

ABSTRACT

Phosphorus deficiency majorly constrains maize (*Zea mays* L.) production in acidic soils of western Kenya. This requires high doses of expensive inorganic P fertilizers to correct. Recommended rock phosphates and manures are lowly adopted because of low solubility and P content respectively. A Randomized Complete Block Design experiment was conducted for two seasons to assess effect of a cheaper alternative P source, Phosphorus fortified Tithonia compost (PCM), on growth and yield of maize and lablab-intercropped maize on two sites with different soil fertility. The experiment was set up on seven farms per site in Kapkerer (low fertility) and Koibem (higher fertility). Three P source treatments of Minjingu rock phosphate (MRP), Phosphorus fortified Tithonia compost and Triple Super Phosphate (TSP) were applied at an equivalent rate of 26 kg P/ha for maize and maize-lablab intercrop. Data on plant height, Leaf Area Index (LAI), aboveground biomass, leaf P concentration and grain yield were collected. PCM treatment significantly ($p \leq 0.05$) increased maize height, LAI, aboveground biomass and grain yield compared to TSP in Kapkerer. No significant differences were noted in leaf P concentrations. PCM is a good alternative to expensive inorganic P fertilizers in acidic soils of western Kenya.

Key words: Tithonia P-fortified compost, Rock phosphate, intercropping, lablab.