

# ROOT-KNOT NEMATODES

By Kathy Porter, CR

Are these the little creatures that keep you awake at night croaking under your window? No, root-knot nematodes are not the beneficial toads that eat tons of bugs in your yard but microscopic roundworms. There are thousands of genera of nematodes and most are very beneficial devoring bacteria, fungi, and aiding in the decomposition of organic matter.

Unfortunately there are a number plant-parasitic nematodes, and a nematode is also the cause of heartworm in dogs and cats. The most damaging nematode worldwide is the sedentary root-knot ectoparasite, and it is one of Florida's most undesirable exports.

Root-knot nematodes (RKN) can cause problems with your roses, vegetables, landscape plants, and fruit trees. They thrive in warmer temperatures and sandy soil. They inject a hormone into the root that causes galls or knots to form. This prevents the roots of plants in the uptake of nutrients and water. Your plant will show wilting, yellowing, stunting, thinning, and eventually will die.

Root-knot nematodes are difficult to control, and the best measures are preventative. Consider the following:

- Rose lovers are fortunate that we can buy roses grafted on Fortuniana root stock. The roots of Fortuniana are more hair-like and because they are thin, they are resistant to RKN. Also, there are number of old garden roses that are resistant to RKN damage.
- In the case of other garden plants, do your homework and look for plant varieties that are resistant to RKN.
- Buy only from reliable nurseries. Before buying, pull the plant out of the pot and check for galls. Don't buy it even if it's on sale. You may be introducing big problems into your garden.
- Sanitize tools when working in the your garden before moving from plant to plant or area to area, and ask your landscape people to do the same with theirs.
- Planting in raised beds or containers will also help, but may not prevent the RKN from eventually migrating to the beds or containers.
- If you are planting in containers, never mix your garden soil with your potting mix. Since most soil in Florida has RKN, you may be introducing them into the containers.
- Root-kinot nematodes flourish in sand. Increasing organic amendments, such as compost, manure, worm castings, and other organics, will help reduce the amount of sand, increase the water-holding capacity in the soil, and should stimulate natural nematode enemies.
- For decades gardeners have planted marigolds to suppress RKN, and the most effetine are the French marigold (*Targetes patula*), and the African marigold (*Targetes erecta*). Some reseach suggests the marigolds need to planted in the bed two months before anything else is planted in order to supress RKN. I still plant them.

If you are establishing a new bed, you may want to consider soil solarization. This will kill RKN in the top six to twelve inches of soil. Soil solarization needs to be done in the hottest months of July and August. Till the soil first and remove all the sticks, roots, rocks, etc. The soil should be damp but not wet. Cover the area with CLEAR plastic and secure the edges all around. Leave on for six to eight weeks. Do NOT till the soil again before planting. Apply a top dressing of organics when planting.

Hopefully, these measures will help deminish the amount of RKN in your soil and assure healthy roses, veggies and other landscape plants. .



**Root-knot nematode galls**  
Credit: R. Levin, UF/IFAS