

Integrating ICT and a portable diagnostic kit in commercial production of high quality tissue culture based sweet potato planting materials in East Africa

Preamble

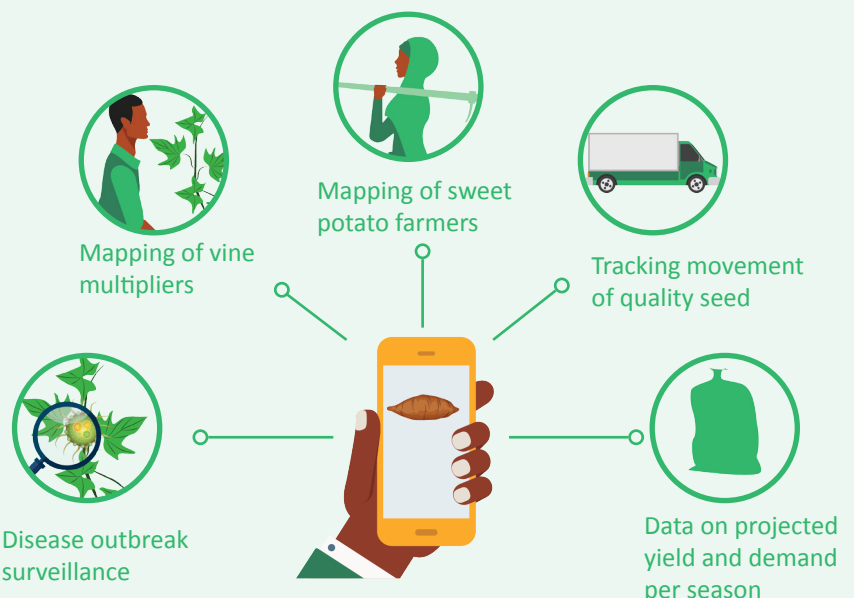
Sweet potato is a key food crop for over 100 million people in sub-Saharan Africa (SSA). It is not only fast growing, but also high yielding, nutritious and adaptable to a wide range of agro-ecologies. Sweet potato is also increasingly becoming an important source of animal feed. These numerous benefits have renewed interest in the crop, especially for ensuring food and nutrition security. Therefore, genetically pure, physiologically sound, pest and disease free sweet potato

planting materials is important for farmers to improve their yields. However, most times, farmers obtain planting material from their own farms, or purchase from their neighbours, without a thought for quality. This allows accumulation of diseases through each successive generation, particularly the sweet potato virus disease, which severely affects yield of elite varieties such as the orange fleshed vitamin A -rich sweet potato.



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The technology

The technology being promoted in this project is a convergence of tissue culture production protocols, portable diagnostic kit and mapping of key sweet potato quality seed value chain actors using a mobile app.

The tissue culture multiplication protocols include production of pre-basic, basic and certified seed. The pre-basic seed is produced in tissue culture laboratories; basic seed is produced in screenhouses (insect proof net houses) while certified seed is produced in open gardens by registered field vine multipliers. Tracking, labelling and improved vine packaging are introduced to ensure quality control and longer product shelf life while being transported over long distances.

The portable field based sweet potato disease diagnostic tool, is an improvement of the wet chemistry multiplex method for detection of sweet potato viruses, for rapid and cost effective detection of virus infection along the value chain.

The web-based mobile application supports real time mapping of sweet potato farmers, vine multipliers, and tracking movement of quality seed along the value chain and other value addition components. The app is branded as “Viazi Vitamu” App. It also captures data on projected yield and demand per season, as well as providing disease outbreak surveillance through automatic mapping of farmer queries.

Local and regional benefits

The expected benefits include:



Adequate supply of virus free sweet potato seed to smallholder farmers.



Ease and efficiency of detecting sweet potato diseases using the portable field based diagnostic kit.



A quality control system for production and distribution of sweet potato vines.



Improved marketing of sweet potato and sweet potato products.

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