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Effect of Eppawela rock phosphorus nutrition status of young coconut palms

The agronomic efficiency of the Eppawela rock phosphate as a phosphate fertilizer source for young coconut plalms was evaluated by leaf and soil analysis data obtained from an on going field experiment located at Ratmalagara Estate, Weerakodiyana. In the field experiment, young coconut palms were treated with three phosphate sources, triple super phosphate (TSP, 46% P_2 $O_{5)}$, saphos phosphate (Sp, 27. % P_2 O_5) and Eppawela rock phosphate (ERP, 30% P_2 O_5) each at three phosphate levels. A control with no phosphate treatment was also included. Treatment were arranged in the randomized block design with 3 eplicates. The experiment was located on a gravelly soil of whith pH (1;5 soil/ water) was 5.5.

Analysis of the 6th and the 14th leaf(coconut from the 1st fully opened leaf were showed that, irrespective of the source, the P contents of those leaves were significantly higer in phosphate treated palms than in the control palms ($p<0.05$) and $p<0.01$ respectively). There was no significant difference of leaf P level between the treatment levels except in case of TSP – level 3 where P content of the 6 th leaf was high. Leaf –P values of the 14th Leaf indicated that except the control palms, all the other treatment palms have reached the sufficiency status.

The water extractable P fraction (H_2O –P; Vander Paaw, 1972) of the top soil (0 -25cm depth) of the control plots was 0.4 mg/ kg which appears to be not sufficient. H_2 o –P values of TSP and SP treatments were much higher than the control but that of ERP treatments were only slightly higher than the control. Available soil P determined by 2.5% acetic acid was also very much greater in phosphate treatments compared to the control. The overall results showed that agronomic efficiency of the ERP is sufficient to support the phosphate nutrition of young coconut palms.