



The results of these experiments could be summarized as follows :-

- Although there was a trend for organic matter content, cation exchange capacity (C.E.C.), Potassium (K) and electrical conductivity (EC) to increase for the top soil (0-15 cm.) taken inside the plantation compared with the same soils sampled outside the plantation area, the difference of the 13 properties including soil texture, pH, total acidity, organic matter content, cation exchange capacity, N, P, K, Ca, Mg, Na, Al and electrical conductivity was not significant statistically.

- Litter fall inside the Eucalyptus plantations was affected by the planting space. The leave falls measured in the 2x4 m. spacing was significantly greater than the 2x8 m spacing and the total leave weights monitored over a period of 11 months in the 4 year-old plantations being 382.12 g/sq.m (611.39 Kg/rai) and 271.92 g/sq.m. (435.07 Kg/rai) respectively for the two spacings. Maximum and minimum falls were recorded during December to January and during May to July respectively.

It was found that eucalyptus barks was completely destroyed by termites (Microtermes pakistanicus Ahamad.) All the plant residues including eucalyptus leaves, rice straw, mango and acacia leaves were decomposed most rapidly during the first month (July-August) following their incorporations into the top soil. However, the subsequent decomposition rates of eucalyptus leaves was significantly lower than other plant residues in the remaining 6 month period (September to February). Approximately

46 percent of the eucalyptus leave debris remained at the end of the seven months whereas these were 15.75, 11.75 and 7.75 % for rice straw, mango and acacia leave debris respectively.

- The germination percentage of nine different upland crops i.e. kenaf (Hibiscus subdariffa var. attissima), sesame (Sesame indicum), maize (Zea mays), millet (Sorghum vulgare), leucaena (Leucaena leucocephala), mungbean (Vigna radiata), peanut (Arachis hypogaeae), Soybean (Glycine max) and cowpea (Vigna unguiculata) decreased statistically when the test media (sand and Yasothon soil) was added with ground eucalyptus leave at the rates of 0.5, 2.5, 5.0, 10.0 and 25.0 g/Kilogram compared with the untreated control. The actual critical rates affecting the germination percentage varies with plants and the effect was more drastic when washed sand was used as test mediam compared with soil.

In a glasshouse study, shoot and root dry weights of common upland crops i.e. soybean(Glycine max), mungbean (Vigna radiata), peanut (Arachis hypogaeae), Stylo (Stylosanthes humilis PI 61674), leucaena (Leucaena leucocephala), maize (Zea mays), kenaf (Hibiscus sabdariffa var. attissima), except millet (Sorghum vulgare) and cassava (manihot esculenta) decreased statistically when the soil was amended with ground eucalyptus leave at the rates of 10, 25, 50, 100 and 200 g/Kg soil. However, the relationship between the decrease and the critical rates differed among the crops being 10 g/Kg for kenaf, 25 g/Kg for peanut, 50 g/Kg for mungbean and leucaena, 50 g/Kg for soybean, stylo and

maize and 100 g/Kg for peanut respectively.

- With regard to the effect of eucalyptus plantation on the ground water table, it was found that the depth of ground water monitored inside the plantation areas was lower than 2 meter whereas outside the plantation the ground water tables although fluctuated existed within the 2 meter depth throughout the period of 48 weeks.

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