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Potato virus Y (PVY) and potato virus X (PVX) resistance breeding in Kenya: applicability of conventional approaches

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ABSTRACT

Potato virus Y (PVX) and *potato virus X* (PVX) are among the most important viruses of the potato (*Solanum tuberosum L.*) crop worldwide. The use of virus resistant varieties is considered the most effective and sustainable long term way of minimizing crop losses associated with the viruses. In Kenya, major potato varieties grown do not have effective host resistance to the two viruses. Among the different types of virus resistances available, extreme resistance has been found to be durable and most effective. This type of resistance protects the plant against all strains of the virus and has been found particularly for PVY and PVX. Nature of inheritance of extreme resistance genes make it easy to transfer to cultivated varieties through conventional cross breeding. Screening for the two viruses is cheap, simple and straight forward due to the fewer number of genes involved. In major potato breeding programmes around the world, this type of resistance has been incorporated in many cultivated potato varieties with reported reduction in yield losses. Focus on sourcing of suitable parents, hybridization and screening for the two viruses can make a significant contribution in management of the two locally important viruses while reducing virus related crop losses.

Key words: *Potato virus Y* (PVX), potato *virus X* (PVX), extreme resistance, breeding, Kenya