

Root-knot Nematodes on Vegetables

www.ncagr.gov/agronomi/uyrnem.htm

Your nematode assay report indicates a potential nematode hazard. Several species of root-knot nematode can cause major losses in vegetable crops, especially those grown in sandy soil and under late spring and summer conditions. Small to large root galls are evidence of these parasites (FIGURE 1) and can be readily observed on the roots of infected plants such as bean, pea, sweetpotato, tomato and other summer-season vegetables. Early spring-planted vegetables—such as beet, carrot, English pea, lettuce, potato and radish—can usually be grown in infested soils with limited damage.

Nematicides are available for commercial growers, but crop rotation, resistant varieties and soil amendments are the only management choices for the home garden. Root-knot nematodes attack so many plants that it is difficult to implement a good rotation. As a rule, homeowners can reduce root-knot populations in a garden plot by growing asparagus, fescue, onion, small grains or marigolds in it for two to three consecutive years.

When possible, plant varieties that have resistance to root-knot nematodes (TABLE 1). Resistant varieties actually suppress nematode populations to some extent. Tolerant varieties will grow in infested fields, but they do not suppress nematode populations and still exhibit some yield loss.

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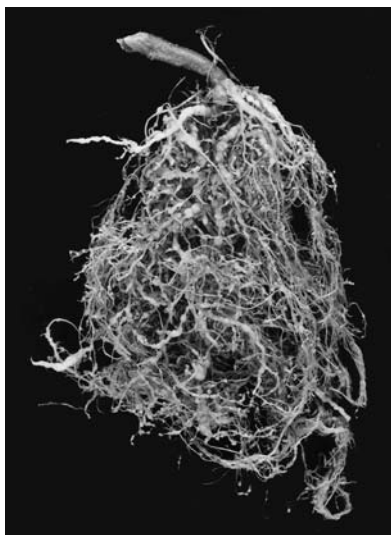


FIGURE 1. Root-knot damage to vegetables: tomato infected by *Meloidogyne arenaria* (left) and carrot infected by *M. hapla* (right).

TABLE 1. Some vegetable cultivars resistant (or tolerant where indicated) to root-knot nematodes

<u>Lima Bean</u>	<u>Sweet Corn (tolerant)</u>	<u>Bell Pepper</u>	<u>Tomato</u>
Nemagreen	Carmel Cross	Carolina Wonder	Atkinson
	Span Cross	Charleston Bell	Auburn
<u>Snap Bean</u>			Better Boy
Bountiful	<u>Sweetpotato</u>	<u>Hot Pepper</u>	Early Girl
	Carolina Nuggett	Carolina Cayenne	Goliath
<u>Southern Pea</u>	Cordner	Charleston Hot	Park's Whopper
Charleston Nemagreen	Excell		VFN 8
Clemson Purple	Heart	<u>Cherry Tomato</u>	Vine Ripe
Colossus	Hernandez	Small Fry	Wonderboy VFN
Floricream	Jewel	Sweet Million	
Magnolia Blackeye	Nemagold		
Hercules	Nugget	<u>Paste Tomato</u>	
Mississippi Purple	Regal	Classica	
Mississippi Silver	Resisto	Viva Italia	

As a rule, root-knot-resistant varieties are not resistant to all populations of this nematode. Therefore, it is a good idea to examine the crop roots at the end of the season. Look for root galls. If no galls are present, then the resistance is effective.

Cultural practices can also be effective in reducing nematode populations.

- Removing residual crop roots immediately after harvest helps prevent nematode build-up.
- Tilling (hoeing, turning, cultivating) the soil two to four times in the fall allows sun and weather to diminish nematode populations.
- Incorporating organic matter into garden soil depresses nematode populations and increases water-holding capacity of soil and associated beneficial microbes.
- Planting marigolds in a vegetable garden helps control root-knot nematodes.

For Additional Assistance

- Call your NCDA&CS regional agronomist or the Agronomic Division office (919-733-2655).
- Visit the NCDA&CS Agronomic Division Web site at www.ncagr.gov/agronomi/.
- Visit your county Cooperative Extension office.
- Refer to one or more of the following online publications:
 - *Pests in gardens and landscapes: nematodes* (University of California, 2001)
— www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7489.html
 - *Root-knot nematodes: biocontrol with marigolds* (NCDA&CS Agronomic Division, 2008)
— www.ncagr.gov/agronomi/pdffiles/nnote1.pdf
 - *Root-knot nematodes in the vegetable garden* (Clemson Extension, 2004)
— hgic.clemson.edu/factsheets/HGIC2216.htm
 - *Managing nematodes for the non-commercial vegetable garden* (University of Florida Extension, 2001)
— edis.ifas.ufl.edu/NG005