Legume Distribution Among Management Zones in Pastures Classified Using Fuzzy-C-Means. (C06-guretzky164344-Oral)

Authors:

- J.A.Guretzky - *Iowa State University*
- K.J.Moore - *Iowa State University*

Abstract:

Legumes are an important component of pastures because they improve the spatial and temporal distribution of yield and nutrients. However, their distribution in pastures varies with topography. We conducted this study to examine whether a fuzzy c-means clustering program could be used to create management zones that are effective in explaining the distribution of legumes across pasture landscapes. Slope and soil electrical conductivity (EC) data, collected from four, replicate pastures, were used in the program to create five management zones. We found legumes to be greatest in zones with intermediate soil EC values and slopes > 10%. The percentage of legumes in the pastures also was positively correlated to the diversity of leguminous species found within each zone. We conclude that forage producers can use slope and soil EC data to create management zones that can be used to optimize production and quality of forage spatially and temporally in pastures.

Corresponding Author Information:

John Guretzky phone: 515-294-4504
Iowa State University fax: 515-294-5506
1563 Agronomy Hall e-mail: jguretzk@iastate.edu
Ames, IA 50011-1010jguretzk@iastate.edu

Presentation Information:

Presentation Date: Monday, November 11, 2002
Presentation Time: 1:15 pm

Keywords:

species diversity, pasture management, GIS, geospatial