IMPROVEMENT OF SOIL PROPERTIES USING NITROGEN FIXING TREES (NFTS) AS GREEN MANURES FOR COCONUT

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Use of NFTS in coconut farming systems has received increasing attention in the recent past. These trees provide multiple benefits such as green manure, fodder, shade, firewood etc. Since NFT's are known in sustaining soil fertility and productivity, it was intended to examine the changes of soil properties due to the use of Gliricidia sepium and Leucaena leucocephala as green manures for coconut.

In a longterm experiment, G. sepium and L. leucephala were planted in double rows at a spacing 2 x 0.9 m under 40 year old coconut plantation on a lateritic soil in Wet Intermediate Zone. Effects of green manuring on soil properties were studied in presence and absence of inorganic fertilizer for coconut.

Green manuring showed a 4.7% reduction in soil bulk density, and also improved the organic carbon content and available water holding capacity

by 77.1% and 111.4% respectively. Soil biological activities as indicated by earthworm population counts and casting rate were higher by 19.8% and 68.2% respectively in tree legume plots than in control plots. Wormcasts contained more nutrients than surface soil. Presence of tree legumes lowered the topsoil temparature by 6.2%.

The results show the potential of G. sepium and L. leucocephala in improving and maintaining the soil fertility in coconut lands.