Quantification of Total Soil and Plant Tissue P and N Using Forage Crops and Remote Sensing Under Poultry-Littered Field Conditions. (A05-yaffa171429-Poster)

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Abstract:

The Sand Mountain area of the state of Alabama has a high concentration of poultry litter application to the soil. This practice can cause pollution of ground and surface water bodies through leaching and runoff of soil nutrients. We are examining the correlation between total soil and plant tissue P and N and percent(%) reflectance from six forage crops-Russell bermudagrass (Cynodon dactylon, L.), sudan sorghum (Sorghum bicolor, cv. Unigraze II, L.), alfalfa (Medicago sativa, L.), corn (Zea mays,L.), cereal ryegrass (Cereal spp., L.), and tallfescue (Festuca arundinacea, Schreb) on a poultry-lttered soil in northern Alabama. The 3-yr. experiment started in 2001 on a Hartsells fine sandy loam (fine-loamy. siliceous, thermic Typic Hapludults). The first year results show that between 750 and 800 nm wavelengths, all the forage crops emitted the highest percent (%) reflectance and the lowest percent reflectance was observed between 450 and 500 nm wavelengths. A higher concentration of total soil P was found in the 0-30 cm depth than in the 30-45 cm depth and both high soil and plant tissue P were highly correlated with 750-800 nm wavelengths. We are expecting a change in data results at the end of the experiment year in 2003 since soil moisture and temperature could influence nutrient movement in the soil and percent reflectance readings on the crops.

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