West Virginia University Extension Service

Forage Management

Forage and Animal Yield Response to Legumes

Edward B. Rayburn, Extension Specialist
April 2008[1]

Forage Yield Response to Legumes

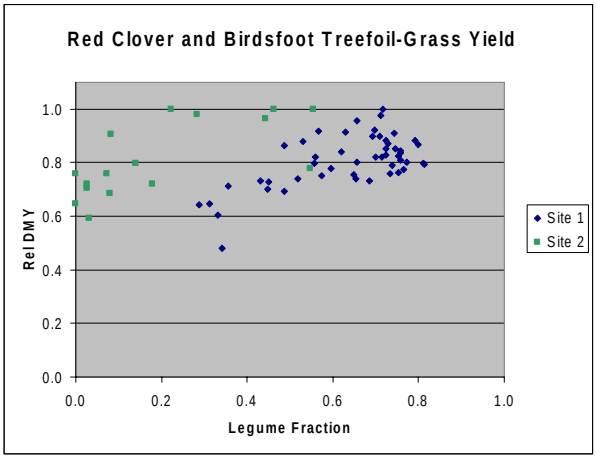

Figure 1. The critical percentage for legumes maximizing forage dry matter yield is dependent on soil organic matter; low organic matter high legume percentage, high organic matter low legume percentage.

Grass in an alfalfa stand produces 10 to 20 percent more dry matter yield than pure alfalfa stands. Grasses help legumes over-winter and fill in and provide increased yield, using N provided by decomposing soil organic matter, as insects and diseases thin the legumes in the stand especially as the stand ages.

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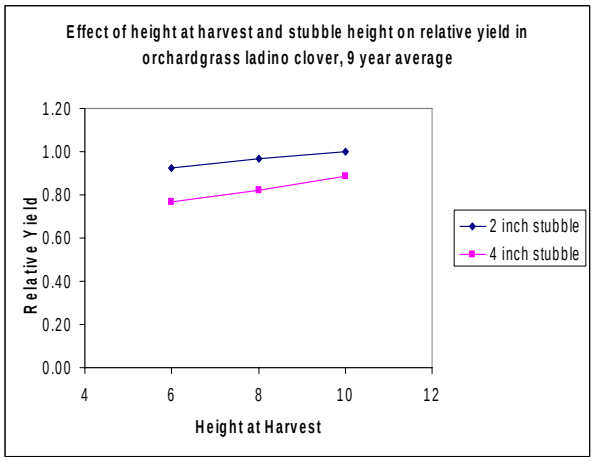

Figure 2. The critical harvest height of grass-legume mixtures is to harvest (machine or grazing) to a 2-inch stubble to increase yield and stimulate the legume. In very hot, dry weather use a 4-inch stubble to reduce drought stress to the stand but return to a 2-inch harvest when cool temperatures return.

Animal Yield Response to Legumes

The critical percentage for legumes maximizing animal gain is limited by bloat potential of legume and need for grass in stand to help legumes over winter; no more than 50 percent legume is recommended for clover and alfalfa-grass stands to limit risk of bloat. Bloat is not an issue with birdsfoot trefoil and sericea lespedeza.

Backgrounding calf gain on pasture is increased by 0.5 lbs per day with a 20% increase in legumes in the pasture.

Yearling gain per acre on orchardgrass-clover pasture is similar to orchardgrass pasture fertilized with 200 lbs N/acre.

Dairy cows produce 8 lbs more milk per day on grass-legume stands than on the same grass fertilized with N at the same level of grain feeding per animal per day.