Grazing Horses on Grass-Legume Pastures

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Importance of Pasture to the Horse. Forages are an important component of the equine diet, and previous surveys have reported >80% of horses having some pasture access. There are numerous benefits for horses grazing pasture rather than consuming hay in confinement, including the reduction of unwanted behaviors such as bedding and manure eating, cribbing, and wood chewing.

Benefits of Adding Legumes to Horse Pastures. Growing horses, horses in heavy work, and lactating mares all have greater energy and nutrient needs which often cannot be met by grass pasture alone. Legumes such as alfalfa and white clover have the potential to meet these elevated needs, and can be planted with grasses to improve forage nutritive value. Grass-legume pastures also offer other added benefits, including increased yield, better weed suppression, improved seasonal distribution of forage, and greater adaptability to variable weather conditions. Additionally, through biological nitrogen (N) fixation, legumes can also transfer N to grasses, thus reducing N fertilization needs. However, there is limited information available on the impact of horses grazing on grass-legume pastures.

Research. In an effort to learn more about horses grazing on grass-legume pastures, a research project was undertaken to evaluate yield, plant composition, forage nutritive value, and preference of grass-legume pastures under horse grazing. Small pastures consisting of orchardgrass, Kentucky bluegrass, and meadow fescue were planted alone and in mixtures with alfalfa or white clover and grazed by four adult horses for three years; horses grazed the pastures monthly during the growing season. Prior to each grazing, a portion of each pasture was harvested to determine yield and sampled for forage nutritive value and plant composition. After each grazing, horse preference was determined by visually assessing plant removal on a scale of 0 (no grazing activity) to 100 (100% of the vegetation grazed).

Yield. In general, alfalfa tended to complement grasses by increasing yield compared to grasses planted by themselves. For example, Kentucky bluegrass-alfalfa mixture had a seasonal yield of 5.8 tons/ac compared to 3.7 tons/ac when Kentucky bluegrass was planted alone.

Weeds. Weeds pose a problem in pastures, as they can reduce yield and forage nutritive value. In addition, certain weeds can pose a toxicity risk to grazing livestock. Unfortunately, the use of herbicides for weed control cannot be utilized in grass-legume mixtures, as products will also injure or kill the desired grasses and legumes, depending on the target weed species. Grass-legume mixtures tend to create a more competitive environment compared to grasses planted by themselves; therefore, mixtures can be used as an effective management tool to help reduce weeds. For example, adding legumes to Kentucky bluegrass resulted in a decrease of weeds. Owners can also use cultural and mechanical weed control, including over-seeding and mowing, in mixed pastures.

Forage Nutritive Value. In general, forage nutritive values were improved when legumes were planted with grasses, including higher crude protein (CP) and lower fiber values. For example, during the third year of grazing, the Kentucky bluegrass-alfalfa mixture had 20% CP and 48% neutral detergent fiber (NDF) compared to 16% CP and 55% NDF when Kentucky bluegrass was planted alone.

Horse Preference. All of the forages were readily grazed by the horses, who consumed most of the forage in each pasture. Therefore, minimal differences in horse preference were observed when horses grazed the pastures.

Take-Home Message. The addition of alfalfa and white clover to grass pastures has potential to improve yield, nutritive value, and weed suppression, but had minimal impacts on horse preference. However, given the higher nutrient content of grass-legume pastures, they may not be appropriate for horses that are overweight or prone to certain metabolic conditions and are likely ideal for horses with higher nutrient requirements.

Key Points:

1. Legumes tended to complement grasses by increasing pasture yield.
2. Grass-legume mixtures resulted in decreased weed pressure.
3. Grass-legume mixtures improved forage nutritive values but had little impact on horse preference.
4. Grass-legume mixtures provide benefits for horses with elevated nutrient needs (e.g., lactating broodmares, performance horses, and growing horses).

Horses grazing legume grass pastures.

White clover grass pastures.

Alfalfa grass pastures.