Agroecological evaluation of four production systems in very dry tropical forest in Colombia

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Introduction

COMPAZCOL is a cooperative that constitutes one of the main alternatives of economic and social reinstatement of the demobilized people from the FARC guerrilla in Colombia.

Objective

Identify the constraints and potentialities of four agricultural production systems: a. plantain (*Mussa spp*), b. maize (*Zea mais* L), c. dual-purpose cattle system and d. free-range layer hens, in order to contribute to a program of sustainable development in the Baja Guajira region, a very dry tropical forest in Colombia, South America.

Materials and methods

A rapid, farmer-friendly agroecological method to estimate soil quality and crop health, proposed by Altieri (2001), was applied in two agricultural production systems: A. plantain (*Mussa spp*), B. maize *(Zea mais* L)

Ten indicators of soil quality and ten indicators for the health of crops were recorded, both on a scale of one to ten.

Sustainability of two animal production systems: a. free-range layer hens and b. dual-purpose cattle system was estimated by MESMIS (framework for assessing management systems incorporating natural resources sustainability indicators).

Thirteen indicators regarding the economic and social-environmental dimensions were estimated also on a scale of one to ten.

Results

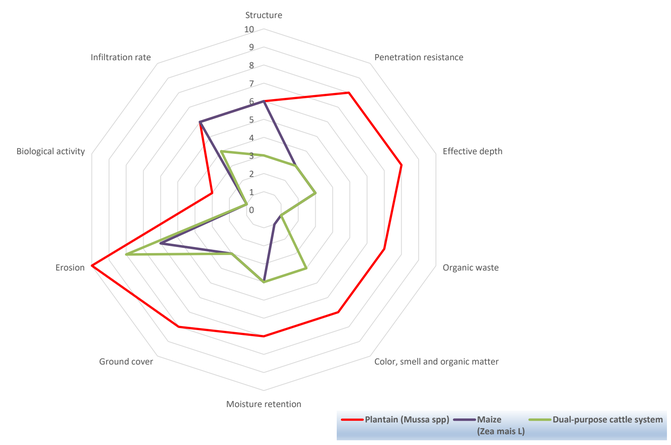

Figure 1. Indicators of soil quality corresponding to the agroecological evaluation in the Nueva Colombia Farm.

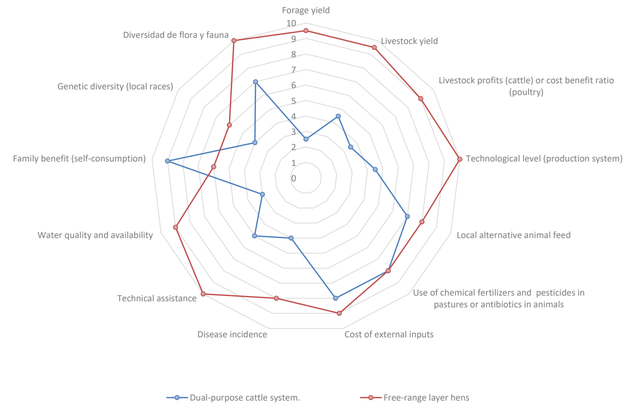

Figure 2. Result of the evaluation of the sustainability of two main livestock components, cattle and poultry, of the "Nueva Colombia farm".

Conclusions

The system requires greater integration between crops and animal production to reach better levels of sustainability.

The cattle production system needs structural transformations especially from its traditional extensive production model to agroecological production models.

The free-range layer hens presented the best environmental and social sustainability indicators, given the surrounding biodiversity and its contribution to the protein consumption of the community members.

The information obtained will be part of a multi-criterion decision model for regional development.