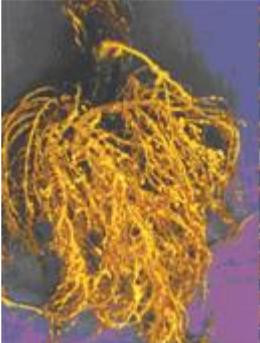




## KALRO E-mimea Plant Clinic

### Mulberry Root-Knot Nematode (*Meloidogyne* spp.)

|   |  |  |   |
|---|--|--|---|
|  |   |  |                |
| <p><b>Healthy Mulberry plant</b></p>  | <p><b>Small galls on roots of Mulberry plant</b></p>   | <p><b>Small galls on roots of Mulberry plant</b></p>                               | <p><b>Big galls on infected Mulberry root by root knot nematode (<i>Meloidogyne</i> spp.)</b></p> |
| <p><b>Disease Name</b></p>  | <p>Root-Knot Nematode (<i>Meloidogyne</i> spp.)</p>  |  |   |
| <p><b>Symptoms Description</b></p>  | <p>Usually nematode symptoms on most crops are identical with those of:</p> <ul style="list-style-type: none"> <li>• Mineral deficiencies in the soil</li> <li>• Inadequate or excessive water</li> <li>• Poor soil</li> </ul>   |  |   |
| <p><b>Disease Pest Category</b></p>   | <p>Continuous</p>  |  |   |
| <p><b>Diagnosis/Identification</b></p>  | <p><b>Nematode symptoms on infected Mulberry plant</b></p> <ul style="list-style-type: none"> <li>• Severely affected mulberry plants show stunted growth with low water moisture in leaves, later yellowing of leaf margins.</li> <li>• Formation of knots/galls on roots is the main indicator of the disease symptom.</li> <li>• Galls are spherical and vary in size; young galls are too small and yellowish-white in colour, old galls are big and pale brown</li> <li>• Sparse foliage exposing fruits to sunburn damage</li> <li>• Low yield and even plant death</li> <li>• Fruit drop and poor or malformed fruits</li> <li>• Reduced root systems, particularly reduction in lateral roots</li> </ul> |  |   |

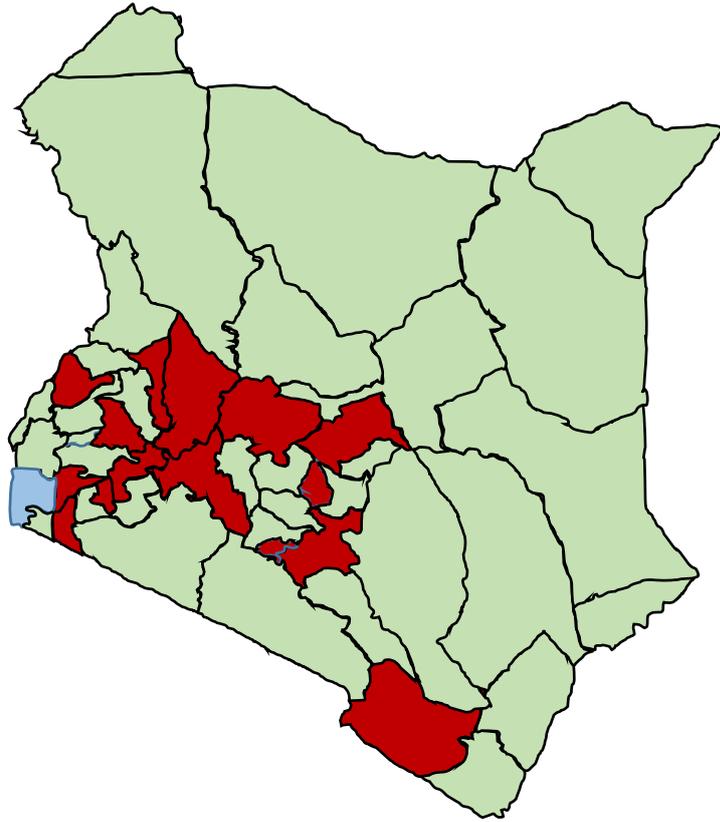
|  |  |
|--|--|
| <p><b>Conditions prevailing that contribute to success</b></p>   | <p><b>Sources of infection:</b></p> <ul style="list-style-type: none"> <li>• If you plant clean certified planting materials from reliable source</li> <li>• Remove and destroy infected plant materials</li> </ul>  |
| <p><b>Conditions prevailing that contribute to failure</b></p>   | <ul style="list-style-type: none"> <li>• Disease spreads primarily through contaminated soil, farm implements and run-off irrigation.</li> <li>• Planting of infected saplings along with other susceptible crops increases the disease intensity, some susceptible weeds in and around the mulberry gardens act as the secondary sources of infection</li> <li>• Temperature between 27-30 °C, soil moisture of less than 40 % and pH of 5 to 7 are favorable for the development of the root knot disease.</li> </ul>  |
| <p><b>Control Strategy</b></p>   | <ul style="list-style-type: none"> <li>• Always plant mulberry in nematode-free nursery beds Avoid areas that had spinach, tomatoes and other crops planted on it as they host root-knot nematodes. Such beds can also be free of nematodes by use of nematicides (see below).</li> <li>• Remove and destroy by burning all severely infected plants and plant residues.</li> <li>• Practice field sanitation by regular weeding, starting from areas with healthy crops before those with diseased ones. Some weeds serve as alternative hosts to disease causing organisms, including nematodes.</li> <li>• Apply neem oil cake @ 800 kg/acre/yr in 4 split doses during intercultural operation or after pruning the plant or after leaf harvest by making the trenches of 10 –15 cm deep near the root zone of plant and cover with soil and irrigate</li> <li>• Apply bio-control nematicide such as <b>Mytech WP (<i>Paecilomyces lilacinus</i>)</b> which is a naturally occurring nematophagus fungus from <b>DUDUTECH</b> at 125g/ha to kill eggs and juveniles and females of the root knot. Please always use manufacturer’s recommendations</li> </ul> |
| <p><b>Mode of spread</b></p>   | <p>Soil, water, farm implements</p>  |
| <p><b>Mandate Centres</b></p>  | <p>KALRO-Kabete (Food Crops Research Institute); KALRO-Thika (Horticulture Research Institute), KALRO-Kitale (Food Crops Research Institute)</p>   |
| <p><b>Reference Links – book, journal paper, magazine, brochure, bulletin, fact sheet, web etc</b></p> | <p><a href="http://www.plantwise.org/KnowledgeBank/CountryHome.aspx">http://www.plantwise.org/KnowledgeBank/CountryHome.aspx</a></p> <p>KALRO E-mimi website</p>   |

**Geographic Coverage**

The disease has been reported on the red highlighted counties but this is expanding rapidly. Country-wide survey is now necessary to confirm distribution of this disease.

**Counties**

Found in Kakamega, Nakuru Kiambu, Kirinyaga, Embu, Meru, Uasin Gishu, Taita Taveta, Kisumu counties



**Expert (s) Name**

Miriam Otipa and Lusike Wasilwa

**ALERT**

We request any person who notices damages similar to images above to send us a photo of this through email. We shall confirm and guide on area-specific control programs. Send us even if you are within areas we are saying the pest/disease has been recorded there.

**Expert Contact Details**

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