this period of minimal riding. Any horse to be maintained outdoors should have its shoes removed. Shod feet can become ice packed, increasing the chance for slipping on snow and ice. Hooves should be routinely trimmed every six to eight weeks to prevent cracks and breakage.

However, care should be taken not to trim them too closely to prevent bruised, sore feet from the frozen ground. Laminitis (founder) can occur from trauma to the sole due to walking on rough, frozen ground. Occasionally, if hooves are not maintained throughout the winter and allowed to break off, it may be difficult to have the horse shod when spring comes.

Caring for horses over the winter months can be a difficult task with cold weather, frozen water, and strong winds. However, the better horses are maintained during the winter, the better condition they will be in once the weather warms and it is time to start riding again. No matter how difficult the weather, providing feed, water and shelter for horses is critical.

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