

## Nitrogen Fertilization of Bromegrass

Nitrogen fertilizer costs are increasing dramatically, and hay prices are remaining fairly constant. Should we change our plans for nitrogen fertilizer applied to brome this spring. Dave Mengel, Kansas State Soils Specialist summarized the results of more than 100 experiments conducted in Kansas since 1975, and looked closely at the response of brome to spring-applied N fertilizer.

The summary gives a nice response curve, with average yields ranging from an unfertilized check yield of 1.35 tons of hay per acre, to a maximum yield of 3.15 tons of hay with 140 pounds of N.

Doing some simple cost-and-return calculations, using \$60 per ton as the value of the hay produced and \$0.55 per pound for the N, the data was generated:

The University of Nebraska Extension recommendation would be 60 pounds of nitrogen spring applied with an additional 20 pounds applied in September if moisture for growth is present. We could also choose 80 pounds in the spring as a one time application. At zero nitrogen application rate the yield would be 1.35 tons of dry matter per acre. At 60 pounds of nitrogen the yield would increase to 2.52 tons of dry matter per acre with a positive economic return. At 80 pounds per acre the return would be lower, but still positive with 2.78 tons of dry matter per acre. Application rates of nitrogen over 100 pounds per acre produced negative returns for the additional nitrogen fertilizer applied.

The cost of nitrogen fertilizer applied to brome grass has to be weighed against two factors. We have shown to dry matter production increases. We also will see a protein content increase in the grass of 4-6% points. Miner Institute in New York says 6% on first growth of the summer. When you factor in this protein increase, I think we are on sound economic ground to apply nitrogen fertilizer to our brome grass pastures.

In view of the cost of fertilizer and more so the less than full current soil profile, it may be wise to take the split application approach of 60-70 pounds in the spring and 20-25 pounds in September if moisture warrants the application.

The other consideration for brome pasture of hayland is phosphorous fertilizer. A basic soil test on the pasture can help to guide fertilization choices. Certainly if the Bray P1 level was less than 10 ppm an addition of 20-40 pounds per acre of phosphorus could dramatically increase pasture production of the hay crop.

Native warm season grasses only warrant single applications of 40-50 pounds of nitrogen fertilizer per acre. These applications should be made only after May 15 and only on good quality pastures. Fertilizing native pastures in poor condition will likely result in more stimulation of weeds and invader grasses than the native grass itself, more harm than good.

Paul C Hay, Extension Educator

University of Nebraska-Lincoln Extension in Gage County • 1115 West Scott Street, Beatrice NE 68310

(402) 223-1384 • FAX: (402) 223-1370 • email: [phay1@unl.edu](mailto:phay1@unl.edu)

