FSNWG
Food Security and Nutrition Working Group

# Maize Lethal Necrosis Disease (MLND) A snapshot

## 1. What is MLND?

The Maize Lethal Necrosis Disease (MLND) is a result of 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), Wheat Streak Mosaic Virus (WSMV) or Maize Dwarf Mosaic Virus (MDMV). The double infection of the two viruses gives rise to what is known as MLND, also referred to as Corn Lethal Necrosis (CLN).

## 2. How is it spread?

MLND is mainly spread by a vector, transmitting the disease from plant to plant and field to field. The most common vectors are maize thrips, rootworms and leaf beetles. Hot spots appear to be places where maize is being grown continuously.

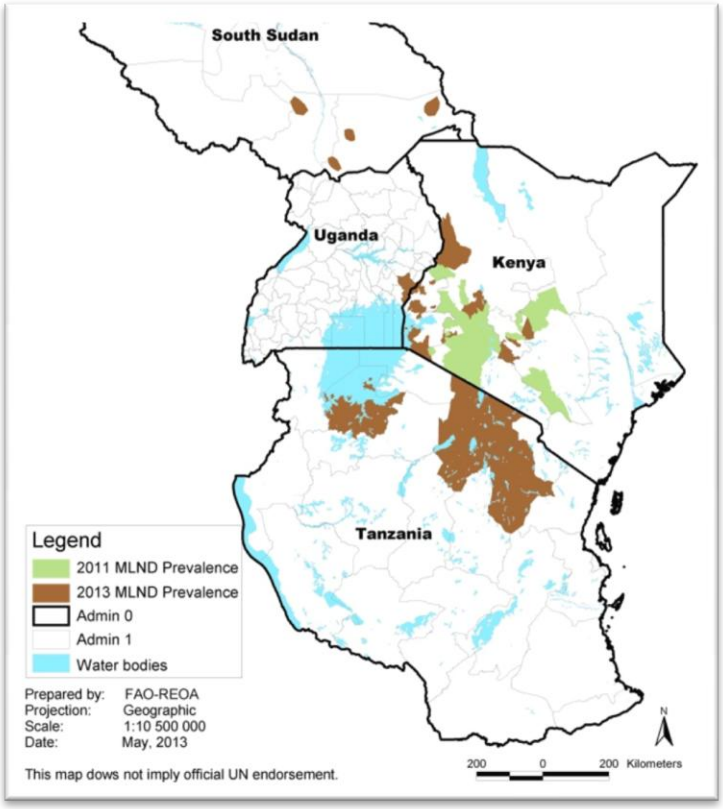
## 3. Is it harmful to humans & animals?

MLND gives rise to secondary fungal infections in the ears or grains. It is therefore not allowed for humans or animals to eat these once infected. **The plants should be removed immediately from the fields and infected ears and grains should be burnt.** The leaves can still be fed to livestock.

## 4. Which areas have been affected so far?

In Africa, the disease was first reported in Kenya, (South Rift Valley - Bomet and Naivasha districts) in September 2011 although its extent at that point suggested that the disease has been present for some time. According to the Kenyan Ministry of Agriculture, two percent of the maize harvest was affected in 2012. MLND has also spread rapidly into Tanzania, Uganda and South Sudan in the meantime (see map).

*NB: Due to lack of sufficient data the spread may be larger than indicated on this map.*




**MLND Prevalence in South Sudan, Uganda, Kenya and Tanzania, 2011-2013**

## 5. How big is the impact of the disease?

**At household level for smallholder farmers the impact is significant** as they can lose their whole production when affected. Maize makes up a large part of the diet in East Africa. The consumption per person varies with the highest rate of 103 kg/person in Kenya[1]. Some of the foods in the region are made of maize (githeri, ugali, maizemeal porridge), while the plant is the source for many by-products (oil). Losing their harvest has significant impact on both the food and nutrition security of farming families. On macro-level the impact is small at the moment. However for countries like Tanzania that export maize, MLND may have a significant impact on their economy if the disease spreads further.

## 6. What are the symptoms of MLND?

Currently, all maize varieties at every stage appear to be susceptible to the disease. The symptoms include:

- Dying leaves, leading to premature plant death
- Failure to tassel and sterility in male plants
- Malformed or no ears
- Rotting cob

[1] De Groote H., C. Doss, S. D. Lyimo and W. Mwangi. 2002. Adoption of Maize Technologies in East Africa – What Happened to Africa's Emerging Maize Revolution? Paper presented at the FASID Forum V, "Green Revolution in Asia and its Transferability to Africa", Tokyo, December 8-10, 2002

MLND symptoms are reported to be enhanced by conditions of drought, poor soil fertility and poor agricultural practices.

## 7. What has been done so far?

The Government of Kenya has undertaken several response interventions:

- Formation of a task force and monthly technical consultative fora
- Convening a regional workshop on the management of MLND
- Ongoing surveillance and monitoring on MLND spread
- Testing for tolerance
- Conducting sensitization programmes

## 8. What is the way forward?

In the **short-term** farmers are advised to:

- Uproot and remove affected plants
- Avoid growing maize in consecutive seasons, opting for crop rotation or grow alternative crops
- Be aware of specific season and planting time to avoid spreading of the disease
- Apply good agronomic practices
- Chemical spraying of vector under specific circumstances

In the **long-term** both technical and programmatic interventions are required for more sustainable solutions.

- Technical interventions:
  - Investment in promotion of good agricultural practices
  - Breeding of resistant or tolerant seeds
- Programmatic interventions:
  - Regional dialogue for coherent responses and regulations with a role for private sector stakeholders
  - Expansion of markets for alternative crops and diversification of food habits
  - Effective and efficient surveillance systems need to be set up

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