

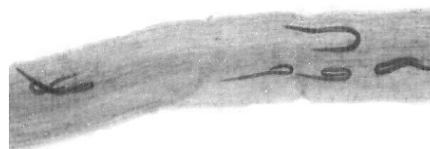
Extension Fact Sheet 8: Lesion Nematodes



Common name: Rough skin; Storage rot; Brown dry rot

Scientific name: *Pratylenchus coffeae*

Hosts: In Solomon Islands, lesion nematodes cause a disease on yam (*Dioscorea alata*) and, possibly, banana (*Musa* species). Note; the burrowing nematode, *Radopholus similis*, also causes a disease on banana that looks very similar. It is not certain which is more common.



Damage

On yam: damage to roots prevents the plant from taking up water and nutrients. When roots are damaged, plants become stunted and/or die early. Often, symptoms of the disease are not seen until the yams are harvested because: (a) in many yam gardens the foliage of different plants is mixed together, making it difficult to see individual plants; and (b) damage done by nematodes often comes late, so symptoms of poor growth can be mistaken for early maturity.

Damage to the tubers does not stop at harvest. The nematodes continue to multiply during storage, and the dry rot areas spread (photo, top left). Often, other organisms help with the decay. Decay of the outer areas of the tubers means a loss of planting material.

On banana: Spots appear due to the nematodes feeding and breeding inside the roots; later the spots join together forming characteristic red and/or black patches – best seen when roots are split (photo, top right). The roots die and the outer parts rot. The result is a weak, stunted root system; plant growth is slow, fruiting is poor and plants readily fall over in the wind.

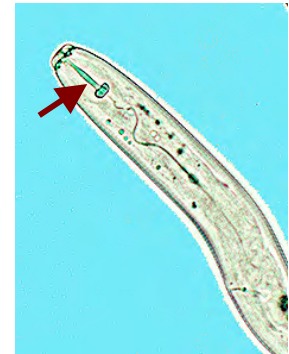
Biology and Life Cycle

Like all nematodes, *Pratylenchus* has six life stages: egg, juvenile (4) and adult (See diagram in the next page). The nematodes lay eggs in the root, or in soil close by. Eggs hatch in a few days and the young nematodes, called larvae, molt several times before they become adult. The larvae as well as the adults enter the roots; they force their way between or through the

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cells. *Pratylenchus* has a stylet (photo, right arrowed) or spear in its mouth, and it uses this to penetrate the roots and to feed on the cells.

The life cycle is 2-3 weeks, depending on moisture and temperature. When the cells die, the nematodes migrate through the root or tuber in search of healthier areas, or they return to the soil and search for a root to infect (photo, lower right above). The nematodes spread short distances in soil water and also by root-to-root contact. They are spread long distances on yam setts and banana suckers.



Young and adult nematodes feed on roots of weeds during fallow periods, and on the roots of other crops between crops of yam and banana. They also remain alive in stored yam tubers or in the banana corms. When infected yam tuber pieces or banana suckers are planted, the nematodes emerge and move through the soil until they find young roots to infect.

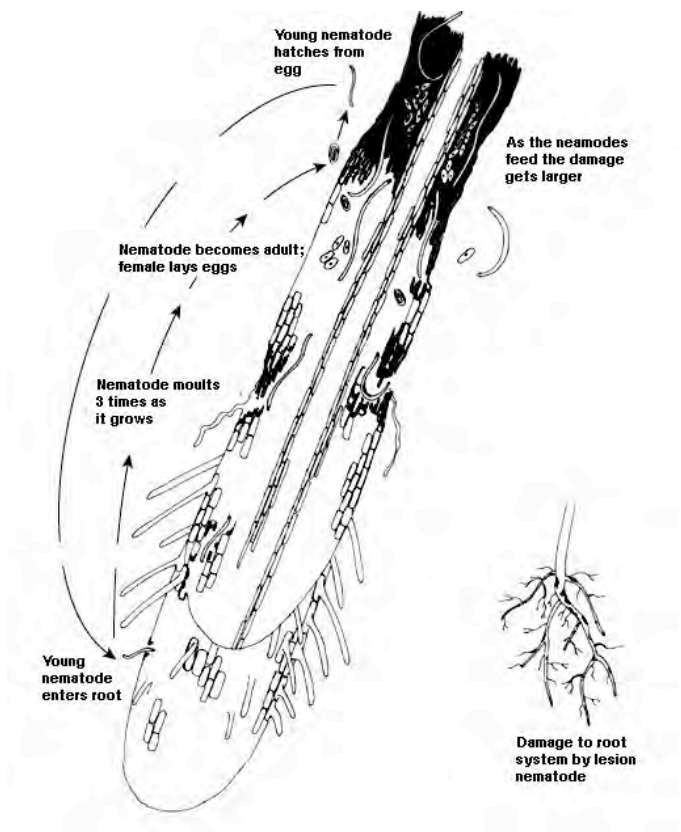
Signs and Symptoms

Look for signs of dry rot on yam tubers at harvest, and in storage. Look for bananas that have blown over, and roots which have red and/or black patches.

Management

Cultural control:

- Leave at least 3 years between crops of yam grown on the same land. If possible, allow the land to fallow naturally or plant marigolds or cover crops, e.g., green panic (*Panicum maximum*), siratro (*Macroptilium atropurpureum*) and velvet bean, *Mucuna* sp.;
- Use local knowledge, and plant where crops have grown well previously;
- DO NOT store tubers with signs of dry rot. Regularly inspect tubers in storage; remove those with dry rots;
- Inspect yam cuttings and banana suckers before planting. On yams, select and cut healthy yams first. Cut diseased yams and remove any dry rot. Wipe knife between cutting each tuber. On banana, cut off roots and cut out any rots on the corms.
- There is no information on resistant varieties.



Hot water treatment:

Hot water treatment of yam tubers and banana suckers is an effective method of killing nematodes. It has to be done carefully. The temperature of the water and the time of dipping must be controlled. It is 53°C for 10 minutes for yam and 53°C for 20 minutes for banana. Seek assistance from MAL before carrying out hot water treatment.