



Tropentag, September 18-20, 2019, Kassel

“Filling gaps and removing traps  
for sustainable resource management”

## Evaluation of Agronomic Traits Variation in White Yam (*D. rotundata*)

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### Abstract

Yams (*Dioscorea* spp.) are grown globally in Africa, Asia, Latin America, Caribbean and Oceania. Especially in the West African, there is a great demand for yam as staple food as well as a cash crop with increasing population. Among the 20 or more species of yam, white yam (*D. rotundata*) is the most important species as food material in West Africa. The growth characteristic of white yam such as large plant size and the long growing period makes it difficult to conduct field experiments and evaluations of the agronomic traits. Moreover, systematic breeding has hardly been carried out so far due to lack of plant physiological information. Although the genetic resource material held by IITA may include individuals with high breeding value, the diversity of their agronomic traits has not been clarified. Therefore, to obtain basic information for promoting white yam breeding, the evaluation of agricultural traits in the genetic resource material was conducted. The experiment was conducted at 2017 cropping season (May to Dec) in IITA Ibadan, Nigeria. Thirty genotypes of white yam were selected from IITA genetic resource material and used in this experiment. Destructive sampling was carried out to understand the tuber index (tuber weight / total plant weight) at early September. Growth period was calculated from date of sprouting to date of aerial part 100 % senescence. Tubers were harvested in December. The varietal difference between genotypes was clearly observed in agronomic traits. The genotypes with high tuber index in September tended to have a short growth period. The tuber yield was correlated with the aerial part biomass in September, suggesting that the biomass of the aerial part up to September are key traits to obtain a high tuber yield. From these results, it is expected to contribute to white yam breeding and development of improved varieties suitable for the region.

**Keywords:** Agronomic traits, varietal difference, yam