ABSTRACT

This study determined effect of phosphorus (P) rates on growth, yield and phosphorus use efficiency (PUE) of potato varieties propagated from apical rooted cuttings. Experiments were conducted at Egerton University, Njoro and Kenya Agricultural and Livestock Research organization, Molo, in a split plot arrangement in randomized complete block design with three replicates. Main plot factors were four potato varieties (Shangi, Dutch Robyjn, Unica and Wanjiku) and sub plot factors were four P levels of triple super phosphate (0, 30, 60, 90 kg P ha^{-1}). Data on growth, yield and PUE of potato were collected. Phosphorus rates had significant effect on plant growth and yield. The interaction effects of P rates and varieties on plant survival, plant height, shoot biomass, number of eyes and tuber size was significant. The interaction of Wanjiku and 30 kg P ha^{-1} gave the highest shoot biomass of 0.42g per plant and large sized tubers (> 60 mm diameter). The main effects of variety and P rates significantly affected days to physiological maturity and marketable tuber yield. Unica variety showed high P uptake and PUE at both study sites. Apical rooted cuttings and 30 kg P ha^{-1} is recommended in the study areas with similar agro ecological zones.

Key words: Nutrient use efficiency, triple super phosphate, potato, apical cuttings.