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Correction of Acute Magnesium Deficiency in Oil Palm on a Sedentary Inland Soil in Indonesia

MANJIT SIDHU, ABDULHASYIM, ENY FITHRI RAMBE, ZULKASTA SINURAYA, ABDULAZIZ

R&D Centre - Asian Agri Sumatra, Bahilang Estate, Tebing Tinggi, Deli, North Sumatra, Indonesia

AND

MUKESH SHARMA

RGE Technology Centre, April-Asian Agri Group R&D, Kerinci, Riau, Indonesia

A 3^2 factorial fertiliser trial was established in a farmers cooperative on 10-year -old oil palm displaying symptoms of acute magnesium (Mg) deficiency. The main objective was to determine the optimum fertiliser dosage, frequency of fertiliser application and the time period required for complete correction of observed deficiency.

Detailed two monthly marking of chlorotic palm fronds indicated that chlorosis due to Mg deficiency was irreversible. Application of kieserite did not result in "re-greening" or recovery. In most cases, chlorotic tissue continued to deteriorate over time and ultimately become necrotic.

Mg deficient palms continue to display new symptoms even up to 36 months after Mg fertiliser application. However, a significant decline in the number off ronds per palm displaying new symptoms occurs as early as 6 months after treatment (MAT) and by 16 MAT, majority of fertilised palms exhibit only moderate to light symptoms of Mg deficiency. At 36 MAT, majority of symptoms were in the light category restricted to slight chlorosis of a few pinnae perfrond.

Correction of Mg deficiency is a slow process. A single round is ineffective, even when very high rates (up to 6.0 kg/palm) are applied. Multiple rounds are required for complete recovery and the process may take up to three years. In view of the high potassium (K) status of Mg deficient palms, it may be necessary to stop potassic (MOP) fertiliser inputs for one or two years to facilitate quicker recovery.

Keywords: Kieserite, magnesium deficiency, oil palm.