

# **Fertility levels in Soil as influenced by Poultry Litter Application to Sudangrass and Orchardgrass. (S04-gilfillen114932-Oral)**

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## **Abstract:**

Poultry litter can be used to fertilize pastures and hayfields. If properly managed, litter can be returned to land; however, one concern regarding land application of poultry litter is soil nutrient accumulation. Applying poultry litter to land at recommended crop N rates can lead to an accumulation of P, K, and micronutrients in the soil. This study was developed to observe changes in characteristic soil fertility properties after fertilization with poultry litter and/or inorganic fertilizers. A completely randomized block design consisting of four treatments was utilized: an inorganic N, P, K fertilizer (I), poultry litter applied according to recommended P rate (PPL), poultry litter applied according to recommended N rate (NPL), and poultry litter applied at recommended P rate with supplemental inorganic N fertilizer (NPPL). In the poultry litter applications, plant available P was estimated to be 80% while N availability was estimated at 50% for the first year of the study. Soil samples from sudangrass and orchardgrass hayfields were separately analyzed for pH,  $\text{NH}_4^+$ ,  $\text{NO}_3^-$ ,  $\text{Ca}^{2+}$ ,  $\text{Mg}^{2+}$ ,  $\text{PO}_4^{3-}$ ,  $\text{K}^+$ ,  $\text{Cu}^{2+}$ ,  $\text{Fe}^{3+}$ ,  $\text{Mn}^{2+}$ , and  $\text{Zn}^{2+}$ . NPL soils were higher in K,  $\text{PO}_4^{3-}$ ,  $\text{Cu}^{2+}$ , and  $\text{Zn}^{2+}$  than all other treatments in both forage crop soils.

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