Phosphorus and Potassium Impact on Alfalfa Yield Component Responses and Herbage Nutrient Concentrations. (S04-cunningham092229-Poster)

Authors:

- W.K.Berg* - *Purdue University, West Lafayette, IN*
- S.M.Howard - *Purdue University, West Lafayette, IN*
- S.M.Cunningham - *Purdue University, West Lafayette, IN*
- S.M.Brouder - *Purdue University, West Lafayette, IN*
- B.C.Joern - *Purdue University, West Lafayette IN*
- K.D.Johnson - *Purdue University, West Lafayette, IN*
- J.J.Volenec - *Purdue University, West Lafayette, IN*

Abstract:

Phosphorus (P) and potassium (K) increase alfalfa yield and stand persistence, but the changes in yield components responsible for this improved agronomic performance have yet to be quantified. Replicate plots of P (0, 25, 50, 75 kg/ha) and K (0, 100, 200, 300, 400 kg/ha) treatments were arranged in a factorial design. Forage harvests occurred four times annually, and yield, mass/shoot, and shoots/area determined. Phosphorus and K concentrations were analyzed and critical values for maximum yield were calculated along with herbage nutrient removal. Total yield increased with P and K additions through enhanced mass per shoot, not shoots per plant or plants per area. Critical values for herbage P and K concentrations were 2.2 and 1.5 mg/g, respectively, and varied with harvest for K. Removal of K in forage exceeded K application for all treatments where P was provided. Phosphorus removal in forage exceeded P application for the 25 kg/ha rate, but not the 50 and 75 kg/ha rates.

Corresponding Author Information:

Suzanne Cunningham
Purdue University
1150 Lilly Hall
West Lafayette, IN 47907-1150

phone: 765-494-5825
fax: 765-496-2926
e-mail: scunningham@purdue.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002

Presentation Time: 9:00-11:00 am
Poster Board Number: 2322

Keywords:
alfalfa yield, phosphorus nutrition , potassium nutrition, alfalfa persistence