

Whole genome sequencing on the farm: Mobile technology aids fight against disease, pests in Africa

In a world first, international scientists have used whole genome sequencing to help diagnose a plant pathogen destroying crops on African farms, potentially paving the way for preventing crop failures, vital to the African economy.

Dr. Jo-Ann Stanton, a Senior Research Fellow in the University of Otago's Department of Anatomy, helped develop the PDQeX, one of the two prototype technologies which have made it possible to carry out the whole genome sequencing on remote African farms.

"This achievement opens the way to rapid and accurate pathogen identification, permitting immediate corrective action to prevent [crop failure](#)," Dr. Stanton explains.

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Using hand-held molecular diagnostic devices, Dr. Stanton and the team has been able to carry out whole genome sequencing on the farms. A device (PDQeX) from New Zealand company ZyGEM that permits on-site DNA extraction, was used together with the MinIT base-calling mini-supercomputer made by UK company, Oxford Nanopore.

Bringing these technologies together it was possible to select either leaf, stem or insect samples on the farms, prepare the DNA for sequencing and then covert raw data to DNA sequence reads for data interpretation, all in real time.

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Cassava is under attack from viral pathogens that reduce or destroy the crop "800 million people worldwide depend on cassava as their main source of calories and virus spread is a significant global threat," Dr. Stanton says.

Read full, original article: [Researchers take genomic sequencing to the farm to help transform lives](#)