Friday’s Feature
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Solarization can help reduce nematode problems in the vegetable garden

Vegetable gardening is a popular pastime in Florida. In addition to being fun, the vegetables just seem to taste better when they are homegrown. Unfortunately, we are not the only ones who like these vegetables.

Every gardener has had the experience of putting hours of hard work into a garden expecting a bountiful harvest only to have it die. Who are the culprits? They may be things we can see like rabbits, birds, or insects. Other times they may be invisible, too small to be seen. Due to our warm temperatures, high humidity and sandy soil, Florida has more than it’s fair share of these pests and pathogens. Plant-parasitic nematodes can be among the most damaging and hard-to-control of these organisms.

Nematodes are unsegmented roundworms that live in the soil and are very small. Most can only be seen using a microscope. There are many different kinds of nematodes and most are beneficial because they feed on bacteria, fungi and other insect pests. Unfortunately, there is a group of nematodes that can damage plants.

Plant-parasitic nematodes feed upon a plant’s root system and reduces the plant’s ability to obtain water and nutrients from the soil. When there is a high population of nematodes in the soil or when the plant is stressed, the plant begins to show symptoms.

Most people discover how destructive nematodes can be when symptoms occur. Mild symptoms include stunting, loss of vigor, wilting and reduced yields. Severe symptoms include early plant death and complete loss of production.

Root-knot nematodes are the most well-known, and most destructive, of the plant-parasitic nematodes. The galls produced by root-knot nematodes are such a distinctive symptom that it can be recognized by anyone. Galls are small to large swelling of the roots in the areas where the nematodes have entered the root.

Okra, tomato, cucumber, butter beans, squash and melons are some of the most vulnerable vegetable plants. The greatest damage occurs on plants that are grown during the summer months, when soil temperatures are warm.
Managing nematodes may involve using one or more techniques that reduce nematode populations.

Plant resistant varieties: Some vegetable varieties are marketed as “nematode resistant.” Contact your local Extension Office for recommendations.

Crop rotation: Most of the problems with nematodes arise because susceptible crops are grown in the same area each year. Gardeners need to consider rotating crops within the garden and never plant very susceptible crops consecutively. Another alternative is to grow vegetables in containers using a soilless potting media.

Solarization: This is a process of using heat from the sun to kill nematodes and other pests. The soil should be worked with a hoe or rototiller to break up clods. Remove all sticks, roots, and clumps. The soil should be moist, but not wet. Cover the soil with a clear plastic tarp and bury the edges of the plastic. Leave the plastic on the soil for at least 4 to 6 weeks. Do not remove the plastic until you are ready to plant.

Sunlight goes through the clear plastic and heats the soil underneath. The plastic then holds in the heat so it penetrates the soil. Long-term exposure to high temperature kills nematodes, as well as many weeds, fungi, and insect pests. The disinfested zone is usually 6 to 8 inches deep. Because it depends on sunlight and heat, solarization works best during the summer months when the soil will receive maximum direct sunlight.

Contact your local Extension Office for other nematode management techniques. However, while these recommendations can help avoid or reduce problems with plant-parasitic nematodes in the vegetable garden, they are not guarantees of success.

Theresa Friday is the Residential Horticulture Extension Agent for Santa Rosa County. The use of trade names, if used in this article, is solely for the purpose of providing specific information. It is not a guarantee, warranty, or endorsement of the product name(s) and does not signify that they are approved to the exclusion of others.

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