

Improving potato tuber yields using genotypes with multiple virus resistance in Kenya

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ABSTRACT

Potato (*Solanum tuberosum* L.) viruses play a major role in lowering yields and quality of ware and seed tubers in Kenya. This experiment was conducted to determine potential of potato clones with multiple virus resistance in minimizing virus related crop losses. The trials were conducted in two sites for four successive seasons of re-using seed tubers. The genotypes were exposed to natural sources of virus infection without spraying insecticides to control (aphids) virus vectors. Genotypes with multiple virus resistance experienced significant ($P \leq 0.05$) lower rate of yield loss (21.2 %) compared to the major local varieties (68.4 %). There was successful identification of a higher yielding virus resistant clone (CIP396286.7) with significant ($P \leq 0.05$) higher mean yield (30.3 T/ha) compared to the highest yielding local variety (24.3 T/ha), Tigoni. The number of tubers per plant was significantly ($P \leq 0.05$) higher (12.1) in the virus resistant clones than in the local varieties (7.3). Reduced rate of yield loss, higher yield performance and higher number of tubers per plant in the tested clones was attributed to genetic contribution of multiple virus resistance. Virus related crop losses currently experienced by local farmers can be minimized with use of such virus resistant genotypes.

KEY WORDS: Potato, yield, virus resistance, Kenya