

Equine Welfare Series

SHELTER FOR HORSES

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Horses should be provided with food, water, shelter and care to maintain good health and welfare. Shelter for horses is often difficult to define, as many owners and business managers have different definitions of acceptable living conditions for horses and other equids. Horses can adapt to a variety of weather conditions if allowed to acclimate to the climate and have adequate feed and water. In addition, horses do benefit from shelter, as it acts to shade from the sun and provide shelter from wind or other harsh conditions. Interestingly, when horses are provided with free access to shelter they will often choose not to use it, even when it would seem logical to do so. Determining the type and size of shelter that is most appropriate for horses is important to encourage use and keep horses safe.

Tolerable Temperatures and the Thermoneutral Zone

Horses naturally possess the ability to cope with a variety of weather conditions. Similar to other warm-blooded animals, equids must maintain core body temperature in order to survive. Within the thermoneutral zone, or the “comfort zone,” the horse is able to maintain a normal body temperature without expending excess energy for heat loss or generation. A horse’s natural ability to cope with varying weather conditions is dependent on many factors, such as hair coat, age and metabolic status, along with access to feed and shelter.

A mature horse’s average thermoneutral zone can range from 40 to 80 degrees

Fahrenheit. In the absence of wind and moisture, horses can tolerate temperatures at or slightly below 0 degrees Fahrenheit. With access to adequate shelter, horses can tolerate temperatures near 40 degrees below 0 Fahrenheit. If the hair coat is wet, or the horse has an undesirable hair coat for the climate (e.g., long in the summer, short or clipped in the winter) the thermoneutral zone can change, and, thus, horses may require additional management attention. For example, the horse’s winter hair coat is designed to act as an insulator and provide the horse with needed warmth for cold conditions. During cold weather, the horse’s hair coat will stand up, trapping body heat underneath. However, once the hair coat becomes wet and lays down against the body, the coat loses its insulating ability and increased management may be needed to keep horses warm (Image 1). Similarly, if the horse has a long hair coat in the summer, the animal may have difficulty cooling down and may require assistance to maintain its body temperature.



Image 1: Once a horse's hair coat becomes wet, it loses some ability to insulate the horse and assist in maintaining body temperature.

When environmental temperatures fall below the minimal temperature of the comfort zone, heat production is increased through biochemical reactions to ultimately produce heat. Increasing a horse's access to forage in colder temperatures is helpful to promote body temperature maintenance through the heat of digestion. If environmental temperatures increase above the comfort zone, the horse will sweat in an attempt to cool the body and maintain body temperature. Providing access to acceptable shelter for all horses is important in assisting the animal in maintaining a normal body temperature in all weather conditions.

Natural vs. Constructed Shelter

Horses can seek adequate shelter from many naturally occurring "structures." A tree line or other natural barriers that can provide shade, a windbreak or a cover from rain are acceptable shelters for horses. Even in warm or hot temperatures, shade from trees can provide protection from the sun, along with relief from direct heat and insects (Image 2).

Constructed shelters can vary greatly in overall structure, complexity and design. An open-sided structure, or sun-shade, consisting only of a roof can provide adequate shelters for horses to seek refuge from sun and inclement weather. Run-in sheds are commonly used for horse shelters, providing an open front, with a roof, and three sides to shield from wind and other weather conditions. A constructed barn with stalls for horses to access can also be used as a safe equine shelter.

It is important to note that horses often maintain good health and welfare when kept outside, especially over those that are stalled or kept in confinement for long periods of time. Horses kept indoors tend to have higher incidence of respiratory problems, colic and swelling of the lower limbs, or stocking-up (edema). Also, even the best constructed shelter designed for human comfort may not be the best suited for equine health, as horses have adapted to live in naturally occurring conditions. Horses kept in confinement should be allowed to exercise and/or be provided turnout daily. Consideration should be given to the location, size, and type of shelter to provide access to all horses and optimize time outdoors.



Image 2: Horses can use a tree line for shelter. (Image credit: iStock)

Shelter Requirements and Considerations

Horses should have free access to shelter at all times. Shelter should be large enough to accommodate all horses, taking into account herd dynamics and reducing fighting behavior. Constructed shelters should provide adequate ventilation to prevent a buildup of waste gases, dust and other irritants. Open structures allow for natural ventilation, while fans and air inlets can be useful in more enclosed shelters. Use caution to prevent openings from becoming drafty and allowing large gusts of wind from racing through the structure. All structures should be free of hazards that may cause injury to the horse.

Shelters should be located in areas with good drainage and minimal risk of water accumulation during times of heavy rainfall. For shelters with sides, consider placing the sides of the structure to block where wind most often prevails. Ground surface should be level, dry and provide adequate traction.

Also, it is important to consider waste removal from the shelter area. As horses may spend considerable time in the shelter, waste can accumulate and should be removed to provide clean living conditions. On average, a horse will produce 50 pounds of manure and nearly 3 gallons of urine per day, which can quickly build up and cause undesirable living conditions. Bedding can be useful to help absorb waste products and provide insulation from the ground. Any material used for bedding should be removed as it becomes soiled and replaced with clean bedding regularly to promote the health and welfare of the horse.

The size of the structure should be considered to ensure all horses can have equal access to the space. A good starting place for a run-in or open front structure size is to allow for 12 feet by 20 feet, or 240 square feet, for two horses. For each additional horse, an additional 10 feet by 6 feet, or 60 square feet, should be sufficient space, assuming horses housed together get along (Image 3).



Image 3: A sample run-in shelter for horses at the UT Middle Tennessee AgResearch and Education Center in Spring Hill, Tennessee. (Image Credit: Kevin Thompson, UT Institute of Agriculture)

In the event horses do not get along, constructing separate structures or providing different areas for horses to seek shelter is important to allow all animals access to shelter.

Individual stalls should be large enough for the biggest horse at the facility to turn around and lie down. A stall that is 12 foot by 12 foot, or 144 square feet, is usually sufficient for all but the largest horses or for use as a foaling stall. Shelter should be tall enough to provide 1 foot of clearance above the largest horse's head when held at the highest point above the withers. Building plans for horse barns and shelters can be found by referencing UT Extension publication PB 1590, "Agricultural Building and Equipment Plan List" (extension.tennessee.edu/publications/Documents/pb1590.pdf) or contacting your Extension county agent.

Conclusions

Horses should have access to shelter at all times, with enough space to allow for all horses to access shelter equally. A horse's ability to cope with varying temperatures and weather

conditions can vary depending on hair coat, access to feed and water, and shelter availability. Shelter can range from naturally occurring structures, such as a tree line, to those constructed to provide cover and protection from a variety of weather conditions. For more information on equine shelters or how to manage your horses, contact your Extension county agent for assistance.

References

- A Guide: Minimum Standards of Horse Care in the State of California; February 2014. UC Davis School of Veterinary Medicine, Center for Equine Health.
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