

RATES OF PHOSPHORUS ON GROWTH AND YIELD OF MAIZE (*Zea mays* L.) IN REDDISH BROWN EARTHS IN THE DRY ZONE OF SRI LANKA

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Phosphorus (P) is the second most important plant nutrient affecting growth and yield of maize (*Zea mays* L.). The objective of this study was to investigate the optimum P application rate for growth and grain yield of maize (Var. Sampath). The field experiment was conducted as a randomized complete block design with four replicates at Kahatagasdigiliya in Anuradhapura District during *Maha* (2013/2014) season. Four P application rates; 0, 20, 30 and 40 kg/ha were tested. Soil samples were collected prior to the experiment and at 4, 8, 12 and 16 weeks after planting. Soil samples were analyzed for pH, electrical conductivity and available P. Leaf samples were collected at 4, 8 and 12 weeks after planting and P percentage was measured. Growth parameters; plant height at 50% tasseling, number of days to 50% tasseling and shoot dry matter yield and yield parameters; number of cobs per plant, number of seed rows per cob, number of seeds per row, number of seeds per cob, 100 seed weight and total grain yield were evaluated. The pH, electrical conductivity, available P, leaf P, plant height at 50% tasseling and dry matter yield were not significantly different ($p > 0.05$). However, number of days to 50% tasseling was significantly different ($p < 0.05$) with different P application rates. Number of cobs per plant, seed rows per cob, seeds per row and seeds per cob were not significantly ($p > 0.05$) affected by tested rates of P, while 100 seed weight and total grain yield of maize were significantly greater ($p < 0.05$) when 30 kg/ha was added, compared to the control (0 kg/ha). Application of 30 kg/ha produced the highest grain yield of maize variety Sampath under the tested experimental conditions in the dry zone of Sri Lanka.

Keywords: Grain yield, Growth, Maize, Phosphorus