

B-40 Long term effects of organic manuring in a coconut plantation

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One method of increasing coconut production in Sri Lanka would be widespread use of chemical fertilizers or organic manures. The long term effects of organic manuring in a coconut plantation on a gravelly soil, 10 years after application of different treatment combinations, were studied. The experiment was established in 1985 at Heemmeliyagara Estate, Bingiriya in the low country intermediate zone of Sri Lanka.

The design was RED with 3 replicates. Ten treatment combinations were tested T₁ - control, T₂ - recommended inorganic fertilizer mixture for coconut, T₃ - T₆ 6, 12, 18 and 24 kg of goat dung with NPK supplements respectively and T₇ - T₁₀ 6, 12, 18 and 24 kg only goat dung respectively.

Residual effects of organic manure application were evaluated by physical and chemical changes in the soil and nutrient concentration of palm in 10 different fertilizer treatments.

All parameters studied except NH₄⁺-N have shown significantly ($p \leq 0.001$) higher values in goat dung treated soil than in inorganic fertilizer treated soils and the control. Available water and available P were significantly ($p \leq 0.001$) higher values in soils treated with goat dung + NPK supplements than others. Nitrate nitrogen, total N, exchangeable K, Mg, CEC and organic carbon were significantly ($p \leq 0.001$) higher in soils treated only with goat dung than others. Leaf K and Mg were significantly ($p \leq 0.001$) higher values in goat dung treated palms. Although there were no significant differences in Leaf N and P concentrations, higher N & P concentrations were shown in only goat dung (24 kg) palms treated with.

Residual effects of organic manure improves the soil quality and increases K and Mg content in the palm.