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"Solidarity in a competing world — fair use of resources"

Analog Forestry - A Promising Strategy for More Sustainable Agriculture in Tropical Regions

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Abstract

Trees play a key function in ecosystems and must be a core part of sustainable food producing systems. They preserve soil fertility, prevent erosion, increase water retention capacity of land and have a dramatic influence on global temperatures as they shade the soil and cool the air by transpiration. The adoption of agroforestry is a promising strategy for more sustainable agriculture, especially in tropical and sub-tropical regions. In 2010, 43.5 % of the world´s agricultural land had a tree cover greater than 10 %, proving that agroforestry systems do play a significant role in production areas.

This study explores the importance of Analog Forestry as a promising system for sustainable food production. Analog Forestry is an agroforestry system that is seeking to mimic diverse structure of natural forests and employ it in the process of production of marketable products. In comparison with other agroforestry systems, Analog Forestry strives to create food producing systems in advanced stages of succession, managing subclimax or climax plant communities where high niche variability results in high biodiversity and efficient use of resources. Utilizing native as well as exotic plant species, a forest is created that is structurally analogous to a natural forest of the selected area, providing the same ecosystems services, restoring the environment and sustaining local communities. For the establishment of such forests, the driving force of ecological succession must be exploited. Pioneer species, apart from producing marketable goods, create conditions for the successful establishment of climax species.

In this study, we approach the basic principles of Analog Forestry in order to propose establishment of such a system in Amazonian municipality of Tomé-Açu, located in Brazilian state of Pará. During this stepwise design process, the advantages and drawbacks of Analog Forestry will be analysed.

Keywords: Agrobiodiversity, Amazonia, analog forestry, Brazil, successional agroforestry, sustainable agriculture

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