



Do low-rate annual lime applications improve pastures?

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Typical recommendations for lime application are to spread 2 to 10 tons per acre of lime, incorporate the lime with some form of tillage, and then plant the crop. There are some situations such as permanent pastures and hay fields, where a lime application could be beneficial but producers don't want to till and reseed. Other places in the world, notably New Zealand, pastures and hayfields are maintained by regular application of lime and other fertilizers for years without reseeding. Jane Jewett, a former graduate student at University of Minnesota, asked the question. Could this approach work in the U.S.?

She made applications rates of 500, 1000, and 1500 lbs/acre of agricultural limestone equivalent. Applications were done in two consecutive years, 1997 and 1998.

Lime applications shifted the species composition from 8 percent legumes and 60 percent grass to about 63 percent legumes and 28 percent grass. The crude protein of the forage increased along with the increase in legumes.

Soil pH stayed constant at 5.1 and 5.2 in the untreated strips. All strips treated with liming materials showed a trend toward increased soil pH.

There was a trend toward increased yield on lime-treated strips. Untreated strips averaged 4.1-tons/acre yields over two years. The average 2-year yield for strips limed at the 1000 lbs/acre rate was 5.2 tons/acre.

Jane Grimsbo Jewett concluded:

Topdressing low rates of lime annually are a viable option for pastures and hayfields.

The low rates of liming materials were very difficult to spread evenly. Applications rates of about a ton of material per acre would be more practical.

Results were fairly dramatic on the sandy soil with low pH and very poor nutrient status, and using fine-particle liming materials. Results may take more time or be less dramatic on soils with better soil fertility, or when more coarse liming material is used.

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