



Tropentag, September 20-22, 2017, Bonn

“Future Agriculture:
Socio-ecological transitions and bio-cultural shifts”

Assessing Yield Responses in Cassava - Maize Intercropping Across Diverse Environments in Southern Nigeria

CHRISTINE KREYE¹, CHARLES CHIGEMEZU², EJALONIBU SHOLA², THANNI BOLAJI³, REBECCA ENESI¹, STEFAN HAUSER¹, ABDULAI JALLOH¹, ADEYEMI OLOJEDE², OMOLARA ONASANYA³, INNOCENT ONYEKWERE², PIETER PYPERS⁴, FELIX SALAKO³, MARK TOKULA², BERNARD VANLAUWE⁴

¹*International Institute of Tropical Agriculture (IITA), Nigeria*

²*National Root Crops Research Institute (NRCRI), Nigeria*

³*Federal University of Agriculture Abeokuta (FUNAAB), Nigeria*

⁴*International Institute of Tropical Agriculture (IITA), Kenya*

Abstract

Intercropping of cassava with maize is a common practice in Nigeria and many countries in the humid and sub-humid agro-ecological zones in sub-Saharan Africa. Maize is commonly harvested and sold fresh, thus, serving as a crucial early source of cash income for the farmer. In the framework of the African Cassava Agronomy Initiative (ACAI), a decision support tool (DST) is being developed to assist development partners in southern Nigeria to improve the productivity of the cassava-maize intercropping system by providing information on improved planting density, variety choice and fertiliser application for farmers. Here, we will present data of the first year from 100 multi-locational on-farm trials across the humid forest and derived savannah agro-ecological zones in Anambra, Cross River, Benue, Ogun and Oyo states. Two researcher-managed trials were established in Oyo and Anambra states. In the on-farm trials we tested the robustness of treatment response to increased planting density of maize and cassava of 40,000 and 12,500 plants ha⁻¹, respectively, and the response to two fertiliser regimes (both at increased planting density), adjusted to either the requirements of maize or those of cassava. The control (no fertiliser, 10,000 cassava and 20,000 maize plants ha⁻¹ mimics farmers' practice). In the researcher-managed trials, we added ridging versus flat land preparation, a comparison with a branching cassava variety and the sole crops of maize and cassava. Preliminary analysis of maize harvest data showed that median cob numbers per plot increased with plant density and fertiliser application. Cob yields increased when fertiliser was applied. For both crops, maize and cassava, we will present cumulative distributions for the stepwise increases in intensity for the on-farm trials, and ANOVA results for the researcher-managed trials, and how these results serve the development of a first version of the DST.

Keywords: Cassava, decision support tool, density, fertiliser, inter-cropping