Forage Cations as Affected by Soil pH and Topdressed K. (S04-peters141738-Poster)

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Abstract:

In recent years, concerns have surfaced relative to the amount of K in forage tissue, which is strongly influenced by soil test K levels as well as other factors. An ionic imbalance in the ration increases the potential for the cow to develop milk fever at freshening. This four-year study was designed to examine the interactive effects of varying soil pH levels and annual potassium applications on forage mineral balance, yield and quality. Results indicate that soil pH and applied K can both significantly influence forage yield, quality and cation levels. At all three locations where the study was conducted, as soil K increased, tissue K increased very dramatically, however, tissue Ca and Mg decreased to a much smaller extent. The annual application of K resulted in a buildup of soil test K and a decrease in soil test Ca and Mg. Increasing soil pH, and consequently soil test Ca, did not appear to consistently result in reduced tissue K levels. However, liming these acid soils was essential to optimize yields of alfalfa. Keeping soil test K levels in the optimum range appears to be the best strategy for keeping forage tissue K levels in acceptable ranges for use as dry cow and early lactation dairy feed.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 9:00-11:00 am

Poster Board Number: 2420

Keywords:
forage cation levels, soil pH x K interaction, forage mineral balance