Determination of the Hydraulic Properties of a Silty Clay Loam Soil in a Lysimeter. (S01-skaggs214947-Poster)

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Abstract:

At Parlier, California, two large weighing lysimeters are operated by the USDA to study the effect of shallow saline groundwater on root water uptake and evapotranspiration. In this study, the hydraulic properties of the silty clay loam soil in the lysimeters are determined by inverse modeling using the HYDRUS-1D model. Both volumetric water content data and boundary flux data are used in the parameter estimation process. The hydraulic properties of the soil matrix are assessed by simulating a post harvest period with upward flux from the shallow groundwater table. The hydraulic properties of the complete macro-porous soil are determined by simulating a winter fallow period with significant surface infiltration due to rainfall. The resulting soil hydraulic parameter sets are found to be profoundly different. The implications of using various fitting procedures are discussed in detail.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002 Presentation Time: 10:00 am-12:00 pm Poster Board Number: 1235

Keywords:

soil hydraulic properties