More than chocolate: Diversifying cocoa agroforests for higher profitability in Cameroon

Lea Yvonne Eboutou¹, Ann Degrande¹, Achille Jaza Folefack² & F. Kamajou²
¹ World Agroforestry Centre, West and Central Africa-Humid Tropics
²Faculty of Agronomy and Agricultural Sciences, University of Dschang, Cameroon

Introduction
One of the main tree-based systems in the West and Central Africa region is the cocoa plantation (Theobroma cacao Linn.). However, cocoa prices on the world market have been fluctuating significantly and farmers have been actively searching to diversify this system for more sustained income generation (Jagoret et al. 2006; Sonwa 2004; Todem 2005).

In this light, the participatory tree domestication programme, implemented by the World Agroforestry Centre and partners, since 1996 aims at increasing farmers’ incomes and enhancing their resilience by cultivating indigenous trees and developing strategies for marketing the produce (Sonwa et al. 1998). Over the years, farmers have used tree domestication skills to diversify their cocoa plantations with “domesticated” trees. However, the impact on their livelihoods has not yet been evaluated.

Therefore, a study to determine the financial profitability of cocoa agroforests enriched with domesticated trees was carried out in 2009.

Objectives

Global Objective:
to evaluate the financial profitability of cocoa agroforests

Specific Objectives:
• to estimate the profitability of traditional and enriched cocoa-based systems
• to determine the optimal mix of trees that allows maximum profitability in the most diversified cocoa-based agroforest
• to simulate the profitability of the most enriched agroforest in terms of number and types of domesticated trees integrated

Methodology

Study site
The Cocoa Production Basin of Centre Cameroon, because it is an area where cocoa yields are declining, thus needing strategies to increase productivity.

“Domesticated” tree species
Selection criteria:
• presence in the area
• market potential
• farmers’ preference
• species:
  - Dacryodes edulis (G. Don) H.J. Lam. (safou)
  - Ricinodendron heudelotii (Baill.) Pierre et Pax. (njansang)
  - Irvingia gabonensis Baillon. (Bush mango)

Data collection tools
• Interview with resource persons to determine yields, prices, etc.
• Ex-ante profitability analysis using enterprise budget; cost/benefit analysis; Net Present Value (NPV); Internal Rate of Return (IRR)
• Optimization and Sensitivity Analysis using GAMS 21.3

Results

Results showed that the traditional system was not profitable and that only the enriched systems had an acceptable NPV (Fig. 2). However, the different systems did not have the same level of profitability. The system enriched with safou, ndo'o and njansang had the highest NPV.

Conclusion
Cocoa-based agroforests are only profitable when other tree species are associated. The cocoa+safou+mango+njansang system is the most interesting combination and allows an efficient use of resources according to the GAMS analysis.

It is therefore recommended that producers diversify their cocoa farms. However, there is a need to test these results on-farm and do similar studies with other species to determine their profitability as well. Hereto, a trial on cocoa-based agroforest where cocoa is associated with domesticated local trees has been established in Ngali II, a village near Yaoundé.

References


Contact: a.degrande@cgiar.org
ICRIS-WCA/HT, P.O. Box 16317, Yaoundé, Cameroon