Use of Soil Survey Information for Determining Soil Hydraulic Properties. (S01-rawls100559-Poster)

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Abstract:

Knowledge of hydraulic properties is a key element in hydrologic modeling. Laboratory and field methods for determining soil hydraulic properties are time consuming and expensive. Average soil hydraulic properties developed in the early 1980's according to soil texture or pedotransfer functions which relate basic quantitative soil properties such as soil particle size, organic matter, bulk density, etc.to soil hydraulic properties have normally been used in hydrologic models. We will present pedotransfer functions which predict soil hydraulic properties (water retention and hydraulic conductivity) based on various levels of qualitative soil survey information developed by applying regression tree analysis to the NRCS national soils data base. The qualitative information used in the pedotransfer functions were USDA soil texture classes, structure, grade, size and shape classes, dry and moist consistency classes and stickness,plasticity classes, topographic features, organic matter and taxonomic units which are subjectively estimated in the field and are part of every soil profile description. The qualitative soil survey information appear to be useful predictors of soil hydraulic properties.

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