Geostatistical Relationships Among Spectral Imagery, Species Composition and Productivity in a Grass-Legume Pasture. (C06-tarr144857-Oral)

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Abstract:

Analyzing spatial relationships in a pasture can provide useful information for more precise management. In this study, the relationships between pasture production and spectral reflectance and pasture production and species composition were analyzed. The goal was to determine if the use of rapid and noninvasive measurement of canopy reflectance could be used as an indirect method for better characterizing variability in pasture biomass production and species composition. A 0.4 hectare grass-legume pasture was sampled in a dense, 116-point grid scheme. Above-ground biomass, species composition and spectral reflectance using an 8-waveband radiometer were measured at each point. Using the rapidly collected reflectance data, a fuzzy clustering algorithm was used to delineate areas of homogeneity in the pasture. Results suggest that a multivariate approach with vegetation indices such as NDVI may be useful in predicting biomass potential and predicting species composition of the delineated zones. Consequently, the use of a noninvasive, rapid and easily-collected variable such as canopy reflectance may aid in the management of pastures.

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