

## Canopy dynamics of two „climate-smart“ cassava varieties under drought in SW Nigeria

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Cassava is a major staple in Nigeria and elsewhere in sub-Saharan Africa where it is grown without irrigation. However, the estimated yield gaps between those obtained on farmers' fields (~12 Mg per ha) and on research stations (up to 60 Mg per ha) remains high. There is also little information about yield determinants and the impacts of the dry season on growth, leaf area development, senescence, and biomass partitioning of the cassava plant and how these impacts vary between variety and with fertilizer application. Given projected changes in rainfall, we conducted a study to understand better the development of the crop as well as the growth response to water deficiency during the dry season. This was part of the "African Cassava Agronomy Initiative" sponsored by the Bill & Melinda Gates Foundation. The factorial experiment compared the responses of two drought-tolerant varieties of cassava (TMEB 419, IITA-TMS-IBA980581), to four different potassium fertilizer treatments (nil fertilizer, 75 kg per ha:N and 20 kg per ha P with 90, 135 or 180 kg per ha K elemental application rates) and two different planting dates, replicated in four blocks and at two sites in South West Nigeria. Measurements over the dry season (October – February 2018) included biomass partitioning, light intensity and canopy interception with the aid of a ceptometer, leaf senescence and leaf area estimates. Preliminary observations show TMEB 419 with a taller stem and less dense canopy than IITA-TMS-IBA980581. Relationships between dry season response and yield in 2018 will be established allowing to optimise the planting time and fertilizer regime for each variety.