



NEWSPAPER ARTICLES

Nematodes in the Garden (June 12, 2021)

By Rosie Bonar, UCCE Master Gardener

What are nematodes?

Sometimes it feels like you just can't win. Even though your vegetable garden was planted on time, the soil prepared, and you are watering it carefully, the vegetables are wilting. They may not be producing enough, be off color or have stunted growth. You may have nematodes.

You won't see the nematodes. Nematodes are microscopic, eel-like round worms. The ones that are a problem for gardens are those that live in the soil within the plant roots. In California, the most damaging is the root knot nematode *Meloidogyne* species. Nematodes spend their whole life in the soil. Their life cycle has 6 stages. They go through an egg stage, 4 immature stages and an adult stage. They can grow from an egg to maturity in less than a month so they can increase in numbers rapidly in the soil. It is believed that the root knot nematode survives from season to season as eggs in the soil. Nematode numbers can increase rapidly, if susceptible plants are planted in the same spot season after season. They don't die off in the cooler months, although they aren't as active.

Root knot nematodes attack a wide variety of common vegetables, fruit trees and ornamentals. They do the most damage to herbaceous and annual plants, such as tomatoes, potatoes, peppers, eggplants, cucumbers, carrots, and beets. Woody plants are not usually killed by them, although they can be damaged.

Signs of nematode damage

The first sign of a nematode infestation will include wilting during the hottest part of the day, even with adequate soil moisture. The plants might lose their vigor and have yellowing leaves. Infected plants will grow more slowly, produce fewer and smaller leaves and fruit, and may die. Damage is worse in warm, sandy soils. Underground, you will find galls, or swelling, on the roots. The nematodes feed and develop with the galls. The galls interfere with the water and nutrient conducting abilities of the roots. This interference is what leads to the above ground symptoms.



Do the detective work

If you suspect that your garden has a root knot nematode infestation, you can verify your suspicions by digging up a plant, tapping off the soil and examining the roots for galls. If the galls cannot be rubbed off, they are from root knot nematodes. (If the swellings can be rubbed off, they may be from beneficial, nitrogen-fixing nodules and are not harmful. These are found on the roots of legumes such as beans.) There are other nematode species that can cause similar above ground symptoms. The roots will appear shortened or deformed without the appearance of galls. You can collect a soil sample and have it analyzed by a lab to verify the presence of other species of nematodes.

Prevention and management

There are a number of things you can do to manage nematodes.

Prevention is the best policy. Avoid spreading nematodes from one place to another on your shoes and tools.

Plant vegetable and flower varieties that are resistant or tolerant of nematode injury. Look for the letters VFN (Virus, Fungus, Nematode) resistant after their name on their plant tag. If you have had nematodes in your garden space in the past, planting a resistant plant will allow you to still use that space successfully. Fruit trees, nut trees and grapes can all be found with nematode resistant root stock.

An approach to ridding your garden space of nematodes is to leave the soil fallow for a year or two. Keep the soil moist so that the nematode eggs will hatch, but they will die if there is nothing to feed on. You could also practice crop rotation, alternating crops that nematodes like with ones they don't like. (Annual crops that are useful in a rotation plan for reducing root knot nematode populations include small grains such as wheat and barley, sudangrass, and resistant tomato and bean varieties.)

You could also try soil solarization. It is similar to fallowing but takes less time. Cover the area with clear plastic during the summer and the sun's heat will kill the nematodes. It will also help kill weeds.

You can add peat moss, manure, compost, humus to the soil. These organic amendments give the nematodes something else to eat which might keep them away from the garden plants.

Nematodes in your garden can be a challenging problem. But if you find them, there are things you can do to limit their damage. Visit the Master Gardener website and view the pest note on nematodes for pictures and a complete list of plants that can be damaged by nematodes and some of the ways to avoid them.

<http://ipm.ucanr.edu/PMG/PESTNOTES/pn7489.html>

The Master Gardeners will be available to answer your questions at a few select locations in the next few months!

Ace Hardware, Visalia - 1st Sat./every month, 10 am-1 pm

Luis Nursery, Visalia - 2nd Sat./every month, 10 am-2 pm

Hanford Farmer's Market - 4th Thurs, May - Sept., 5-8 pm, 7th ST. and Irwin, Hanford

Questions? Call us:

Master Gardeners in Tulare County: (559) 684-3325, Tues & Thurs, 9:30-11:30

Visit our website to search past articles, find links to UC gardening information, or to email us with your questions:

http://ucanr.edu/sites/UC_Master_Gardeners/