

Biomass Accumulation in the Various Plant Organs of *Coffea arabica* L., Cultivar Ruiru 11, Under Drip Irrigation in Kenya

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ABSTRACT

In a field drip irrigation trial, *Coffea arabica* L. cultivar Ruiru 11 was used. Irrigation was applied when a soil moisture deficit of 100 mm was recorded to offset the deficit by 0, 25, 50, 75 and 100%. Subsequent irrigation applications were at 21, 28 and 42-day intervals. Using destructive harvesting method the trees were separated into their component organs according to function, and their dry weights determined. The vertical and horizontal distribution of the root system was also determined. The vertical root distribution was half the horizontal distribution. The 21 day and 28 day intervals resulted in significant increases of leaf, twig and total plant biomass but the 42 day interval was not significantly different from the unirrigated treatment. All the drip irrigation rates resulted in significant increases in the stem biomass but with respect to the root biomass only the 75 mm and 100 mm rates resulted in significant increases. A higher water requirement for root than for stem growth was implied. The practical implications of the results are discussed.