

Diagnosics and management of MAIZE LETHAL NECROSIS

The International Maize and Wheat Improvement Center (CIMMYT) is leading collective efforts to control the spread of Maize Lethal Necrosis (MLN) disease that appeared in eastern Africa in 2011 and is considered the worst threat to the region's food security in decades. Initiated in 2015 with support from the United States Agency for International Development (USAID), the MLN Diagnostics and Prevention

of Seed Transmission project is pulling together national, regional and international partners to prevent the spread of MLN-causing Maize Chlorotic Mottle Virus (MCMV), support seed companies to produce MCMV-free commercial seed, spread improved farming practices for disease control and create a 'community of practice' for disease diagnosis and management. The

project works primarily in the eastern Africa nations of Ethiopia, Kenya, Rwanda, Tanzania and Uganda where the disease is presently prevalent; and at the same time strengthens MLN surveillance and monitoring in Malawi, Zambia and Zimbabwe, three of the major commercial maize seed exporting countries in sub-Saharan Africa.



Seed Analysts from NPPOs training on testing MLN causing viruses in seed by ELISA



Seed companies production technicians training on MLN scouting and testing using immunostrips in Kitale, Kenya

Our Work

The project aims to coordinate regional efforts to strengthen the response to the rapid emergence and spread of MLN in sub-Saharan Africa. Its activities will result in:

-  an effective MLN surveillance and monitoring system,
-  an established community of practice comprising seed companies and national plant protection organizations,
-  harmonized protocols for detecting MLN-causing viruses in commercial seed lots,
-  a model for voluntary, private sector driven MLN/MCMV containment,
-  the development of appropriate diagnostic and management strategies.

Activity Areas

Prevention of the spread of MCMV

An effective surveillance and monitoring system has been established in MLN-endemic countries (Ethiopia, Kenya, Rwanda, Tanzania, Uganda) and key non-endemic countries that produce and exchange commercial seed (Malawi, Zambia, Zimbabwe). In addition, the project strengthens the diagnostic capacity of the National Plant Protection Organizations (NPPOs) and sets up a community of practice among NPPOs, researchers, seed producers and national/regional seed trade organizations to exchange knowledge and expertise across the target countries.

Production and promotion of MCMV-free seed

Ensuring production and supply of MCMV-free commercial seed by seed companies throughout the certified seed value chain, through enhanced capacity and rigorous monitoring to ensure seed companies maintain disease-free breeder seed stock. The project will ensure that seed planted by targeted seed companies is disease-free at every stage, right up to certified seed getting to the farmers.

A critical focus of the project is to support commercial seed companies to access low-cost MLN diagnostic services on a fee-for-service basis from specific accredited laboratories in the MLN-endemic countries.

Project Duration:

October 2015 - September 2019

Budget:

\$4 million

Key Partners:

- Alliance for a Green Revolution in Africa (AGRA)
- African Agricultural Technology Foundation (AATF)
- National Plant Protection Organizations (NPPOs)
- Regional organizations: East Africa Community (EAC), Alliance for Commodity Trade in East and Southern Africa (ACTESA)
- Seed trade organizations
- Commercial seed companies
- Advanced research institutions

Achievement Snapshots

The MLN Phytosanitary Community of Practice (CoP) was established with membership from seed traders' associations, NPPOs, seed companies, the East Africa Community, national agricultural research systems, international agricultural research institutions, donor agencies, ministries of agriculture, and national seed quality institutions. Membership is 61 from these institutions.

Over 650 NPPO officers trained on modern surveillance tools and rapid field diagnostics of MCMV. The surveillance and diagnostics protocols are being used by NPPOs surveillance teams across the target countries.

MLN surveillance has been conducted in major maize growing areas and seed production fields in non-endemic countries of Malawi, Zambia and Zimbabwe, and in the endemic countries of Uganda, Kenya, Tanzania, Rwanda and Ethiopia. Over 7,500 survey points in farmers fields, 1,220 seed fields and 2,150 commercial seed samples have been realized by NPPOs.

More than 1,400 outgrowers trained on the MLN free seeds checklists developed and currently being used in 5 MLN endemic countries.

The activities include follow up visits to seed companies and seed farmers on the use of the checklists, promotion of MLN tolerant/resistant hybrids, training seed growers on rapid on-farm MCMV testing, staging field days and distribution of IEC materials.

MLN information Web Portal mln.cimmyt.org was established and is active with an average of 3,500 visitors annually.



Photo: D. Hodson/CIMMYT

Plant health inspector at Zambia Agriculture Research Institute collects leaf samples to test for MCMV in a practical session during the MLN surveillance and diagnostic workshop held in Harare, Zimbabwe.

Activity Locations:



2011 MLN officially reported in Kenya

Up to **100%** YIELD on infested fields **LOSS**



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