

## A Quantitative Model of the Role of Soil Fauna in Decomposition as Affected by Different Forested Cropping Systems in Central Amazonia

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The role of soil fauna in nutrient cycles of different natural and man-made ecosystems of Central Amazonia (a rain forest, FLO; a secondary forest site, SEC; and two agroforestry plantation sites, POA and POC, at the campus of the Embrapa Amazônia Ocidental near Manaus) was investigated in a field study undertaken 1997-1999. Litter production was determined in weekly collections using 0.25m<sup>2</sup>-sized litter samplers established in the field sites. Litter stocks were determined on the basis of monthly

collections of the litter layer using a 21 cm diameter soil corer. Biomass of fauna in litter and soil was determined in three-monthly collections using the 21 cm corer, and the respiration rates of key fauna groups were determined in an Infrared-Gas-Absorption-Spectrometer (IRGA). These and other data including decomposition rates based on litterbag experiments, and microclimatic data are used to model the role of soil fauna in the decomposition process quantitatively.

## Economic Analysis of Agroforestry Systems in Central Amazonia, Brazil

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In a general way, the biological advantages of the use of the agroforestry systems (AF) were already proven in countless scientific works. Even so, the need is noticed to solidify the economic analyses of those systems. Several authors consider that the main limiting factor for the adoption of AF by farmers, is the lack of studies that check its economic viability evaluating the impact and the profitability of the technology generated in the productive system. The knowledge of those factors is fundamental so that modifications can be made in function of the demands and the customers' needs that will use the technologies and, with that, to evaluate the adoption levels. In this study the financial analysis of four AF was made: a) AF 1, composed of rubber trees, cupuaçu, papaya, peach palm and tropical

kudzu; b) AF 2 composed of urucum (*Bixa orellana*), Brazil nut, cupuaçu, peach palm, cassava and tropical kudzu; c) AF 3, composed of rubber trees, orange, cupuaçu, coconut, paricá (*Schizolobium amazonicum*), bean, corn and cassava and; d) AF 4, composed of rubber trees, mahogany, andiroba (*Carapa guianensis*) and paricá. The financial analysis was made with the application of traditional methods project evaluation. The approaches adopted were: a) internal return rates (TIR); b) net present value (VPL); c) ratio cost/benefits (B/C); and d) equivalent periodic benefit (BPE). The economic indicators demonstrated that, with the exception of the AF 4, the systems constitute economically alternatives viable for the farmers of the region.