

ABSTRACT

This study was conducted to assess the soil quality of three treatments, namely Control, Pruning, Thinning in man-made forest (NFTs) and to compare the changes of soil quality (physical, chemical and biological) in man-made (NFTs) and natural forest. The man-made forest has been established in 1992 at Ratmalagara Estate, a Sub Station of Coconut Research Institute situated in the Low Country Intermediate Zone. The natural forest is a Panirendawa forest closer to Ratmalagara Estate.

Soil quality of these two forests were evaluated and soil samples were taken in 0-20 cm soil depth were used for the determination of net N mineralization and available N. Forty eight composite samples were taken in each forest.

Man-made forest has four NFTs varieties such as two Acasia varieties (A.Au.17553 and A.Au.17941) and two Ipil Ipil varieties (K 636 and K x 3B).

According to the overall results obtain from this study natural forest has shown high value of the all soil parameters such as moisture, pH, electrical conductivity, available N, number of total bacterial colonies, number of total fungal colonies, biomass carbon, microbial respiration (CO_2 evaluation) and net N mineralization except available P

than 5 years old man-made (NFTs) forest.

However in man-made forest 74% moisture content, 66% electrical conductivity, 68% available N, 62.5% exchangeable Na, 76% exchangeable K, 31.19% exchangeable Ca, 42% exchangeable Mg, 39% organic carbon, 28% number of total bacterial colonies, 32% number of total fungal colonies, 63% biomass carbon, 50% microbial respiration and 22% net N mineralization were contributed compared to 100% of natural forest. Therefore the quality of NFTs soil has been very closer to the quality of natural forest.

In man-made (NFTs) forest, there was high value of soil properties shown in pruning plots than the other treatments of control and thinning.