

## Effect of Different Murate of Potash Application Rates on Nutrient Status of Soil and Immature Oil Palm Growth

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### Abstract

Initial growth of oil palm highly depends on the quality of planting materials, management practices and availability of macro and micro nutrients. Failure in supply of said nutrients badly affects initially the vegetative growth performance and finally the yield. An experiment was initiated to investigate the available nutrient levels on plant growth performance at Devithurai estate, Ethkandura, Sri Lanka. Field trial was conducted with Randomized Completely Block Design under six different K levels (T1=0, T2 =60, T3 =90, T4 =120, T5 =150, T6 =180 of K<sub>2</sub>O/Kg/Ha/Yr) and constant levels of N, P, and Mg with four replicates. Soil nutrient levels and plant growth performances were recorded and data were analyzed with Minitab statistical tool. Results revealed that higher the soil K level, plant height was also increased (recorded up to 263 cm) although the recommended soil K level is 0.3 cmol/Kg for the Oil Palm. Remarkably low soil K levels were seen among treatments. This could be due to low Cation Exchange Capacity (CEC) of this soil which is an inherent character of the Dodangoda soil series. It was shown that there were clear increases in number of fronds, female inflorescence and fresh fruit bunches (FFB). This could be attributed to the fact of initial high soil K level in the soil with periodical application of fertilizer treatments to the trial plots. There were very good soil available P levels at the initial stage of the trial. The recommended soil Mg level is 0.3cmol/Kg for Oil Palm. In this trial Mg level is very low irrespectively to the treatments. Results revealed that there was slight improvement in the formation of female inflorescence and FFB in where the soil K was high. It is concluded that the initial soil nutrient levels especially K is playing a significant role in young oil palm growth (P>0.05). Therefore periodical application of fertilizer is required for better performance of this crop.

**Key words:** Available nutrients, Oil palm, Plant growth, Sri Lanka

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