

PASTURE MANAGEMENT FOR HORSES



Pasture is an important feed source for many farm animals. It has many benefits when used to feed horses. Pasture is the cheapest feed source and, when well-managed, can provide adequate nutrition for horses. Compared to kept-in-stall horses, those maintained in pastures also have access to sunlight, more space to exercise, improved social interaction, and the ability to eat throughout the day, all of which provide better animal welfare. There is, however, some pasture management guidance that needs to be observed to maintain healthy pastures for horses.

Horse Grazing Behavior and its Effects on Pastures

Horses are selective animals that choose more palatable plant species and prefer immature tissues instead of more mature tissues. Horses concentrate grazing activity in certain areas of the pasture where preferred species are established. For that reason, certain areas present more mature forage (slightly grazed), while the preferred area will be overgrazed, resulting in a varied pasture canopy. This spot grazing behavior, along with the ability to graze close to the ground, may result in pasture degradation, soil erosion, and weed infestation.

In a grazing system, after a grazing period, the remaining leaves in the pasture contribute to capturing sunlight and using photosynthesis to support the regrowth process. However, the horse's ability to graze close to the ground leaves little residual leaf area. In this case, forages mobilize root reserves (carbohydrates) to ensure regrowth. When plants are repeatedly grazed without an adequate rest period, the reserves are depleted, resulting in a thinner stand (fewer tillers in the pasture). If this management persists, forage plant recovery will be compromised, leading to bare ground, erosion, and weed infestations.

Rotational Grazing

An alternative to continuous grazing that promotes more homogeneous grazing is rotational, or alternate, grazing. Different from continuous grazing, in which the animals

have access to the entire pasture, in rotational grazing the pasture is divided into paddocks (smaller pastures). Horses are allowed to graze one paddock at a time, while plants in the other paddocks recover from the previous grazing (Figure 1).

Even though it increases fencing costs, rotational grazing results in more uniform grazing and allows the other paddocks to produce more forage because the rest period

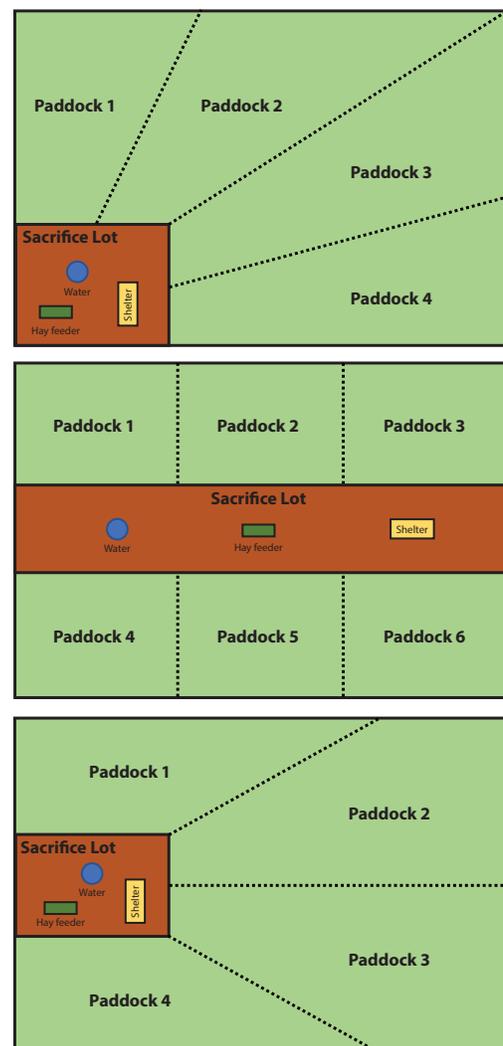


Figure 1. Rotational grazing layouts.

is respected. It gives the forages the required time to produce new leaves and replenish reserves (Figure 2).

Animals should be placed in a paddock when the canopy height reaches at least 8 inches, and they should be removed when there are 3 to 4 inches of stubble height. Post-grazing height shorter than 3 inches negatively influences regrowth, reducing forage production and pasture persistence. Forcing animals to graze at shorter heights also reduces forage intake due to lower nutritive value and greater stem proportion in the low-canopy stratum. Grazing at shorter heights also forces horses to graze close to the ground, where carbohydrate concentration is often increased, thus increasing the risk for health complications in horses with insulin dysregulation. The occupation period in each paddock should be no longer than seven days. After a week, horses will start to graze regrowth, forcing the plants to use more reserves before having the chance to replenish them. This can impair the pasture cover and persistence.

The length of rest period needed for the canopy to reach 8 inches depends on weather conditions and soil fertility. Adequate water and soil nutrient availability accelerate plant growth and the plants will reach the pregrazing height in a shorter period. Conversely, dry periods and low soil fertility result in slower regrowth rates, and plants will require longer recovery periods. Pasture management in rotational grazing should be driven by canopy height, not by a calendar.

In rotational grazing, it is recommended to divide the pasture into at least three or four paddocks. Ideally, all paddocks would have access to a sacrifice lot, where higher trampling is expected due to the free access year-round. Depending on soil fertility and forage species, each adult horse will need from 2 to 4 acres of pasture. Pastures that are too small can limit horse exercise, and pastures that are too large can result in spot grazing, especially close to water or shade. Horse owners may have more than one rotational grazing system and use each of them for different classes of horses.

Sacrifice Lot

The sacrifice lot is where horses have unlimited, year-round access and should contain shelter, a feeder, and a water source. If no paddock reaches pregrazing canopy height, animals should be kept in the sacrifice lot and fed with hay while the pastures reach the predefined grazing height. Alternatively, the horses also may be fed with hay to complement the diet while grazing each paddock, which will reduce pasture forage intake. This strategy helps postpone the move to the next paddock if grasses did not reach the pregrazing height.

Horses also must be moved to the sacrifice lot when the pasture is muddy or after a heavy rain. Trampling by horses causes more damage to pasture compared to trampling by other animals. It may cost a few bales of hay, but avoiding trampling areas with high soil moisture will positively affect pasture productivity.

Avoiding Colic

Abrupt changes in a horse's diet can cause laminitis or colic. After keeping horses on the sacrifice lot waiting for a paddock to reach the pregrazing height, or if horses were kept in a stall for some reason, it is important to reintroduce them to pasture gradually to avoid laminitis or colic.

Feed the horses with hay before allowing them to graze, and then keep them on the pasture for only 1 hour on the first day. On subsequent days, add 30 to 40 minutes each day. This procedure should also be done when horses are placed on spring pastures after going throughout the winter without grazing.

Mowing

Although rotational grazing minimizes animal selectivity, grass height in the paddock may not be completely uniform after grazing. It is important to mow the pasture after removing animals in each rotation to encourage uniform pasture growth. This procedure promotes

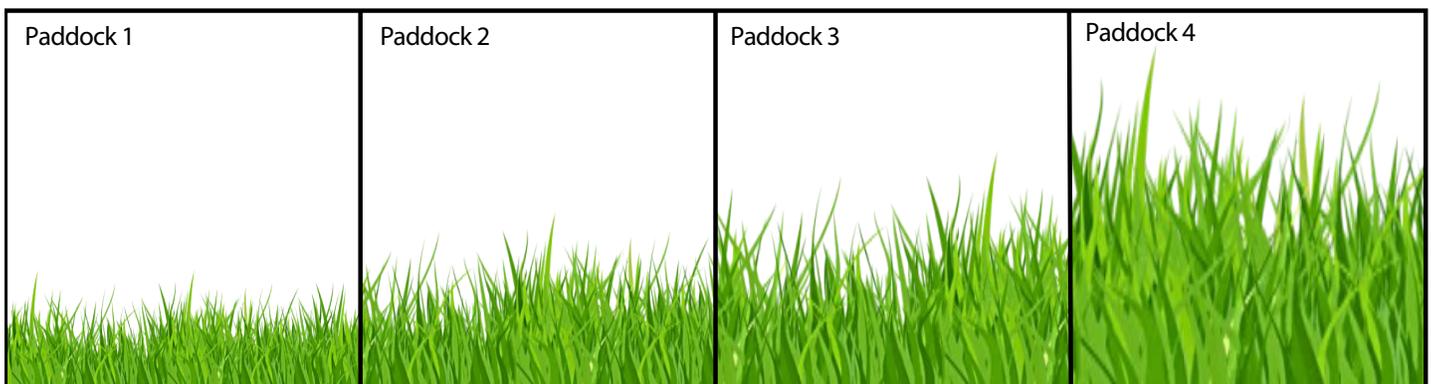


Figure 2. Different canopy heights in each paddock in a rotational grazing system.

uniform grazing in the next cycle. Mowing the pasture also eliminates seed-producing heads and reduces weed infestation. The elimination of seed-producing heads is also beneficial to horses with insulin dysregulation, as nonstructural carbohydrates are concentrated in seeds. Mowing height should be the same as post-grazing height (3 to 4 inches).

Dragging

Horses usually select a few areas on the pasture to defecate and reject the forage close to these areas, which also reduces uniform grazing. Manure buildup can prevent plant growth underneath. Manure clumps also impair nutrient cycling as the nutrients contained in the feces are concentrated at specific points on the pasture. Dragging helps spread manure over the paddock, improving nutrient distribution and resulting in uniform regrowth, and, consequently, providing more uniform grazing in the next rotation. By exposing them to sunlight, dragging helps kill parasites present in manure.

Fertilizing

Fertilization increases forage production and improves forage quality. Using proper fertilization and good pasture management encourages rapid forage growth, which, in turn, uses stored carbohydrates, thus making those pastures a safer source of forage for horses prone to metabolic challenges, including insulin dysregulation. Phosphorus is the main nutrient for pasture establishment. On an established pasture, nitrogen is the most important nutrient, and its application right after moving the animal to the next paddock contributes to accelerating

plant growth. Potassium is also needed to increase forage yields, especially in southeast Kansas.

Fertilization should be based on a soil analysis report. Every 2 or 3 years, soil samples need to be taken for an accurate fertilizer recommendation. Grazing should only be allowed after fertilizer pellets have been completely dissolved. Light rainfalls help dissolve the pellets; however, strong rainfall can cause nutrient runoff, mainly nitrogen and potassium. All K-State Research and Extension offices have instructions regarding soil sampling and soil tests. Contact your local agent for more details on soil analysis.

Weed Control

Weed control helps reduce competition for water, sunlight, and nutrients between weeds and forage species. Mowing (preventing weeds from producing seedheads), maintaining soil fertility levels (fertilization), and controlling overgrazing (grazing management) are the best ways to control weeds. If these practices are not enough to control weeds, the use of herbicides is recommended.

An herbicide wipe-on applicator can be used if weeds are at least 6 inches taller than forage species or use a spot spray if weeds are not widespread throughout the pasture. Before using any herbicide, always consult the label for application restrictions and instructions, such as recommendations about rates, timing, and grazing restrictions. Do not allow grazing until after the grazing restriction period has ended. More details can be found in *Chemical Weed Control for Field Crops, Pastures, Rangeland, and Noncropland*, available at: bookstore.ksre.ksu.edu/pubs/chemweedguide.pdf.

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