



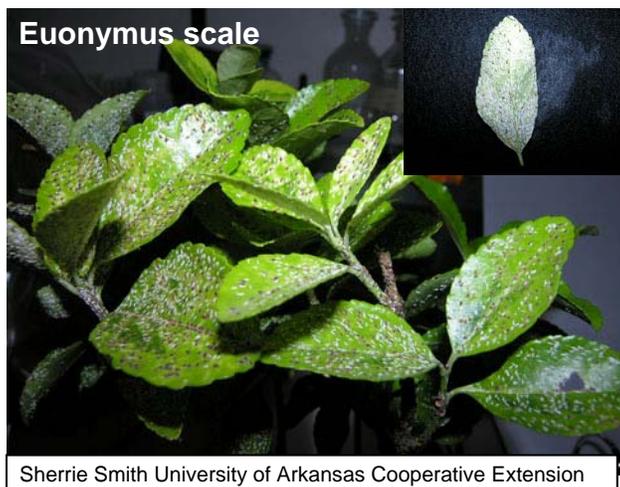
Sherrie Smith
Rick Cartwright



This bulletin from the Cooperative Extension Plant Health Clinic (Plant Disease Clinic) is an electronic update about diseases and other problems observed in our lab each month. Input from everybody interested in plants is welcome and appreciated.

Euonymus

Euonymus scale is a serious insect pest of euonymus. Scale infestations are often overlooked until they do serious damage. These tiny insects damage plants by using their piercing sucking mouthparts to feed on sap. Heavily infested plants grow slowly and may have yellow spots on the leaves. Severe infestations may cause branch dieback and plant death. The males with their elongate white bodies are the most noticeable symptom. They can heavily encrust the leaves and stems of the plant. Females are larger (over 1/16 inch long), brown, and pear-shaped. Plants growing next to buildings suffer greater damage as a rule than do those with good air circulation. Euonymus scale also attack pachysandra, bittersweet, camellia, celastus, ivy, hibiscus, holly, and ligustrum. There are several generations a year. Crawlers are active in May, June, and July. Over-fertilization and poor watering practices promote scale infestations. Heavily infested plants may be pruned back and new growth protected with insecticide treatments. Dormant oils applied during the winter months help reduce over-wintering populations. Fine horticultural oils and insecticidal soaps are options for summer control. Sevin, Malathion, and permethrins are also listed for scale (MP144).



Hydrangea

Hydrangeas are widely used in the home landscape, valued for their versatility and showy blooms. Although they are for the most part hardy and healthy, several fungal diseases can attack them. A sample came into the clinic last week with typical symptoms of *Cercospora* leaf spot. On big leaf hydrangea small circular purple to brown spots appear first on lower leaves, with infection gradually spreading up the plant to new leaves. The centers of older spots become tan to light gray with a purple halo. Heavily spotted leaves turn yellow and may fall to the ground. The spots on oak leaf hydrangea are often angular instead of circular. Removing diseased leaves and avoiding overhead irrigation will usually slow development of this disease. Protective fungicides may be applied with good results. Anthracnose (*Colletotrichum gloeosporioides*) may also occur on hydrangeas although we don't see it quite as often. The spots are brown, up to an inch in diameter developing a bulls-eye appearance. Over fertilization makes hydrangea susceptible to anthracnose. The irregular blotches may also spread across the flower petals. Unlike *Cercospora* leaf spot anthracnose may appear on leaves and blooms in the lower and upper canopy at the same time. The same cultural practices as described for control of *Cercospora* are useful in controlling anthracnose. The exception is a greater reliance on fungicides, which should be applied every 10-14 days.





Sherrie Smith

Rick Cartwright

Daylily

Daylily leaf streak (*Auerobasidium microstictum*) is a fungal infection afflicting daylilies. Symptoms start with small reddish-brown flecks and spots on the leaves. A central yellow streak develops down the center of the mid-vein that begins at the leaf tip. In severe cases entire leaves turn yellow. Tip dieback often occurs. Vigorous healthy plants are not as susceptible as those stressed by drought or nutritional factors. Plants should be watered early in the day to allow their foliage to dry. Air circulation can be improved by avoiding crowding. All diseased leaves should be cleaned up and destroyed at the end of the season. Fungicides for ornamentals can be applied at the first sign of the disease. See MP 154.



Arborvitae

Bagworms on arborvitae and juniper are active and doing some serious damage. They also attack pine, spruce, cypress, black locust, willow, sycamore, apple, maple, elm, poplar, oak, and birch. They attack the buds of conifers causing tip dieback and open dead areas. Extensive defoliation may occur followed by the death of the plant. They have one generation a year and overwinter as eggs in the female bag. There can be as many as 300-1000 eggs in a single bag. Hatching occurs in May-June depending on weather. When the larvae hatch they leave the bag, spinning down from it by a strand of silk that often acts like a parachute to carry them to new hosts. There they immediately spin

themselves a bag, which becomes covered with plant debris from the host as they crawl around feeding. This camouflages them so well that they often go unnoticed until considerable damage has been done. In fact many homeowners fail to notice them until they have matured and permanently glued themselves to a stem. At that point they have quit feeding and the damage has been done for the year. The first line of defense is hand picking and destroying the bags. Be sure to remove the silk that binds the bag to the stem as it may cause girdling later. A biological control that works well is BT (*Bacillus thuringiensis*). This product only kills caterpillars. It will not harm beneficial insects. For a complete list of chemical controls see MP 144.





Sherrie Smith

Rick Cartwright

Peach and nectarine

Bacterial spot of peaches and nectarines is a problem in susceptible cultivars. This disease is caused by the bacterium *Xanthomonas campestris* pv *pruni*. Infected leaves have small reddish to purple spots and blotches that often have a white center. As the disease progresses the inner part of the spot falls out giving a ragged shot hole appearance. Some viruses also cause shot holing but the holes don't have the characteristic red to purple margins. Leaves often turn yellow and fall prematurely from the tree. Fruit may get small dark lesions, which become crater-like and larger as the fruit matures. These spots may generally be removed by peeling the fruit. There is not much the home gardener can do but maintain optimum care of the trees as bacterial spot is usually more severe on poorly nourished trees. Copper fungicides have some effect on the disease. However the best thing to do is to plant resistant varieties. Another problem afflicting peaches and nectarines this time of year is gummosis. This is a term given to several problems based on symptoms. Sap oozes out of twigs, trunk, and/or fruit. These symptoms can be caused by borer injury, plum curculio fruit feeding, or a fungal infection by *Botryosphaeria dothidea*. The best protection is good orchard management, spraying trees for pathogens and pests at the proper time and keeping trees watered and fertilized to minimize stress.



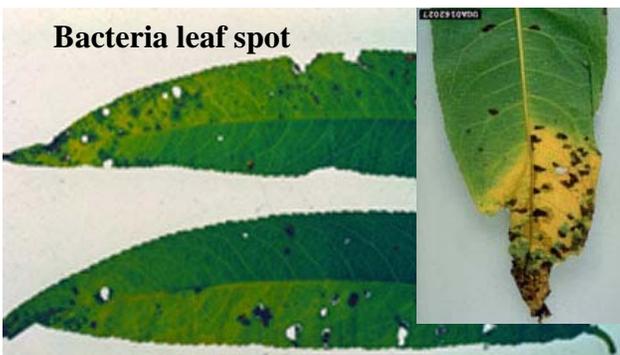
Sherrie Smith University of Arkansas Cooperative Extension

Nematodes on Turf by Ronnie Bateman

The word "nematode" comes from a Greek word that means thread-like. Nematodes comprise a large group of roundworms that parasitize animals, humans, and plants. Species that parasitize animals and humans may reach several feet in length while those infesting plants average only about 0.1 mm in length. Although there are nematodes that infect the foliage of plants and those that are seed-born, most plant-parasitic nematodes infect plant roots. In this article we will discuss nematodes that are a problem in turf.

Symptoms of nematode damage to turf will be most apparent with visual observation. Since what can be seen with the eye above ground is usually a good sign of what's happening in the soil, let's begin our discussion there. Root damage in turf grasses can be quite severe and can vary in nature and severity with both the species of nematodes that are present and the severity of the infestation. Depending on the species found, symptoms on the roots may include stunting, lesions, galling, discoloration and decay of the roots. If any of these symptoms are present plant performance will be affected. Damage to the root system limits the plants' ability to take in water and nutrients. This will be most evident in times of drought, extreme heat, disease pressure, or any other adverse growing conditions.

Obvious visual symptoms in a lawn, golf course, sod, etc. include; poor growth (particularly in patches) and light green, yellowish, or brown patches in the turf (Figures 1 & 2).



H.L. Keil, , www.forestryimages.org



Sherrie Smith

Rick Cartwright

Although there are a number of different types of nematodes that can cause at least moderate damage to turf in Arkansas, the three most frequently detected at problematic levels are the root-knot, ring and sting nematodes. Of these, ring nematode is detected most often (Fig.3) and the sting nematode (Fig.4) is the most damaging where present.



Allen Buchinski University of California Cooperative Extension Service

Figure 1. Root-knot nematode on bermuda sod.



Dr. William T. Crow University of Florida IFAS Extension

Figure 2. Sting nematode on bermuda sod.

If nematodes are suspected as a problem at a given location, the problematic area or areas should be soil sampled for nematode analysis. This should be done using a soil sampling tube to pull about ten cores to a depth of 6 to 8 inches from each problem site. Mix the cores together well and place the sample in a plastic bag. The bag should be sealed to avoid drying out the sample and labeled for proper site identification. A nematode sample submission form (retrievable from the UACES website Form #AGRI-483) should be filled out and submitted with each sample. The sample(s) should then be sent to the local county extension office for submission to the Arkansas Nematode Diagnostic Laboratory, or they may be sent directly to the laboratory

at: Arkansas Nematode Diagnostic Laboratory, 262 Highway 174 N., Hope, AR 71801. For more information, contact your local county agent or contact the Arkansas Nematode Diagnostic Laboratory at (870) 777-9702, extension 128 or email at rbateman@uaex.edu.

NemaPix Vol. 1, Dec., 1997 J.D. Eisenback & U. Zunke, eds.



Figure 3. Ring Nematode



NemaPix Vol. 1, Dec., 1997 J.D. Eisenback & U. Zunke, eds.

Figure 4. Sting Nematode