B-125 Effect of fused magnesium phosphate on vegetable production in the upcountry intermediate zone

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Fused magnesium phosphate (FMP) is a long-lived fertilizer. Therefore, phosphorus in FMP can dissolve gradually in soil and can be continuously available to crops. Due to its alkaline nature, FMP contributes to balance soil acidity too. In addition to P, FMP contains plant nutrients such as magnesium, calcium and silica. Phosphorus and magnesium are most limiting nutrients for crop production in the upcountry. Hence, the application of FMP could be a viable option to increase the crop yields in this region.

A long term field experiment was conducted to evaluate the effect of FMP on vegetable crop production at Bandarawela. Two sources of P fertilizers (triple superphosphate (TSP) and FMP) were added at rates of 0, 25, 50 and 100 kg P/ha and tested in a Randomized Complete Block Design experiment with 3 replicates. Potato and cabbage were grown in a sequence. The recommended levels of N and K were added to all treatment combinations. The plan of randomization was kept unchanged for both crops in the cropping sequence.

Both TSP and FMP application increased the vegetable yields. However, there were no significant differences in yields between TSP and FMP application. A yield increase of crops to the application of phosphorus became significant up to 100 kg P/ha. However, soil analysis after each crop, showed high accumulation of available P (Olsen) from TSP compaed to FMP application.

These results suggest that FMP is as effective as TSP as a source of P for vegetables. Therefore, FMP appears to be a suitable replacement for TSP as a P source in vegetable cultivation in the upcountry.