

NET NITROGEN MINERALIZATION OF DIFFERENT NITROGEN SOURCES APPLIED IN COCONUT SOILS

K.K.D.P. Rupasinghe¹, N.A. Tennakoon², D.M. Jinadasa¹

¹*Department of Soil and Water Resources Management, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka.*

²*Soil and Plant Nutrition, Division Coconut Research Institute, Lunuwila, Sri Lanka.*

Chemical fertilizer is one of a major input for coconut in Sri Lanka, which helps sustaining soil fertility and productivity. Nitrogen is a key factor for fertility and fecundity of tropical soils. Liming and nitrogen fertilization significantly modify transformations of nitrogen compounds of soil. Hence, the aim of this study was to determine net nitrogen mineralization for different fertilizer combinations, including dolomite (T₂), urea (T₃), ammonium sulfate (T₄₅), urea + dolomite (T), ammonium sulfate + dolomite (T₆₁) and no Nitrogen (T) in coconut soils. Fresh soil samples were taken by using a set of Aluminium (Al) tubes for the estimation of initial N concentrations in the soil. After the fertilizer application, eighteen Al tubes were inserted into the soil, to a depth of 9cm at a distance of 60 cm away from coconut palms for a field incubation period of 2 and 4 weeks separately. Mineralized N concentrations were extracted by 1M KCl and net mineralization was calculated. Soil pH and exchangeable Mg content were also measured. T₄ showed highest

mineralization rate (48.8 mg 100 g⁻¹) compared to the rest of the treatments in 2 weeks after field incubation.

Treatment T₃ reported highest rate of N mineralization (69.3mg 100 g⁻¹) compared to all other treatments in 4 weeks incubation period. This study clearly indicated that mixing dolomite with N fertilizer reduces the N mineralization and urea is the most promising in terms of N mineralization.

Key words : Ammonium sulfate, Dolomite, N mineralization, Ur