

Cultural control of root nematodes in coffee

Recognize the problem

Root-knot nematodes are roundworms that live in the soil and attack coffee roots. They are microscopic, so you cannot see them. They damage the roots. They cause the roots to swell, produce tiny galls, and crack. The damage hinders transport of water and nutrients from roots to the upper plant. This results in yellowing of leaves, wilting of foliage of the entire plant (particularly in dry days). In heavy infestations, the plant can die.

Background

Root-knot nematodes can survive from a few months to a few years as eggs or young ones in the soil or within root fragments. They are spread by soil on machinery, on animals, or on humans; and sometimes by water. But they can only move short distances inside the soil themselves. Planting of infected seedlings into uninfected soil is one of the most common ways these pests are spread. A number of measures can help to prevent spread.

Management

- Avoid moving soil from one field to another as this can introduce nematodes from infested fields to uninfested fields.
 - Make sure you clean soil off any tools and shoes before going to the next field.
 - Make sure you clean machinery by driving for about 100-200 meters along a tarred road or by pouring water to the tires and any part of the machinery to remove all soil particles before changing fields.
- Do not use infested soil in your nursery beds.
- Incorporate organic matter like cow or chicken manure into the soil near coffee trees to stimulate microbial competition against the nematodes. Nematodes do not like high amount of organic matter.
- Control weeds between coffee trees that host the nematodes; for example *Biden pilosa* (blackjack) and *Solanum* species e.g. wild nightshades.
- Make rough soil surfaces or contours parallel to the slope to have a drainage pattern that minimizes erosion and minimizes movement of nematodes through the field.

Coffee roots with tip galls caused by nematodes. (Photo by J. Bridge)



Defoliation caused by root-knot nematode in coffee. (Photo by Roger Lopez-Chaves, Universidad de Costa Rica, Bugwood.org)



Scientific name(s) > *Meloidogyne spp.*

The recommendations in this factsheet are relevant to: Zambia



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Edited by Plantwise.