# **Comparison of Soil Survey Class-based and Fuzzy Systems Interpretations. (S06-nielsen144556-Poster)**

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### Abstract:

Two computerized soil interpretation modeling systems are used by USDA-Natural Resources Conservation Service to produce soil interpretations for published soil surveys. The class-based model, established in the early 1970's, is based on criteria that place soil limitations into discrete classes of slight, moderate, or severe. The fuzzy system model incorporated in the National Soil Information System (NASIS) in 1996, uses fuzzy systems techniques to numerically display the degree of soil limitation for an intended use. The two interpretive modeling systems were compared to identifying significant differences between the class-based and fuzzy system modeling processes. The class-based model output is a generalized approximation of a soil's behavior when used for the interpreted purposes but does not have the capability to rank, evaluate or differentiate soil performance within the classes. Fuzzy logic applications build upon the previous class-based model by incorporating membership functions that provide the user with the ability to differentiate degrees of limitations within the classes. These degrees of limitations provide more information about soil performance or limitations for a particular use than did the previous discrete classes.

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