Prevention and detection of Maize Lethal Necrosis Disease

Recognize the problem
Maize lethal necrosis disease (MLND) is a new deadly disease of maize that was reported in Ethiopia very recently. In the early stages, MLND causes long yellow stripes on leaves. Unlike maize streak virus disease though, the streaks of MLND are wider. As the disease advances, the maize leaves become yellow and dry out from the outside edges towards the midrib. MLND can also cause dwarfing and premature aging of the plants. Finally, the entire plant dries out and dies. Dead plants can then be seen scattered across the field among healthy looking plants. Late infected plants don’t tassel and tend to produce poor grain filled cobs.

Background
MLND is caused by a co-infection of Maize Chlorotic Mottle Virus (MCMV) and Sugarcane Mosaic Virus (SCMV). Reports indicate that the disease is mainly transmitted by vectors such as aphids, thrips and leafhoppers but can also be transmitted through seed. The disease is very severe during the dry season. Sufficient rain can reduce the problem slightly so it is important to plant maize during the long rains and to avoid the short rain period by planting other crops during this time. Vigorous plants are able to resist disease attack.

Management
• Monitor the field once a week at all stages of development to observe symptoms of the disease as early as possible
• Uproot diseased plants and burn them immediately to stop the spread of the disease
• The vectors can be controlled using pesticides. Spray with one of the following insecticides:
  ◦ Diazinon 60% EC (1-1.5 lit/ha)
  ◦ Malathion 50% EC (2 lit/ha)
  ◦ Lambda-cyhalothrin 5% (0.2-0.4 lit/ha)
• Rotate with pulse crops or vegetables and diversify the varieties of crops planted on the farm to minimize disease build-up
• Use disease-free seed and plant with the recommended rate of fertilizer
• Weed fields regularly to eliminate alternative hosts of the insect vectors
• Do not plant a new maize crop near infected fields

When using a pesticide, always wear protective clothing and follow the instructions on the product label, such as dosage, timing of application, and pre-harvest interval.