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“Competition for Resources in a Changing World:
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Partitioning Pattern and Biomass Production of Yam (*Dioscorea rotundata*)

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Abstract

There has been a decline in yam production relative to cassava and rice in Africa but yam is such a preferred staple food that, bearing in mind population increases, demand will remain and there will not be an absolute decline. Tuber yield of yam (*Dioscorea rotundata*) is determined by the total production of dry matter (DM) and its distribution within the crop dry matter partitioning is of great importance in crop production. Improvement of crop yield by plant breeding has resulted from higher harvest indices rather than improved DM production. However, there are limits to the fraction of assimilates that can be diverted to the harvestable organs. In this present study the effect of fertiliser on biomass production and the distribution of dry matter increments to the plant parts of white yam was determined by analysing data from field experiments set up in the Upper Oueme Basin (Benin Republic) over two years (2005 and 2006) where yam was harvested periodically during the entire stages of its growth. It can be concluded that fertiliser application has highly positive significant effect on total biomass production of yam in both the years (an increase of 42% and 84% in total biomass production under fertilised condition was registered in year 2005 and 2006 respectively) and dry matter distribution tended to follow a regular pattern if expressed as a function of phenological growth phase of the crop in both fertilised and unfertilised management practice.

Keywords: Dry matter distribution, phenological growth phase, yam