

EFFECT OF SPLIT APPLICATION OF PHOSPHOROUS FERTILIZER ON RICE (*Oryza sativa* L.) CULTIVATION IN LOW COUNTRY WET ZONE

J.Y.V. Sumanarathna¹, S. P. Gunarathna² and M.G.T.S Amarasekara¹

¹*Department of Agricultural Engineering and Soil Science, Faculty of Agriculture, Rajarata University of Sri Lanka, Puliyankulama, Anuradhapura, Sri Lanka*

²*Soil Science Division, Regional Rice Research and Development Center, Bombuwala, Kaluthara, Sri Lanka*

Phosphorous (P) use efficiency of rice is generally low due to the acidic nature of rice growing soils in Low Country Wet Zone of Sri Lanka. Therefore, an experiment was conducted to investigate the response of rice to application of P fertilizer by changing the presently recommended amounts and the time of P application at the Regional Rice Research and Development Center, Bombuwala. A 3 1/2 months old rice variety, BW 363 was grown under seven different treatments viz. zero application of P (control), Department of Agriculture (DOA) recommended level of P_2O_5 , 25 kg/ha only as basal, 25 kg/ha of P_2O_5 as two split applications and 20% reduction of DOA recommended level of P_2O_5 as basal and two split applications. Department of Agriculture recommended levels of N and K were added to all treatments. Available soil P and other physio-chemical parameters of all treatments were determined at the time of planting, panicle initiation and after harvesting. Grain yield and yield components were also recorded. Plant samples were analyzed for total P at the panicle initiation stage. Results of soil analysis indicated that there was a depletion of available soil P in all treatments over the cultivation period. There was no significant ($p > 0.05$) effect of treatments on grain yield and yield components of rice, BW 363. In addition, P uptake was not significantly different ($p > 0.05$) among tested treatments, except the control. However, results indicated that split application of 20% reduction of recommended P level could be a better alternative to reduce the cost of P fertilizers in rice farming.

Keywords: Phosphorous fertilizer, Rice response, Split application