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Underground menaces



❖ Biological control with naturally occurring micro-organisms that infect root-knot nematodes when in the soil or in roots.

It is possible to increase the densities of these biological control agents in the soil and in Kenya research is in progress on mass producing these organisms and applying them to the seedbeds or planting holes.

Farmers in Kenya are keen to participate in developing these friendly fungi by adopting them in their cropping systems.

Root-knot nematodes

Plant parasitic nematodes are microscopic, worm-like animals that live in the soil and infect the roots of plants. The most common and damaging of such organisms are root-knot nematodes which can cause crop losses of up to 50% and sometimes greater. Most vegetable crops are susceptible to root-knot nematodes. If attacked while still seedlings, plants will not thrive and losses can be extreme.



Swiss Chard heavily infested with root-knot nematodes.

Root-knot nematodes are major pests on land where susceptible crops are grown frequently. The nematodes reproduce rapidly and numbers can increase several thousand-fold between planting and harvesting a crop. It is therefore unwise to grow successions of susceptible crops such as tomato but in Kenya (and many other countries) tomatoes are most attractive economically. Farmers are therefore keen to find remedies that will enable high value crops to be grown regularly.

Symptoms:

Above-ground symptoms are hard to diagnose, crop loss is often attributed to other causes such as leaf pests and diseases or low soil fertility.

- Poor growth/patches of unhealthy plants in fields
- Wilting on hot days
- Small yellowish leaves
- Small fruit

Below-ground these nematodes cause very characteristic swellings and deformations in the root systems of many crop plants (and some weeds too).



Characteristic swellings (galls) caused by root-knot nematodes on spinach in the Caribbean.

Control strategies:

❖ Nematicides are an option for farmers but their use is restricted on account of their cost. Some farmers prefer not to use these chemicals.

❖ Rotating susceptible crops with those that are poor hosts. However, there are few economically valuable crops that can be used. In Kenya, cabbage and kale are commonly grown in rotation with tomato. Brassicas are hosts of root-knot nematodes but do not support such large populations as tomatoes and they are not as seriously affected. Nevertheless they do maintain root-knot populations at a level that can be damaging to a successive crop.