



# Enhancing yield and profitability of cassava in the savannah and forest zones of Democratic Republic of Congo through intercropping with groundnut

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Original submitted in on 11<sup>th</sup> March 2015. Published online at [www.m.elewa.org](http://www.m.elewa.org) on 30<sup>th</sup> May 2015  
<http://dx.doi.org/10.4314/jab.v89i1.6>

## ABSTRACT

*Objective:* This study was conducted to simulate intercropping of cassava and groundnut as practiced by farmers in the savannah and forest zones of Democratic Republic of Congo (DRC). It aims to (i) evaluate the intercropping of two most cultivated food crops (Cassava and Groundnut) under conditions of marginal soils of the tropics and (ii) propose alternatives to farmers that can enhance productivity.

*Methods and results:* At each location, a split plot design was used with Cassava branching habit (branching type –Erect, Branched and medium habit) as the main plot and System that is association with groundnut (intercrop) or without (monocrop) as the subplot. A combined model with sites was fitted using the Mixed Model with SAS v9.4. The results suggest that in the equatorial and savannah zones the performance of both crops was influenced by the type of branching of cassava stem used in the intercrop with erect types yielding more. Non-significant differences were observed in groundnut yield for all effects. The calculation of Land Equivalent Ratio (LER) and economic analyzes drawn from the marginal rate of return (MRR) clearly showed an advantage of intercropping over the sole cropping system.

*Conclusion and application:* The practice of intercropping groundnut and cassava is advantageous. However, the choice of the variety of cassava based on the branching habit influences the growth and productivity of groundnuts. Optimal production of the two crops and profit was attained where the cassava variety has erect habit. Local varieties with medium habit were generally unhealthy, performed poorly and are therefore not recommended in intercropping systems.

**Keywords:** Productivity; Land Equivalent Ratio; cropping systems; marginal rate of return