

ESTIMATION OF PLANT NUTRIENT UPTAKES OF SELECTED MAIZE VARIETIES AT DIFFERENT FERTILIZER RATES UNDER DRY ZONE CONDITIONS IN SRI LANKA

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Maize (*Zea mays* L.) is an input to the growing food and livestock feed industry in Sri Lanka. Fertility status of the soil declines rapidly with intensive cultivation. Therefore, adoption of proper fertilizer management practices would be important to maintain higher yield. No recent studies have been undertaken to estimate the nutrient uptake of maize. Thus, this experiment was conducted to estimate the nitrogen (N), phosphorous (P), and potassium (K) uptakes of selected maize varieties at the flowering stage under different nutrient management options at Field Crops Research and Development Institute at *Mahailuppallama* during *Yala 2022*. A two-factor factorial experiment in a RCBD with three replicates was used. Variety (V1: Pacific 339, V2: MIMZHY 4, V3: *Badra*) and the fertilizer level (F1: Zero fertilizer, F2: Present Department of Agriculture (DOA) inorganic fertilizer recommendation, F3: 1.5 times of present DOA inorganic recommendation, F4: DOA Organic fertilizer recommendation) were the two factors tested. Results revealed that the N uptake was not significantly different ($p > 0.05$) among maize varieties at the flowering stage whereas P and K uptakes were significantly ($p < 0.05$) higher in Pacific 399 and *Badra*, respectively. Total N uptake was significantly ($p < 0.05$) lower with zero fertilizer application compared to F2 and F3 however, similar to F4. There was no significant difference in total P and K uptake with respect to different fertilizer levels. Total dry weight at 50% flowering was similar in all varieties and it was higher under F2 and F3 in comparison to F1. In conclusion, the P and K uptake varied among the varieties but not with different fertilizer levels. Nitrogen uptake varied with different fertilizer application levels but not with varieties. Accordingly, the inherent fertility status of the soil has the capability of supplying P and K. However, N fertilizer management is essential for better growth.

Keywords: Fertilizer levels, Flowering stage, Maize, NPK uptake