



Water use efficiency of different sugarcane genotypes irrigated by a subsurface drip irrigation system

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The biofuel production is a growing concern on modern society due to the agricultural sustainability, in which both food and energy supplying should be take into account. The agroclimatic zoning indicates that sugarcane expansion in Brazil can only take place in marginal lands, where water deficit occurs and irrigation is necessary. The aim of this work was to evaluate water consumption and the water use efficiency of two sugarcane genotypes irrigated by a subsurface drip irrigation system. The field experiment was carried out in Campinas SP Brazil, with IACSP95-5000 and SP79-1011 varieties. Those varieties have different canopy characteristics and development, with IACSP95-5000 being more responsive to soil water availability and presenting higher light interception when compared to SP79-1011. Crop evapotranspiration (ETc) was calculated through field water balance from August 2010 to March 2011. Soil water content was evaluated by using a capacitance probe, sampling different depths in soil profile until 1-m. IACSP95-5000 had higher water consumption than SP79-1011. The mean ETc value of IACSP95-5000 was 5.0 mm day⁻¹, whereas SP79-1011 showed 3.7 mm day⁻¹. ETc values were positively correlated to biomass production, with IACSP95-5000 exhibiting higher growth and water use efficiency than SP79-1011.