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Poultry Manure, a Potential Fertilizer Source for Increasing Mg levels in Coconut Plantations

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Nutrient balance in coconut plantations is one of the major requirements for the expected national production of 3000 million nuts per year. The Coconut Research Institute has introduced fertilizer recommendations based on four major nutrients N, P, K, and Mg, through chemical fertilizer, organic manure, or with different combinations of both chemical and organic fertilizers. Magnesium deficiency has been the most prevalent in coconut plantations grown in Wet and Intermediate zones even with regular application of chemical fertilizers, with either visible deficiency or the hidden deficiency of being less than the sufficiency range of Mg (0.25-0.35%) in leaves. In the present case study, major nutrient levels were compared under two different fertilizer practices,*i.e*., poultry manure (30 kg) with 2 kg of dolomite and 1 kg of muriate of potash (MOP) for two consecutive years and the application of the current recommended fertilizer sources. Six palms were randomly chosen, and leaf samples from 14th frond and soil samples at a depth of 20 cm from 90 – 120 cm away from the base of the palm were collected. All samples were analyzed for major nutrients and soils were analyzed for their pH, EC, and organic carbon content. Difference in parameters was determined by performing the *t*-test. Significantly higher ($P \leq 0.05$) levels of Mg (0.37%), Ca (0.46%) and P (0.16%) were observed in poultry manure treated palms compared to the inorganic fertilizer applied palms which showed 0.25%, 25%, and 0.11% respectively. The higher levels of Mg, Ca, and P were further reflected with the higher availability of those nutrients in the soil while having higher EC in poultry manure treated plots than that of the other. An important point revealed by this data is the significant ($P \leq 0.05$) increase of Mg levels in coconut palms with the application of poultry manure with dolomite. Such an observation has also been recorded previously in another experimental site in Intermediate Zone with higher levels of Mg (0.35%) after application of poultry (30 kg) with 250 g of MOP as an a K supplement for six years in comparison with other organic sources. Accordingly, the present results indicated that poultry manure is a potential source to increase Mg levels in coconut plantations.

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