

## **B-46: Effect of Kieserite on potassium nutrition of coconut palm in Red Yellow Podzolic**

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Potassium is an important nutrient elements for the coconut palm for nut production. Potassium deficiencies often occur due to the application of heavy magnesium fertilizer dosages for correcting magnesium deficiency in palms, particularly in Red Yellow Podzolic (Boralu series).

Three levels of potassium (as muriate of potash and 2 levels of magnesium (as Kieserite) with a basal dose of nitrogen and phosphorus were applied to plots consisting of 8 coconut palms arranged in factorial randomized block design in moderately deep phase of the Boralu series at Rathgama. Soil samples from 2 depths (0-25 cm top soil and 25-50 cm sub soil) and from varying distance to the palm (0.9, 2.7 and 5.4 m) were collected monthly from May 1990 to February 1991. Treatments were applied in the first week of June, 1990. Exchangeable potassium in soils was estimated with 1N ammonium acetate (pH 7.0), extraction ( $\text{NH}_4\text{OAc-K}$ ) and water soluble potassium with 1:10 soil-water extraction ( $\text{H}_2\text{O-K}$ ).

$\text{NH}_4\text{OAc-K}$  and  $\text{H}_2\text{O-K}$  increased sharply in the top soil at 0.9 m from the palm following the treatment application in June, but dropped considerably in July.  $\text{NH}_4\text{OAc-K}$  and  $\text{H}_2\text{O-K}$  showed an overall decreasing trend from July onwards but at a lower rate compared to the initial drop. From July onwards  $\text{NH}_4\text{OAc-K}$  was always lower for the high magnesium treatment ( $\text{Mg}_1$ ) than for the low one ( $\text{Mg}_0$ ) in each potassium treatment.

Variation of the potassium status of the sub soil indicated that potassium leached down at a faster rate in  $Mg_1$  treatment than in  $Mg_0$ . In the sub soil also, soil potassium of  $Mg_0$  was greater than  $Mg_1$  which indicated that applied potassium leached further down from the 50 cm level. There was no lateral movement of applied potassium. The observed difference in soil potassium status between  $Mg_0$  and  $Mg_1$  treatments was also reflected in coconut leaves of the respective palms. The simultaneous application of muriate of potash and Kieserite appears to be disadvantageous in potassium nutrition of coconut.