



## Roses

Most rose varieties are susceptible to Fire Blight caused by the bacterium *Erwinia amylovora*. Many varieties of apple, pear, mountain ash, hawthorn, and cotoneaster are also susceptible. Infections usually start at the blossoms, moving to the twigs, and then the branches. In roses, the canes may get large purplish-brown cankers that ooze masses of bacteria. The cankers resemble fungal cankers, but there are no fruiting bodies or spores present except for saprophytes. The Fire Blight cankers look a great deal like lesions formed on rose canes by the black spot fungus. In woody trees and shrubs, flowers turn brown and wilt, twigs blacken and curl. The blackened twigs often form a shepherd's crook. Cankers oozing bacteria also form. Ornamental pears are notoriously susceptible to Fire Blight. The bacterium is spread by rain, birds, insects or animals, and one infected plant touching another. Gardeners can easily transmit the bacteria on infected gardening tools. The time of greatest risk is late spring to early summer. Control consists of removing infected stems and branches eight inches from the infected area. Tools should be sterilized between cuts in a 10% bleach solution (9 parts water and one part bleach), or an alcohol solution (one part alcohol to 3 parts water). Bactericides containing streptomycin sulfate are available to combat Fire Blight. They must be applied at bud break to be effective.



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Fire Blight on Apple

[www.uky.edu/.../appleipm/graphics/fblight.jpg](http://www.uky.edu/.../appleipm/graphics/fblight.jpg)

## Lettuce

*Sclerotinia minor* and *Sclerotinia sclerotiorum* both cause a disease in lettuce known as Lettuce drop. *Sclerotinia minor* infects lettuce leaves and stems in contact with the soil. The fungus causes a soft, brown, watery rot of the lower leaves and crown. First the outer leaves wilt and then the entire plant collapses. White fungal mycelium and black irregularly shaped (3-5mm) sclerotia form on the decaying crown. Lettuce drop caused by *Sclerotinia sclerotiorum* is considered one of the most economically important diseases of lettuce. Seventy-five percent or more of the crop may be lost when the disease is severe. This fungal pathogen produces the same symptoms as *Sclerotinia minor* but also makes aerial spores that can infect the upper portions of the plant. The sclerotia are generally larger (5-10mm) than those produced by *Sclerotinia minor*. Additionally, *Sclerotinia sclerotiorum* produces fruiting bodies called apothecia that resemble tiny clusters of mushrooms. Rotating to non-host crops, deep plowing to bury sclerotia, and applying Rovral 50WP after thinning help control Lettuce drop caused by *Sclerotinia minor*. The same controls apply for Lettuce drop caused by *Sclerotinia sclerotiorum*, but fungicides should be started at the rosette stage.



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### Asparagus

Violet root rot caused by *Heliocobasidium brebissonii* is an important disease of carrot, sugar beet, potato, and asparagus. This is a soilborne pathogen that spreads from plant to plant where root crops have been grown extensively. Even low levels of inoculum can cause problems. Typically, violet root rot is detected on the roots of plants with healthy foliage. Affected roots show patches of purplish-black mycelium and small dark dots of infection cushions. In severe infections, purple to white mycelial growth may be present on the crowns and on top of the soil next to affected plants. The foliage turns yellow and wilts. Dark purple mycelial growth is present on roots and crown. Soft rot symptoms often occur as secondary organisms move in. A 3-4 year rotation with non-host crops is the best control. Where soils are acidic, it's helpful to raise the soil pH to 7.0.

### Oak

A sample came into the clinic with obvious insect damage. The tender new stems and petioles were chewed nearly in two. In many cases they were completely severed. The homeowner had noticed nothing amiss with his tree the previous day, but found hundreds of severed twigs on the ground the following morning. The damage was not typical of twig girdlers so the clinic recommended going out after dark with a flashlight. Sure enough, the homeowner found thousands of May/June beetles (*Phyllophaga* spp.) feeding on his oak. May beetles feed on the foliage of various trees and shrubs at night, with oak being the

preferred host for many species. The foliar feeding by adult beetles is annoying, but rarely causes significant damage. The primary damage is larval feeding on the roots of turf, young trees, and shrubs. The grubs are the large, fat curled white grubs found when digging in the lawn or garden. There are over 200 species of this type of beetle. The eggs are laid in the soil in the spring. Larvae feed for a limited amount of time before migrating downward during the winter. The second season, they return to feed on roots, doing most of the damage as they grow in size and weight. At the end of the third year, they pupate and emerge from the ground as adults in the spring to feed on foliage and mate. In the southern United States, many species complete their life cycles in one year. Control is achieved by applying a season long grub control to the lawn and flower beds.



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## Milk Thistle

A county agent asked for an identification of an unfamiliar weed. Milk thistle (*Silybum marianum*) is an exotic weed, native to the Mediterranean region of Europe. This species is now found in Australia, the United States, Canada, New Zealand, South Africa, Chili, and Argentina. In the United States, it has become a serious pest in California, central Texas, Oregon, and Nebraska. It makes an attractive, albeit prickly garden plant because of its large showy marbled foliage. Milk thistle has escaped cultivation in Texas to infest over 200,000 acres in three counties. Dense stands displace native and forage species. The plant can achieve a spread of three feet and a height of 2-6 feet. The distinguishing characteristic is the white marbling found in the leaves. The leaves are deeply lobed, and can be as much as 20 inches long and 10 inches wide at the base of the plant. The leaf margins are tipped with woody spines 1/8-1/2 inch long. They bloom with a typical purplish pink thistle bloom. The plants are considered toxic to cattle. Milk thistle is generally found in overgrazed and poorly managed pastures. It prefers waste areas with high fertility soils. Milestone 2L, and Forefront are labeled for thistle control in Arkansas.



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## Nematodes in the Landscape

by Ronnie Bateman

Spring is in the air - along with the desire to get out of the house and do some work in the lawn or garden. Quite often, this is the time of the year the decision to make some changes in the landscape is made. Concern for some shrub, rose, or other plant that "just didn't do right last year" is revived. The nematodes that love to feed on your garden crops and your lawn feed on the plants in your landscape too. Consideration should be given to these parasites when maintaining established plants, or adding new plants in the landscape.

Nematodes can cause noticeable symptoms to plants in the landscape. Stunting, yellowing, defoliation, or fewer and smaller leaves may be symptoms of nematode infestation (Figures 1&2). Root symptoms may include galling, stunted roots, dead tissue, and decay of roots (Figure 3).

Prevention and maintenance are the two main keys for nematode management in the landscape. Where possible (a new home, a new lawn or area of lawn, etc.), prevention is preferable. Soil samples should be collected from the new area(s) for nematode assay. If nematodes are present and the lawn is new, or is going to be completely renovated so that phytotoxicity is not a problem, a soil fumigant such as Basamid can be used as a soil sterilant. Fumigation will destroy most nematodes, soil borne fungal pathogens and some weed seeds. A much slower option in some situations might be the use of soil solarization. With this approach, the area should be covered with clear polyethylene for a period of 6 to 8 weeks during the summer prior the establishing plants or sowing grass seed.

In established landscapes and beds where nematodes are present and have been positively diagnosed as causing severe symptoms, there is not much recourse other than removing all plants and controlling the nematodes with fumigation, fallow, or solarization.

Plant selection is critical to maintaining a site relatively nematode-free, or to slow their increase in population. Ornamental species that are more tolerant to the nematode species present in your lawn is advisable.



North Carolina State University has several publications with listings of ornamentals with varying degrees of resistance to different nematode species. The website is: [www.ces.ncsu.edu](http://www.ces.ncsu.edu). Once at the site, follow the links to the area of interest.

Good lawn and landscape maintenance practices will help keep nematodes from becoming a severe problem. It is essential to keep insects, weeds, and diseases under control, to provide optimum plant nutrition and soil pH, and to provide adequate moisture for plant growth and maintenance. Irrigate deeply and less frequently to encourage deeper root development. Weeds not only compete for nutrients and moisture, but many are also hosts for nematodes. The addition of organic matter will increase the ability of the soil to retain moisture and nutrients and will increase the activity of microorganisms that can suppress nematode populations. Mulching can be beneficial in providing more uniform soil conditions in the root zone.

By choosing more nematode tolerant plant varieties, insuring that newly introduced plants are planted in non-infested soil, and by using good maintenance practices, the home landscape will usually not develop a severe nematode problem.



**Figure 1** Discoloration caused by nematodes.



**Figure 2** Healthy Impatiens (l) infested (r)



**Figure 3** Root galling caused by root-knot nematode