SEASON-LONG SOIL WATER DISTRIBUTION IN COTTON GROWN WITH CONSERVATION TILLAGE

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ABSTRACT

Knowing seasonal distribution of soil water content profiles under conservation tillage will provide knowledge needed to help improve management practices and may provide insight for developing improved crop cultivars for this system. Our objective was to measure water uptake by soil depth for two cotton (*Gossypium hirsutum* L.) cultivars differing in relative maturity. DPL 555 (full-season cultivar) and DPL Paymaster 1218 (short-season cultivar) were grown with conservation tillage in replicated plots. In two replicates for each cultivar, Sentek frequency domain reflectrometry sensors were installed at 4-inch depth intervals to 40 inches. Soil water content was recorded by depth at 30-minute intervals throughout the 2004 growing season. Most evapotranspiration was from the surface 12 inches of the profile. Rooting depth (depth of detectable water extraction by plant roots) of both cultivars was limited to the surface 20 inches. There were no differences between the cultivars in the distribution of soil water in the profile through the season. This study will be conducted again in 2005.