

EXOTIC PEST FACT SHEET 10

Root Knot Nematode (*Meloidogyne enterolobii*)



What are the main hosts?

The main process vegetable host plants are carrots, bean, and tomatoes.

What does it look like?

Root-knot nematodes induce galls on the roots of infested plants (Fig 1, 2). Above-ground symptoms include stunted growth, wilting, leaf yellowing and deformation of the plant. It can also cause severely infected fleshy roots, root cracking, and galled secondary roots as shown in sweet potato (Fig 3). Overall, crop quality and yield is reduced. Root-knot nematode infestation may also lead to attacks by secondary plant pathogens on the roots.

Root-knot nematodes hatch in the soil, migrate towards host plants and invade their roots, then migrate to the root apex to a permanent feeding site where the adult develops. Females produce large egg masses that are extruded in a gelatinous matrix out of the root. The life-cycle takes 4-5 weeks under favourable conditions and females produce around 400-600 eggs.

Why is it important?

M. enterolobii has a wide host range and high reproduction rate. It is a highly aggressive pest and induces more severe root galling than other root-knot nematode species. Infestation leads to severe loss of yield and severely stunted plants. Once root-knot nematodes have been introduced, it is generally difficult to control or eradicate them.

How does it spread?

Root-knot nematode is easily transmitted with soil and plant material. Infested soil and growing media, plants for planting, bulbs and tubers from regions where Root-knot nematode occurs are the most probable routes of introduction into different regions. Soil attached to tools, machinery, footwear or plant products is also another possible pathway. It can also survive under glasshouse conditions.

Where is it present?

Root-knot nematode is present in North, Central, and South America, Caribbean, Africa (Burkina Faso, Ivory Coast, Nigeria, Senegal, Togo, Congo, Kenya, Malawi, South Africa), China, India, Singapore, Vietnam, Thailand, Portugal, and Switzerland. It was discovered in potatoes in South Africa in the 2012 season, found in capsicums in Niger in 2013, and first reported in Portugal in 2018.



Fig 1. Root galling on cucumber. Gerard Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org

How can I protect my industry?

Check your production sites frequently for the presence of new diseases and unusual symptoms. Make sure you are familiar with common pests and diseases of your industry so you can recognise something different.



Fig 2. Root galling on tomato root. Image: Jeffrey W. Lotz, Department of Agriculture and Consumer Affairs. Bugwood.org.



Fig 3. Root cracking caused by root-knot nematode infection on sweet potato. Image: Gerard Holmes, California Polytechnic State University at San Luis Obispo, Bugwood.org