



## Tracking down the cause of Maize Lethal Necrosis

Africa crops are beset by 'big diseases' that present wide-scale risk to food security and spiral deepening poverty, especially with the most vulnerable. In early 2012, Fera was approached by the Kenya Plant Health Inspectorate Service (KEPHIS) to help identify a new disease that was destroying maize. The disease had been reported in a majority of the major maize growing regions of Kenya and has subsequently been found in DR Congo, Ethiopia, Rwanda, Tanzania and Uganda. With maize being vital for food and export, the losses caused by the disease were substantial.

The likely cause of the disease was not obvious but Fera diagnosticians speculated that it was probably viral, but many viruses, combinations of viruses or new viruses could be present. As such Fera applied, what was in 2012, a highly novel approach for identifying 'unknowns' based on Next Generation Sequencing. Using this method Fera was able to identify two viruses that cause the disease Maize Lethal Necrosis (MLN); namely Maize Chlorotic Mottle Virus (MCMV) and Sugarcane Mosaic Virus.

Fera research provided clarity over the identification of the causal viruses of MLN and identified the movement of seed as the major risk factor for further spread. Fera went on to develop real-time PCR diagnostics for MCMV which could be used for seed testing. KEPHIS today provides this testing for all commercial seed in Kenya as mandatory for certification of maize seed.