



Thesis Abstract

Productivity and Ecological Sustainability of Traditional Homegardens in Bobonaro District, Democratic Republic of Timor-Leste

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The study was conducted in Bobonaro District reservation, Democratic Republic of Timor-Leste from January to April 2007. It is aimed to determine the productive and ecological sustainability of the upland and lowland homegardens in Runabout Village, Mailana Sub-district of Bobonaro.

Thirty-three respondents were identified using 33% stratified random sampling from 100 households to determine the homegardens' species composition, vegetative structure, establishment and management practices, and economic productivity. Two representative homegardens were identified to characterize species diversity, soil physical and chemical properties, and sheet erosion.

The Bobonaro homegarden were found to provide a wide variety of products and was economically productive. Structurally, four canopy layers and high species diversity characterized the homegardens. Management practices were simple and done by family members. Mean annual production value from the homegardens was US\$1,101.35 and US\$837.32 in the lowland and upland areas, respectively, which were derived mainly from food crops and livestock.

The results of the study showed that upland and lowland homegardens possesses desirable physical and chemical properties that are within the acceptable standards considered for ecologically sound system. There were no significant differences found in the physical and chemical properties of lowland and upland homegardens.

Bulk density, particle density and depth of sheet erosion soil were lower in the lowland compared with upland homegarden. Soil organic matter was 5.89% and 6.55% in the upland and lowland homegardens, respectively. Meanwhile, pH, phosphorus, calcium, magnesium, and cation exchange capacity were also slightly lower in the upland compared to the lowland.