

# CCARDESA

Centre for Coordination of Agricultural Research and Development for Southern Africa



## AGRICULTURAL PRODUCTIVITY PROGRAMME FOR SOUTHERN AFRICA (APPSA)

### POLICY BRIEF



# MAIZE LETHAL NECROTIC DISEASE (MLND)



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# Status of Maize Lethal Necrotic Disease (MLND) in Malawi, Mozambique and Zambia

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### Background

Maize is the major staple food for millions of households in Sub-Saharan Africa. It is both a staple and cash crop for the majority of people in Malawi, Mozambique and Zambia. Maize provides raw materials for many food and non-food products such as corn flakes and biofuels. Furthermore, it is an essential ingredient in the manufacture of livestock feed. In Malawi, Mozambique and Zambia, maize greatly contributes to the national food

security and makes up to 60 percent of the caloric intake for the population (Haggblade & Nielson, 2007; Mazunda & Droppelmann, 2012). The emergence and prevalence of the Maize Lethal Necrosis Disease (MLND) in endemic countries in east Africa (Uganda, South Sudan, Kenya and Tanzania), among others, threatens the food security and commercial seed trade in the Southern African Region. The purpose of this Policy Brief is to update key stakeholders on the status of MLND in Malawi, Mozambique and Zambia. Further, the Brief aims at creating awareness on potential threats posed by the disease on food security, international trade, and provides policy recommendations to be undertaken by policy makers and all stakeholders in order to prevent the introduction of the

disease into these three southern African countries. The Brief is based on the preliminary findings of the research study conducted in Malawi, Mozambique and Zambia aimed at assessing the occurrence of the MLND and its vector pest.



### What is MLND?

MLND also known as Corn Lethal Necrosis (CLN) is a maize disease that result from a combination of two viruses, the Maize Chlorotic Mottle Virus (MCMoV) and any of the cereal viruses in the Potyviridae group, like the Sugarcane Mosaic Virus (SCMV) or Maize Dwarf Mosaic Virus (MDMV). The MLND-

causing viruses are transmitted from plant to plant and field to field by insect vectors such as aphids, thrips and beetles. Studies reveal that MLND has a large impact on the poor resource smallholder farmers who can experience up to 100 percent yield losses at household level in the affected countries (CIMMYT, 2016). Due to its adverse impact, the MLND poses a major concern for researchers, seed companies, farmers and governments within Sub-Saharan Africa.

### Which African Countries have Reported MLND?

The disease was first reported in the Sub-Saharan Africa Region in 2011. Despite its rapid spread, the disease has not yet been reported in most of the SADC countries including

Malawi, Mozambique and Zambia. The disease has however, been reported in Kenya, Uganda, South Sudan, Tanzania and Democratic Republic of Congo (DRC) where the disease has spread rapidly. Although no cases of MLND have been reported in Malawi, Mozambique and Zambia, the presence of SCMV puts the three countries on high risk.

### How big is the impact of MLND?

The MLND disease can cause serious crop damage leading to complete yield loss. If the maize crop is affected at an early growth stage, it dries before tasselling. When affected late, the crop may become barren and cobs formed may be small or deformed and set few or no grain at all. For smallholder farmers, the impact is significant as the farmers can



lose the entire crop. This can be devastating in countries like Malawi, Mozambique and Zambia where maize makes up a large part of the staple diet. In rural areas of these three countries, maize forms a major component of diet which is consumed from breakfast, lunch and supper as porridge and nshima. Further, maize is used in making local brews such as thobwa and maheu among others. Additionally, the



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industries use maize for the manufacturing of livestock feed, beer, chips, corn flakes and drinks. On the other hand, maize exports during the bumper harvest earns foreign currency for the countries.

## What has been done?

Realising the seriousness of the MLND and the impact that it can cause in Malawi, Mozambique, Zambia, the National Agricultural Research Services (NARS) of the three countries through the Agricultural Production and Productivity Program for Southern Africa (APPSA) implemented a project aimed at establishing the presence and/or absence of vector pest of MLND since 2014. To meet this objective, the research had three (3) specific objectives namely:

- To conduct disease and vector surveys in the border

areas of Malawi, Mozambique and Zambia bordering Tanzania in order to identify the absence or presence of MLND ;

- To conduct sensitization workshops with stakeholders on the disease identification and vector management if established; and
- To determine and initiate implementation of phytosanitary actions (legal, technical and administrative) required for minimizing the spread of MLND.

## What approaches were used?

The major approaches that were employed included surveillance, diagnostic, awareness and training. Specific sites were selected for surveillance in Malawi, Mozambique and Zambia. On surveillance, the Research Team, in collaboration with other stakeholders, used farm

surveys involving administration of structured questionnaires, electronic surveys and general vector surveillance. In all countries, maize fields especially for small scale farmers were sampled and analysed for MLND.

The Project also trained stakeholders on various topics surrounding the MLND. Awareness campaigns were conducted using various media such as radio, television, print, field days and agricultural shows among others.

## Results and findings

The preliminary results from the surveillances and diagnostic tests that were conducted showed that there was no presence of the MLND in Malawi, Mozambique and Zambia. However, the

presence of SCMV in sugarcane fields in the three countries puts them at high risk of MLND.

## Policy Recommendations

Malawi, Mozambique and Zambia should prevent the introduction of MLND and maintain the status of free MLND. This will enhance food and nutritional security at both household and national levels. In addition, the countries will continue enjoying maize trade at both regional and international levels. The following policy recommendations will help the three countries maintain their no MLND status:

1. Continuous Intensive Surveillance: – the countries should mainstream MLND surveillance programmes and activities into their routine activities.

2. Enhance participation of extension services in surveillance: - The Extension services are widely spread in the three countries and are found at the lowest level of the Ministry structures. Extension staff are in regular contact with farmers and their participation



will broaden the scope of surveillance.

3. Harmonise the surveillance protocols across the three countries
4. Strengthen and harmonise the phytosanitary capacity, processes and procedures across the three

countries.

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