Grazing Intensity, Pasture Species Effect On Forage Production

Background

Orchardgrass and bluegrass, common pasture species, differ in adaptation to grazing and hot, dry weather.

Bluegrass stores reserves for regrowth underground in rhizomes, has growing points protected close to the soil surface, and therefore, is tolerant to close grazing. But often bluegrass is not productive during hot, dry weather.

Orchardgrass stores reserves in the stem base and is less tolerant to close, intensive grazing, but can be productive in summer. In this study, we described species contribution to seasonal forage production in a typical mixed Pennsylvania pasture, and hypothesized that intensive, close grazing would reduce orchardgrass persistence, forage production, and production during dry, summer periods.

Procedures

During the grazing seasons of 1998 and 1999, we compared the effect of two grazing regimes on a pasture dominated by orchardgrass, bluegrass, and quackgrass, with some legumes.

The experiment was a split-block with four replications, time was the whole plot, and grazing treatments were sub-blocks. The two grazing regimes were defined by orchardgrass height:

- Tall pastures were grazed when the average orchardgrass height was 11-inches down to three-inches.
- Short pastures were grazed when the average orchardgrass height was 8.5-inches down to two-inches. Forage available for grazing and species tiller density were sampled before each grazing event; orchardgrass stubble (stem base + leaves) was sampled after each grazing.

Major Findings

After grazing, orchardgrass stubble stem base and leaf dry weight were significantly higher in the tall pastures than the short pastures. Consequently, orchardgrass tiller density was significantly higher in the tall pastures over the two years.

Bluegrass tiller density did not differ significantly between grazing regimes, but quackgrass tiller density was higher in the short pastures. Bluegrass tiller density decreased dramatically during hot, dry weather.

Bluegrass tiller density was significantly higher than orchardgrass and quackgrass. However, orchardgrass produced more forage for grazing than bluegrass and quackgrass during dry summer periods, and over the entire season. And quackgrass produced a similar amount of forage for grazing as bluegrass produced.

The amount of orchardgrass and total forage grazed at each grazing event was significantly higher under the tall grazing regime than the short grazing regime. Further, the total forage grazed over 1998 and 1999 was significantly higher under the tall grazing regime than the short grazing regime.

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