

Equine Winter Care

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Horse Program

Providing research-based information to Minnesota Horse Owners

Horses, given the opportunity to acclimate to cold temperature, often prefer and are better off outdoors. The Minnesota Pet and Companion Animal Welfare Act outlines several minimal care standards for food, water, shelter, space, cleanliness, exercise, and hoof care. Some of these standards become even more important in the winter. For example, the act states that snow or ice is not an adequate water source for horses and all horses must be provided free choice protection from adverse weather conditions, including extreme cold, wind, and precipitation. Shelters are not required in outside exercise paddocks, as long as horses are not kept in those paddocks during adverse weather conditions.

Figure 1. Horse need access to shelter and should be fed additional hay during adverse winter weather.

Tip: feed hay in a container or feeder to reduce waste



Keep in mind that a horse requiring special care (i.e. trimming, medications, or special diet) during summer months will need that care continued throughout the winter months too. To ease the transition into winter, horses should be properly dewormed (i.e. based on fecal analysis) and in good body condition. This fact sheet outlines horse winter feeding and watering, shelter, blanketing, hoof care, and facilities management recommendations.

Water Requirements

When horses consume winter feeds, water requirements may increase. Hay and grain typically contain less than 15% moisture, while in contrast,

pastures possess 60 to 80% moisture. There are two common complications resulting from inadequate water consumption during cold weather: decreased feed intake and impaction colic. Even if quality feed is offered, horses will consume less if not drinking enough water. If less feed is consumed, horses might not have enough energy to tolerate the cold. Fecal contents must maintain adequate moisture levels. If fecal material becomes too dry, intestinal blockage or impaction may occur. A horse will not develop an impaction in one day, but can over several days to several weeks of inadequate water consumption.

Most adult horses weighing 1,000 pounds require a minimum of 10 to 12 gallons of water each day for their basic physiological needs. During winter months, water should be kept between 45 to 65°F to maximize consumption. Previous research indicated that ponies increased their water consumption by approximately 40% each day when the water was warmed above freezing during cold weather. Increasing salt intake will also stimulate a horse to drink more; adult horses should consume one to two ounces of salt per day. Waterers should be cleaned regularly, and clean, fresh water should always be available, regardless of temperature. If using a tank heater to warm water, inspect it carefully for worn wires or other damage, and check the water for electrical sensations or shocks.

Snow or ice is not an adequate water source for horses. There have been a few scientific studies that show some horses who are acclimated to winter weather conditions can meet their water requirements from snow. However, there are serious health risks associated with snow consumption, including the length of adjustment period as horses learn to ingest snow, the actual water content of the snow, and total water intake. Therefore, some wild horses can receive their water needs from snow, but the risk of gastrointestinal tract problems, colic, and reduced feed intake is significant for domestic horses.

Winter Feeding

Cold temperatures will increase a horse's energy requirement as the need to maintain core body temperature increases. The temperature below which a horse needs additional energy to maintain body warmth is called the lower critical temperature. The lower critical temperature for a horse is estimated to be 41°F with a summer coat and 18°F with a winter coat (upper critical temperature is estimated at 86°F). However, the lower critical temperature can be affected by individual horse characteristics. A horse with short hair that is exposed to cold, wet weather will have a lower critical temperature higher than that of a horse with a thick hair coat and fat stores who is acclimated to cold weather. Another factor that can influence lower critical temperature is the size of the animal. Smaller animals have a greater surface area relative to body weight and can lose heat more rapidly than a larger animal. A weanling may reach their lower critical temperature before a mature horse. More importantly, cold weather can slow growth because calories are diverted from weight gain to temperature maintenance. To minimize a growth slump during cold weather, young horses should be fed additional calories.

Energy needs for a horse at maintenance increase about 1% for each degree below 18°F. For example, if the temperature is 0°F, a 1,000 pound idle, adult horse would need an approximately 2 additional pounds of forage daily. It is best to provide the extra energy as forage. Some believe that feeding more grain will help keep a horse warmer. However, not as much heat is produced as a by-product of digestion, absorption, and utilization of grain as is produced from the microbial fermentation of forage. Most data suggest that the need for other nutrients do not change during cold weather. However, consider feeding loose salt instead of block salt, as horses may not want to lick cold salt blocks during winter months.

During winter months, heavy hair coats can often hide weight loss. Regular body condition scoring is recommended to gauge weight and assess horse health. If a horse starts to lose body condition, increases in feed are recommended. Conversely, if a horse starts gaining excessive body condition, reducing the feed is necessary. Sorting horses by age, body condition, and nutrient requirements makes it easier to feed groups of horses appropriately.

Shelter

Horses should have access to shelter from wind, sleet, and storms (Figure 1). Free access to a stable or an open-sided shed works well, as do trees if a building is not available. In the absence of wind and moisture, horses tolerate temperatures at or slightly below 0°F. If horses have access to a shelter, they can tolerate temperatures as low as -40°F. However, horses are most comfortable at temperatures between 18 and 59°F, depending on their hair coat. A general rule of thumb for run-in or open-front shed size is 240 square feet for 2 horses (i.e. 12 x 20 feet) and 60 square feet (i.e. an additional 10 x 6 feet) for each additional horse. These recommendations assume horses housed together get along well.

Researchers recently examined daytime shelter-seeking behavior in domestic horses housed outdoors and studied the relationship of temperature, precipitation, and wind speed with shelter-seeking behavior. Shelter usage ranged from a low of less than 10% in mild weather conditions, to a high of 62% when snowing and wind speed were greater than 11 mph. More horses used shelters in breezy conditions during snow or rain. Shelter access is very important in certain weather conditions.

Figure 2. Blanketing a horse during the winter is necessary if the horse is clipped or lacking shelter.



Blanketing

The hair coat acts as insulation by trapping air. If the hair is wet or full of mud, air is excluded, reducing its insulating value and increasing heat loss. As little as 0.1 inch of rain can cause cold stress by matting the hair and reducing its insulating value. It is important to keep the horse dry and sheltered from moisture. As expected, a horse with a thicker hair coat can retain more heat. Research has been conducted on the benefits of blanketing a horse to reduce the

effects of cold weather (Figure 2). Most horses are blanketed because of personal beliefs of the owner. However, blanketing a horse is necessary to reduce the effects of cold or inclement weather when:

- There is no shelter available during turnout periods and the temperatures drop below 5°F, or the wind chill is below 5°F
- There is a chance the horse will become wet (not usually a problem with snow, but much more of a problem with rain, ice, and/or freezing rain)
- The horse has had its winter coat clipped
- The horse is very young or very old
- The horse has not been acclimated to the cold (i.e. recently relocated from a southern climate)
- The horse has a body condition score of 3 or less

It is equally important that the blanket fits the horse. Horses can develop rub marks or sores where the straps secure the blanket if it fits improperly. If the horse is blanketed continuously, the blanket should be removed daily, inspected for damages, and repositioned. Make sure blankets are kept dry and do not put a blanket on a wet horse; wait until the horse is dry before blanketing. Keep in mind a horse will continue to develop a natural winter coat until December 22, while days are becoming shorter. Horses begin to lose their winter coat, and start forming their summer coat, as the days begin to get longer on December 23. Blanketing before December 22 will decrease a horse's natural winter coat.

Exercise

Exercise should not stop during the winter months. During extreme winter weather, many horses are often confined. Confinement and limited exercise can lead to lower leg edema (stocking up). Efforts should be made to provide turn out or exercise as often as possible. Caution needs to be taken when riding in deep, heavy or wet snow as this could cause tendon injuries and is extremely hard work for an unfit horse. Avoid icy areas for both horse and rider safety.

One of the greatest challenges with winter riding involves cooling down a horse with a thick winter coat. Leaving a hot, wet horse standing in a cold barn can lead to illness. If horses are exercised regularly to the extent of generating sweat through the winter months, a 'trace clip' can be used (Figure 3). With a trace clip, the hair is shaved to about 1/8 inch in length from the underside of the neck and abdomen to the sides of the horse and from the elbows to about a quarter of the way up the body. Other types

of clipping patters are often used as well. Clipped horses have higher energy needs and should be fed accordingly. Clipped hair will not grow back rapidly in the winter. Once horses are clipped, appropriate shelter and blankets must be used throughout the winter and into the early spring months.

Figure 3. Trace clipping can reduce the time necessary to cool down a horse during winter riding.



Hoof Care

Horse hooves generally grow more slowly in the winter. However, horses should still be trimmed every six to twelve weeks. The trimming or shoeing interval depends on each horse and the amount of hoof they grow. Horse hooves are very susceptible to developing "ice or snow balls" in their hooves during the winter (Figure 4). These balls are compacted ice or snow that make it difficult for the horse to walk, increase the chance of slipping and falls, and may put increased pressure on tendons and joints. Hooves should be picked clean daily, especially after a heavy snow.

Horses have better traction on snow and ice when left bare foot compared to being shod. If the horse must be shod, care should be taken to avoid slipping and compaction of snow and ice in the hoof. Snow pads and studs that are attached to shoes can be used to help offset the effects of slipping and snow compaction in the hoof. Sole bruising can also be a problem in the winter, especially when working on uneven or frozen ground.

Winter Paddock and Facilities Management

Ice is a problem in horse paddocks as falls and slips can lead to serious injury. The best solution is to remove the horse from the paddock until the ice melts, but few horse owners have that option.

Figure 4. Regular hoof picking is necessary to remove snow that becomes packed into the hoof.



Sand can be used to increase traction. However, horses should not be fed in the area where the sand is spread to minimize the risk of ingestion. Straight salt can speed the melting of the ice if temperatures are not too cold. There is no research documenting the effect of salt on horse hooves, but as a precaution, pure salt should be used in moderation. If using pure salt to melt ice, make sure the horses have an alternative source of salt to reduce ingestion off the ground. A mixture of sand and salt should not be used in horse paddocks due to the chance that horses may accidentally ingest sand via their interest in the salt. Spreading a thin layer of wood ash or fresh manure are additional options. Other options like shavings, hay, and straw tend to slide over ice and do not provide additional traction. Small rocks can provide traction, but can be accidentally ingested or become lodged in hooves. To reduce water/ice in the future, improve the grade, install gutters on the barn, and reduce the amount of manure in the paddock.

During heavy snowfalls, horse owners are encouraged to remove snow from paddocks to ensure horses have easy access to feed, water, and shelter. When piling the removed snow, avoid low areas, drainage ways, septic tank areas, wellheads, and other drinking sources. Snow removed from paddocks contains manure, bedding, and soil, and could contaminate streams and wetlands. Moving snow is

fairly expensive, so keep distances and travel time to a minimum. Removing snow also helps drainage during the spring snow melt and exposes the paddock surface, especially in non-shaded areas, which increases the warming and drying of the paddock in the spring.

To maintain support under snow loads, barns and shelters should have truss certificates of at least 30 pounds per square foot of snow load. Most buildings fail at the joints; if concerns arise about a barn structure under a snow load, examine the trusses and joints to see if there is movement, cracking, or dry rot. Wood will generally give warning sounds before complete failure. In enclosed barns, snow blowing into attics and wall spaces can melt and cause wet conditions suitable for mold development and rotting. Ventilation is important to help control temperature and humidity levels and remove or decrease contaminants. Poor ventilation can affect a horse's respiratory health. Ceiling fans can help facilitate adequate air exchange and wet bedding and manure should be removed daily.

Conclusions

During winter months, horses should be given warmed water (45 to 65°F), fed additional hay during extreme cold, given access to shelter, receive regular hoof care, and have their body condition assessed regularly. Facility stability and ventilation should also be evaluated frequently. Horses, given the opportunity to acclimate to cold temperature, often prefer and are better off outdoors.

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