Recommended Species for Horse Pastures

Krishona Martinson and Craig Sheaffer, University of Minnesota

In the Midwest and Eastern U.S., cool-season grasses are the foundation of productive pastures. Horses are known as selective grazers and horse grazing habits may limit the productivity and survival of some pasture species. Forage yield and persistence are important criteria when selecting grasses for productive pastures, especially for highly selective livestock, like horses.

Recent reseach evaluated tall fescue, meadow fescue, quackgrass, smooth bromegrass, meadow bromegrass, reed canarygrass, perennial ryegrass, timothy, Kentucky bluegrass, creeping foxtail, and orchardgrass under horse grazing. Grasses were evaluated for percent ground cover (persistence), yield, and preference. Preference was estimated by visually comparing height and mass of the grass before and after each grazing event on a scale of 0 (bare ground) to 100 (100% ground cover of desired species). Horses rotationally grazed pastures when most grasses reach 6-8" and were rotated to another pasture when most grasses were grazed to 3-4". Pastures were then mowed to 3-4", manure was removed, and pastures were allowed to re-grow.

Kentucky bluegrass, meadow fescue, orchardgrass, and tall fescue were the most persistent grasses with ≥78% ground cover after two years of rotational grazing by horses. Meadow bromegrass, perennial ryegrass, and quackgrass had moderate levels of ground cover ranging from 40-61%, and creeping foxtail, reed canarygrass, smooth bromegrass, and timothy were among the less persistent grasses, with ground cover ≤24% after two years of rotational grazing by horses. Researchers agree that reed canarygrass, smooth bromegrass, and timothy will not persist well if cut or grazed during the stem elongation phase due to depletion of carbohydrate root reserves and removal of stems and leaves that are responsible for re-growth. Current equine grazing recommendations include initiating grazing of tall, cool-season grass pastures at a height of 6-8". This recommendation will likely result in reed canarygrass, smooth bromegrass, and timothy being at the stem elongation stage at the start of each rotational grazing period, making these plants particularly vulnerable to carbohydrate depletion and poor persistence. Grazing initiation should either be managed to avoid the stem elongation stage in these species, or these grasses should not be included in grazing systems. More persistent species like orchardgrass, Kentucky bluegrass, meadow fescue, and tall fescue do not have elongated stems during re-growth. These grasses remain low-growing and vegetative or leafy during re-growth.

The most preferred grasses were Kentucky bluegrass, meadow fescue, and timothy with post-grazing grass removals ranging from 67-80%. Grasses that tended to be more moderately preferred included quackgrass, tall fescue, perennial ryegrass, and smooth bromegrass, with post-grazing grass removals ranging from 59-64%. Meadow bromegrass, creeping foxtail, reed canarygrass, and orchardgrass were the least preferred grasses, with post-grazing removals ≤50%. To maximize forage use, grasses with similar preference ratings should be planted in horse pastures. A mixture that results in uniform grazing should maximize forage use and minimize pasture maintenance and associated expenses.

Orchardgrass, tall fescue, meadow fescue, and Kentucky bluegrass were the highest yielding grasses, averaging 4.0-5.4 tons/ac annually. These same four grasses were also the most persistent under horse grazing. Quackgrass, perennial ryegrass, reed canarygrass, and meadow bromegrass yielded moderately well, while creeping foxtail, smooth bromegrass, and timothy were the lowest yielding grasses.

Researchers recommend orchardgrass, meadow or tall fescue (endophyte-free), perennial ryegrass, and Kentucky bluegrass be planted in Midwest horse pastures as they provide a balance between forage persistence, yield, and horse preference. An example pasture mix for a well-drained soil in the Midwest would include 10 lbs/ac of Kentucky bluegrass, 3 lbs/ac perennial ryegrass, 3 lbs/ac tall or meadow fescue, and 3 lbs/ac orchardgrass. This mixture will change (slightly) depending on soil type and location.