

Down the Garden Path



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Plant & Pest Diagnostic Laboratory

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YARD

Leaf miners are Working inside Tree Leaves

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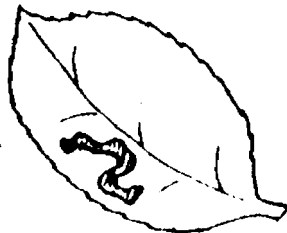
Many questions about damage by leaf miners have arisen during the past few days on poplar, aspen, willow, oak, maple, cherry, birch and lilac trees. It is important to note that several different species of insects mine leaves and each makes its own characteristic blotch or serpentine mine as it feeds on the parenchyma leaf tissue between the upper and lower leaf surfaces. From a distance, heavily infested trees have a brownish cast as though they've been singed by fire.

Typically, eggs are laid singly on the upper epidermis of the leaf during the early spring. Upon hatching, the larvae burrow into the leaf where they may feed for several weeks.

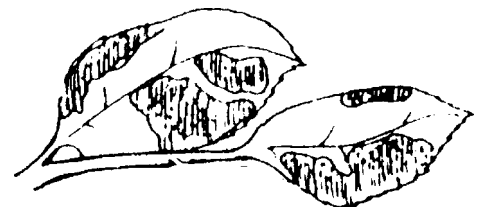
To determine whether a leaf miner has been at work, hold the leaf up to the light and look for small flattened wormlike larvae working inside the leaf. If no larvae are seen but small black trailings (frass) are evident, this is sure evidence that leaf miners have been at work but have since become adults and left the leaf.

This distinction is important because controls can only kill the larvae and prevent further damage - they cannot restore the damage already done. If larvae are present and chemical control is desired, apply a foliar treatment using Orthene or Dursban at label rates. Remember that in many cases, leafminers abandon the foliage by about the middle of June. When this occurs, it is too late for an effective treatment.

Even when untreated, injury to the tree by leaf miners is not long-lasting, especially in the years that new leaves develop rapidly. It is doubtful that significant long term injury to the tree will result even from heavy infestations of leafminers. ☺



serpentine leaf mine



blotch leaf mines

Scab of Crabapples

Gail Ruhl, Plant Disease Diagnostician and Peggy Sellers, Director, P&PDL

Many homeowners can recognize the fungus disease, apple scab, that we typically see on crabapples. However, this year scab infection and intensity has been quite different. The symptoms this year include browning of entire leaves, yellow and green mottling and green islands within the yellow zones. Leaves eventually become covered with the more typical brown to green, fuzzy sporulation of the fungus. Leaves may fall before the sporulation is easily visible.

Apple scab will not kill trees in a single season. However, repeated defoliation year after year will weaken trees such that they are less able to withstand infection by opportunistic canker pathogens or the effects of environmental stress. Chemicals can be used to control the disease, but applications must be initiated at bud break and must be repeated as stated on the fungicide labels.

Heavily infected trees should be fertilized before the end of June with a general tree fertilizer. It would also be helpful to prune during dormancy to create better air movement through the tree.

Some excellent scab-resistant trees are available and should be considered for long-term control of scab. For more information, refer to Purdue University Cooperative Extension Publications *BP-39 Scab of Flowering Crabapples* and *HO-140 Fertilizing Woody Plants*, *HO-4 Pruning Ornamental Trees and Shrubs*, and *ID-217 Crabapples Resistant to Apple Scab and Japanese Beetle in Indiana*, available from your local county Cooperative Extension Service office or via the internet (www.btny.purdue.edu/ppdl). ☺

Misconceptions about Moss

Deborah Brown, Extension Horticulturist, University of Minnesota

Do you have moss growing in your lawn? Common misconceptions about moss include a focus on soil acidity as an important causal agent and the idea that moss should only thrive in shade. While moss does thrive in shady acidic conditions, it also can also grow well in sunny areas where soils are not acidic.

There are two additional factors to consider when moss encroaches on lawn grasses. The first is soil compaction and the poor drainage that's associated with that compaction. The second is soil infertility. These conditions can and do occur irrespective of shade and soil pH.

When soils are compacted, moisture stays close to the surface rather than draining well. This suits moss just fine as it has very shallow "roots" and it needs to stay fairly moist in order to remain green. (One of the complaints about moss is that it turns brown and looks more obvious when weather gets hot.) Grass, on the other hand, needs to send down deeper roots, roughly four to six inches, in order to grow well. When available moisture sits near the surface of the soil, shallow rooting is encouraged, leaving grass more vulnerable to heat and drought, and eventually thinning out.

Moss has much more modest nutrient needs than grass, so when soils are infertile and people don't add the nutrients that are needed to keep grass growing well, again the grass thins while moss is not adversely affected. And because moss needs far less sunlight than grasses do, there are many situations where all things being equal, moss is just better adapted to the site than lawn grass..... and there's little that can be done about it.

You can rake moss out of a lawn with a heavy metal garden rake, but unless you can correct the underlying problems, it will just come back again. ☺

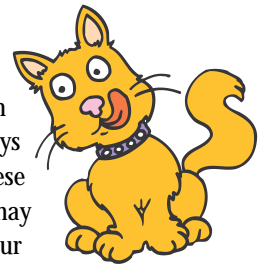
OVER THE BACK FENCE

Q: We live in a large apartment complex where there are several stray cats. Is there any way to keep them from spraying my patio?

A: When cats spray, the glandular secretions they leave behind can leave a very strong odor. The cats use this to communicate and to mark territory. If you have pet cats (even indoor ones), their presence may attract these strays and stimulate spraying, especially if your own cats have "marked" their territory.

Neutering pet cats can significantly reduce or eliminate spraying. Cleaning sprayed areas thoroughly and deodorizing as much as possible will help to reduce the attractiveness of your patio to other cats. There are some commercial repellents (e.g. Outright dog & Cat repellent, Repel Pet and Stray repellent, etc.) available at pet stores to help deter strays.

Secure fencing can also help keep strays out. If none of these is successful, you may wish to contact your local Animal Control or Humane Society to cage trap and remove the strays. -- Judy S. Loven, State Director, Indiana Wildlife Services ☺



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Q: Help! What is this yellow goopy, fast growing mold like stuff growing around my home and on the mulch in my garden? Do I need to be concerned? How do I get rid of it?

A: What you are likely observing is a type of fungus, called a slime mold (sometimes referred to as dog-vomit fungus). These fungi live on dead organic matter, such as wood mulch. Slime molds can be yellow-tan, orange, or red in color and have no definite shape. Although slime molds may grow

on plants, they do not harm plants. They thrive in moist conditions, therefore, they may be appearing now as a result of recent watering. Slime molds will eventually disappear on their own. To speed this process, rake the mulch to promote air drying. -- *Peggy Sellers* ☺

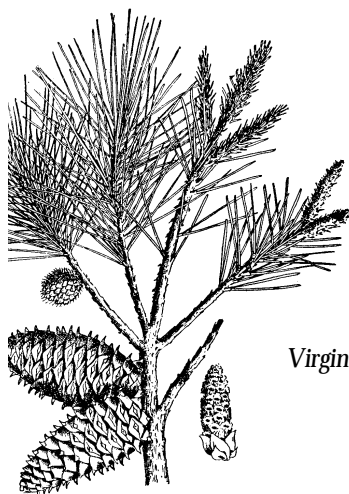


Q: Could you tell me what kind of root system a pine tree has, especially the Virginia pine?

A: In regards to your question on roots of pines. When pine trees are young, they often have a tap root - for stability and food storage. As the tree ages, the tap root disappears and the roots are then found in the top 12 inches of the soil. If the soil is poor, they will be found where they can find the most nutrients and water, probably in less than a foot of soil.

Virginia pine are often found on poor sites. They are known for their shallow root systems. It is considered a pioneer tree- it is one of the first trees to establish after a fire or on eroded soil.

The root system of most trees extend two to three times the height of the tree. But that may be tempered by the type of soil and water and nutrient availability. A tree generally has four or five major roots (for anchoring) and many fine feeder roots extending from it. -- *Rita McKenzie* ☺



Virginia pine

THE GRAPE VINE

Pin Oak Looking Yellow?

B. Rosie Lerner, Extension Consumer Horticulture Specialist

Pin oak trees can be a beautiful asset to the landscape. Their pyramidal form, pendulous lower branches and reddish or bronze fall color are striking. Unfortunately, most pin oaks planted in the Midwest are plagued by a yellowing of the leaves known as chlorosis. Other landscape plants are also susceptible to chlorosis including rhododendrons, river birch, holly, and sweet gum.

Chlorosis gets its name from the lack of chlorophyll, the pigment responsible for healthy plants' green color. When chlorophyll is not present, the resulting color is usually yellow. The major cause of chlorosis in landscape plants is a deficiency of either iron or manganese. Both are considered to be plant micronutrients, meaning they are needed in small quantities by plants.

Iron and manganese deficiencies usually are not caused by an actual lack of these nutrients in the soil, but by soil that is too alkaline. As soil pH becomes more alkaline, iron and manganese are chemically tied to the soil, making them unavailable for plant uptake.

Iron deficiency causes interveinal chlorosis., a yellowing of the tissue between the veins, while the veins remain green. This striking contrast becomes apparent on the youngest foliage first. In extreme cases, the tissue may turn brown and plants may be stunted.

Manganese deficiency symptoms are similar to those of iron. Silver and red maples are especially sensitive to manganese deficiency. However, if manganese-deficient leaves are treated with iron they become even more chlorotic.

Iron and manganese chlorosis can be corrected in several ways. For a long-lasting solution, make the soil more acidic to free up the existing nutrients. Relatively small areas can be treated by applying acidic organic matter such as peat moss to the soil. Larger areas are more feasibly treated with elemental sulfur, iron sulfate, or aluminum sulfate to the soil. the amount needed depends on the size of the area, the current soil pH, and soil type. These materials are relatively slow-acting and the soil will have a tendency to return to alkaline so it can be a never-ending battle.

To bypass the problem of soil alkalinity, iron or manganese can be applied directly to the plant. The nutrients can be sprayed on the foliage, but such treatments generally give only temporary relief. And of course you'll need sprayer equipment that can reach the entire plant.

Nutrients can be injected directly into the trunk of the tree. Injections are very effective, however they are expensive and create wounds that can provide entry for insect and disease organisms.

Adding nutrients to the soil near the plant is yet another option. Use specially formulated nutrients known as chelates, to avoid the problem with soil alkalinity. These materials can be expensive and slow to work.

The best solution is to choose plants that are adapted to your location. Avoid chlorosis-sensitive plants if your soil is alkaline. ☺



white oak showing leaf curl symptoms

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Curled Oak Leaves

Gail Ruhl and Karen Rane, Plant Disease Diagnosticians

Several oak samples with curled leaves have been submitted to the Plant and Pest Diagnostic Lab recently, and we have found no single cause for this problem.

Drift from growth regulator herbicides can cause cupping and distortion in many types of broadleaf plants, including oaks. The effects of growth regulator-type herbicides on woody plants are usually not long-lasting, and trees exposed to drift will most likely recover and produce normal leaves again.

Curling can also be attributed to feeding by leafhoppers. These insects have piercing-sucking mouthparts, and their feeding activity can cause leaves to become curled and distorted. Adult leafhoppers move very quickly and are often difficult to see, so it is easier to look for the cast skins (whitish debris about 1/8 inch long) on the undersides of symptomatic leaves as an indication of the presence of leafhoppers.

Leaf curling and scorch can also be a response to adverse environmental and/or site conditions. Affected trees will normally survive, but may develop dieback in branches and thinning crowns in subsequent years.

To reduce the adverse effects of these stress factors, maintain the health and vitality of symptomatic trees by proper watering and fertilizing, avoid site disturbances that may injure roots, and prune out dead and dying branches. For more information, refer to Purdue University Cooperative Extension Publications *BP-37 Tree Decline* and *HO-140 Fertilizing Woody Plants*, available from your local county Cooperative Extension Service office or via the internet (www.btny.purdue.edu/ppdl). ☺



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