

Estimation of Banana (*Musa* spp. L.) plant transpiration using a standard 20 cm pan in a greenhouse.

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An experiment was carried out in a naturally ventilated greenhouse to study the relationship between banana (*Musa* sp.) plant transpiration (Tr) measured with load cells, reference crop evapotranspiration (ET_o) calculated with five widely used models (i.e. the Priestley-Taylor, FAO radiation, Hargreaves, FAO Penman and FAO Penman-Monteith models) and pan evaporation (E_{pan}) measured with a standard Chinese 20 cm pan. Microclimatic conditions were measured inside the greenhouse. Results show that vapor pressure deficit and air temperature had good linear correlations to banana Tr with R^2 of 0.67 and 0.62, respectively. Among the five models tested, banana Tr and ET_o calculated with the FAO-Penman model yielded the highest determination coefficient ($R^2 = 0.67$), followed by the FAO-PM model ($R^2=0.63$), the FAO radiation model ($R^2=0.52$), the Hargreaves model ($R^2=0.49$) and the Priestley-Taylor model ($R^2=0.47$). Banana transpiration Tr vs. pan evaporation E_{pan} yielded an R^2 of 0.83, which is higher than the five models tested. In conclusion, the 20 cm pan can be useful for estimating banana Tr in greenhouses.