

**FACTORS INFLUENCING PERFORMANCE OF SEED PLOT TECHNIQUE IN SEED POTATO QUALITY IMPROVEMENT AMONG SMALL SCALE FARMERS**

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Potato seed-borne diseases are the major causes of continuous low yields in potato production in East and Central Africa (ECA). A small seed-plot technology (SSPT) has been developed as a step towards effective management of the seed borne diseases. This has been successfully promoted and adapted to varying farming conditions, as a self-sustaining technology for on-farm seed potato production, where disease-free seed is planted at high-density in plots that are apparently free from bacterial wilt. The objectives of the study were; to establish the influence of spacing and fertilizer nutrient composition on the performance of small seed plot; and to determine the influence of fertilizer levels on the performance of small seed plot.

The trials were conducted in seven locations for three seasons. Different fertilizer types (DAP and Mavuno NPK) and fertilizer rates (0, 45, 90 kg N/ha) were used at a spacing's of 20\*20 cm and 30\*30 cm, to optimize management for SSPT. Observations were made on the following parameters, number of tubers, tuber yield (Kg), tuber weight (g/tuber), number of tubers per unit area and the number of tubers per plant. All the experiments were designed in a Randomized Complete Block Design. Data was analyzed using Microsoft Excel and Statistical Analysis System (SAS) software version 9.1. ANOVA was used to determine the difference among treatment means, while the significance difference between each treatment means was done further using DMRT at 5% significance level. The results indicated that in most locations tubers were higher with Mavuno fertilizer application compared to DAP fertilizer application, this could be attributed to an increase in stolon number through its effect on Gibberellins biosynthesis in the potato plant, the involvement of gibberellins in regulating stolon number through stolon initiation is reported by [1]. According to [2], NPK affect tuber formation in potato by influencing the activity and phytohormone balance in the plant, especially, on the levels of gibberellic and abscissic acids and cytokinins. Planting in common spacing of 75\*30cm the varieties used in the trials produce about 25 tubers per unit area, whereas the SSPT spacing of 20\*20 cm and 30\*30 cm produced 67 and 54 tuber per unit area on average respectively, this results were in relation to findings by [3,4,5] indicating that tuber production per plant are directly correlated with spacing per plant. In general if clean land is extremely limited the spacing of 20\*20 cm should be chosen to make best use of this part, whereas land is relatively sufficient a spacing of 30\*30 cm seems to be more practicable and economically viable.

**References**

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