

B-10: Greenhouse evaluation of paddy response to phosphate fertilizers

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A pot experiment was conducted to investigate the crop response of rice (BG-11-11) as affected by 3 different phosphate fertilizer materials incorporated into a submerged bog soil (Histosol pH 3.76, and initial available P 3.05 mg/kg of soil) from Bombuwela. Phosphate materials used were commercially available Eppawala Rock phosphate (ERP), Selectively mined

Eppawala Rock Phosphate (SERP) and Triple Super Phosphate (TSP). Plant growth parameters, total grain weight, and total P uptake were determined. The remaining soil P levels were also measured at the end of the experiment.

TSP treated plants showed a significantly higher number of tillers when compared with all other treatments, but the number of panicles per plant was not significantly affected by any of the P treatments. Total grain weight was significantly higher in TSP treatment than in the control. However, there was no significant difference in total grain weight between treatments of TSP, SERP and ERP.

Plant P concentration in P treated plants were higher than those of the control. The highest plant P concentration was noted in the SERP treated plants (463 mg/kg of dry matter). In ERP and TSP treated plants P concentrations were 444 and 395 mg/kg of dry matter respectively. SERP treated plants showed the highest filled grain weight percentage when compared to all other treatments.

Olsen-P values at the end of the experiment were higher in TSP treated soil than in all other treatments. However, SERP treated soils showed higher Olsen-P levels when compared with ERP treated soils. The results indicate that SERP is superior to ERP as a P fertilizer for rice.

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