

B-122 Combined use of poultry manure with Eppawela rock phosphate for vegetable cultivation

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Experiments with annuals suggest that Eppawela rock phosphate is not effective as a directly applied fertilizer. Since use of organic manure such as poultry manure is a common practice in the upcountry, a long-term field experiment was conducted to study the effect of poultry manure on phosphorus availability from Eppawela rock phosphate. The effect of poultry manure at the rate of 10t/ha, 3 phosphate sources (no phosphate, Eppawela rock phosphate and triple super phosphate) and 4 levels of P (0, 25, 50 and 100 kg/ha) was evaluated for the cropping sequence bush bean, tomato and cabbage over 3 seasons. The P availability was measured as an increase of the crop yields and available P in the soil after each crop.

The effects of poultry manure on phosphorus availability were evaluated by comparing the measured and calculated values. Measured values were derived experimentally. The calculated value was worked-out by first calculating the additional yield and available P attributable to poultry manure only and then adding this value to the yield and available P, respectively, associated with the individual phosphate sources.

The highest measured yields of bush bean (27.7 t/ha), tomato (51.7 t/ha) and cabbage (69.7 t/ha) were obtained with the application of Eppawela rock phosphate at the rate of 25 kg P/ha in combination with 10 t/ha poultry manure application. The application of triple superphosphate showed low yields and available P after each crop compared to Eppawela rock phosphate application when 10t/ha poultry manure was used. In general, measured crop yields were higher than the calculated crop yields. These results suggest that poultry manure can enhance the solubility of rock phosphate when Eppawela rock phosphate is applied in combination with poultry manure.