

## ABSTRACT

The demand for coconut and coconut products has been steadily increasing in Sri Lanka. For the increasing of coconut production in Sri Lanka use of chemical fertilizer or organic manure would be a considerable items in the coconut management sector. There are many kinds of locally available organic manure such as poultry manure, cattle dung, goat dung and green manure can be used as manuring for coconut cultivation. Coconut growers are reluctant to apply fresh poultry manure to coconut palms on account of the fact that is harmful to the palm. Therefore to evaluate of the effect of application of poultry manure stored for different period is necessary.

The experiment was established in 1996 at Badalgama Estate in low country wet zone of Sri Lanka.

The design was split plot design with four Complete Block of seven main plots. The treatments combination were considered as  $T_1$  - control,  $T_2$  - fresh litter (layer),  $T_3$  - fresh litter (broiler),  $T_4$  - stored for one month (layer),  $T_5$  - stored for one month (broiler),  $T_6$  - stored for three month (layer),  $T_7$  - stored for three month (broiler). Potassium chloride was applied for each palm as a basal supplement. Harmful effect to roots and chemicals changes in the soil after applying poultry manure was evaluated.

The dry weight percentages of dead main and other roots (primary and secondary) in treatments of control and three month stored is showing significant ( $P \leq 0.05$ ) lower than that of fresh litter and one month stored. Exchangeable potassium has not shown significant difference among treatments. But available phosphorus and calcium has shown significant ( $P \leq 0.05$ ) difference in stored poultry manure than fresh poultry manure. Magnesium were also not significant difference among the treatments.

When estimated in the application method significantly ( $P \leq 0.05$ ) higher number of dead roots was found in the trench application method than the surface application method.

The number of dead roots decreasing order is Fresh broiler > Fresh layer > One month stored broiler > One month stored layer > Three month stored broiler > Three month stored layer > Control.