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Agroforestry, the Art and Science of Multiple Cropping with Woody Perennials: Examples with *Theobroma Cacao*

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Abstract

Multiple cropping systems with annual crops have been the subject of research and development for many decades now. Agroforestry, a particular form of multiple cropping in which at least one woody perennial species is associated with other crops (annuals or perennials) or animals to meet the needs of the farmer, took form as a scientific discipline in the late 1970's. Then, land use scientist and development agents, realised that farmers all over the world purposely kept trees and other woody perennials in their field to meet several goals. Scientists and development agents immediately incorporated agroforestry as part of their portfolio of solutions to the long standing dichotomy between forestry (which was usually perceived as an environmentally friendly land use system) and agriculture (in its broadest sense, so as to include, livestock production systems). After 30 years of development, agroforestry has become a well established scientific discipline with applications in both tropical and temperate production systems, with impacts at different spatial scales, from interactions at microsites, to plot level interaction, and then to landscape scales.

In this presentation, I will: 1) describe several examples of agroforestry systems in tropical landscapes to illustrate the diversity of scenarios, species combinations and management systems typical of agroforestry land uses; 2) provide some quantitative data to illustrate how agroforestry is used in cocoa (*Theobroma cacao*) production systems to: a) provide shade and shelter to the crop, b) produce goods for the household (and their effects on the management of financial risk) and c) render environmental services to the global society (conservation of soil, water and biodiversity; mitigation of climate change); and 3) delineate emerging trends and pressing issues that will shape agroforestry science and development in the next decade.

Keywords: Agroforestry, cacao, environmental services, livestock