

INSECTS

Pest Watch

Black vine weevil adults have emerged, and adult feeding damage is being found throughout the state. This insect is a major pest for nurseries because it damages the roots of yews and other susceptible plants. In a landscape with established plants, root damage is less important. The larger concern is that the adults eat notches out of the leaf margins of euonymous, rhododendron, yew, and other plants. To gain control, you must eliminate the adults now before eggs are laid. The adults feed for about two weeks before their ovaries mature and they lay eggs. Several insecticides are effective, but it is important to get heavy runoff during spraying. This controls adults under the plants during the day as well as when they are feeding on the foliage at night.

Bagworm should be hatching any day now. Remember to delay spraying for about two weeks after egg hatch to allow all the eggs to hatch and the larvae to blow from tree to tree. This allows one spray rather than two.

European pine shoot moth and Nantucket pine shoot moth are major pests of Christmas trees throughout Illinois. They are both susceptible to dimethoate (Cygon) and other insecticides. They tunnel in the candles, causing shoot death and multiple-trunked trees. Shearing in mid-July also helps control these pests.

Potato leafhoppers and their damage are evident on red maples in the Bloomington area. They are probably present throughout the state. Applying a pyrethroid insecticide at this time will protect the trees for several weeks.

Spruce spider mites are still numerous in the Bloomington area, although it is getting late for this pest. Typically, this mite begins to enter the egg stage at about this time of year. Eggs are not controlled by most miticides. Be sure to scout before you treat.

Oystershell scale crawlers are present in northern Illinois. The brown or apple race appears as crawlers before the gray or lilac race. Be sure that the crawlers are present before treating.

Sawfly larvae are being seen on European ash, alder, black locust, elderberry, and hazelnut at The Morton Arboretum in northeastern Illinois. Although these larvae are similar to caterpillars in appearance, they are really wasp larvae. As such, they are not controlled with *B.t.k.*; instead, they require carbaryl (Sevin) or another chemical insecticide to achieve control.

Thrips are also present in large numbers on woody ornamentals throughout the state. Thrips feeding may cause distortion of emerging leaves and light streaking that later turns brown or forms callous patches on older leaves. Thrips attack flowers heavily; they can cause distortion and streaking on petals and reduce flower emergence. The amount of damage in Illinois typically does not warrant control, but this year it might. Consider treating very heavy infestations with spinosad (Conserve). (*Phil Nixon and staff at The Morton Arboretum*)

Fall Webworm

Fall webworm has two generations per year in the southern half of Illinois with the first one occurring now. The generation that occurs from late summer into fall is usually more numerous and thus more destructive; by that time, however, trees are preparing to shed their leaves.

Fall webworm feeds on over 120 different species of deciduous trees. Favorite hosts include crab apple, ash, oak, elm, maple, hickory, sweet gum, and black walnut. Fall webworm generally doesn't feed on conifers. In June, adult females fly and lay between 200 to 500 white eggs on leaf undersides. Adults are 2-inch-wide white moths with brown wing spots and tiny spots of red or orange at the base of their front legs.

Eggs hatch into caterpillars that feed for approximately four to six weeks. Young caterpillars tend to skeletonize leaves (that is, they remove all leaf tissue

except the veins), whereas older caterpillars consume the entire leaf. The caterpillars are pale green to yellow in color, with or without black spots, and are covered with long white hairs. Older caterpillars are from 1 to 1-1/2 inches long. They build large, protective nests (webs) that are usually found on the ends of branches, and they hide in these nests in large groups to avoid natural predators such as birds. Nests increase in size as caterpillars continue to feed, and heavily infested trees can be completely covered with nests. Severe early-season feeding not only causes aesthetic injury, it also weakens trees and increases their susceptibility to wood boring beetles. Fall webworm overwinters as pupae in a loosely webbed cocoon.

Management consists of physical removal and/or the use of insecticides. On small trees, prune out and destroy nests. Be sure to prune plants to maintain their aesthetic appeal. Scout trees regularly so that you can detect fall webworms early; the removal of small nests will have minimal impact on a tree's aesthetic quality. Treat first-generation fall webworm caterpillars with materials such as acephate (Orthene), *Bacillus thuringiensis kurstaki* (Dipel), carbaryl (Sevin), chlorpyrifos (Dursban), or spinosad (Conserve). Do not treat crab apples with Orthene. *Bacillus thuringiensis kurstaki* should be applied early when caterpillars are small and before they construct large nests. Use high spray pressures to break up the web and get the insecticide inside to the caterpillars and the leaves that they are feeding on. Second-generation caterpillars may not warrant spray applications because, at that point, trees will be dropping their leaves. This approach helps preserve beneficial insects such as parasitoids and predators. (Raymond Cloyd)

PLANT DISEASES

Sclerotinia White Mold

This fungal disease appears just after cool, wet periods. Already this year at the Plant Clinic, we have seen the disease on tomatoes. Many ornamental crops could be affected, including begonia, daisy, delphinium, hydrangea, marigold, pansy, and zinnia. Vegetable crops commonly affected are tomato, green bean, and pepper. *Report on Plant Disease* No. 1008 lists hundreds of plants that are susceptible to this disease.

White mold is caused by *Sclerotinia*, a fungus that thrives in cool, wet weather. Because conditions have been nearly ideal for this disease in many parts of Illinois over the past month, we should be expecting this problem. The fungus remains in a resting state (sclerotia) in the soil for many years. With ideal conditions, the fruiting bodies (apothecia) form on the sclerotia and spores are released into the air. A period of wet weather is then required for infection to follow this spore release.

Symptoms of white mold are bleached areas on the stems and at the leaf axils. These areas appear almost like animal bones dried in the sun. In cool, wet weather, a white fluffy mold develops on the bleached areas, but this mold will not be seen in dry weather. Within 7 to 10 days, sclerotia form inside the stem. They are large, black structures, almost like rabbit droppings, but they are found inside the stem—and occasionally on the outside as well. The sclerotia fall to the ground when they are dry, and the cycle continues. The disease does not need to be confirmed in a lab; symptoms are quite diagnostic.

Control options for this disease are limited. The home grower can try to keep plant density low so that air movement helps dry plants out sooner. There are no rescue treatments for commercial growers, but some fungicides may prevent the disease from spreading. Fungicide applications may help on a preventive basis in areas where this disease is a problem every year. Rotation to a nonhost crop for at least three years is suggested. For chemical options consult the *1998–1999 Illinois Commercial Turfgrass and Ornamental Pest Management Handbook* or the *Homeowners' Guide to Pest Management*. (Nancy Pataky)

Oak Wilt

The Plant Clinic has already confirmed a case of oak wilt for 1999, so keep an eye out for this oak disease. It is caused by a fungus (*Ceratocystis fagacearum*) that enters the water-conducting vessels of the sapwood and causes them to become plugged. Symptoms vary depending on the oak species involved. Generally, oaks in the red-black group develop discolored and wilted leaves at the top of the tree or at the tips of the lateral branches in late spring and early summer (now). The leaves curl slightly and turn a dull pale green, bronze, or tan, starting at the margins. Usually, by late summer, an infected tree has dropped all of its leaves. We have seen red oaks move through initial symptoms to total defoliation in as little as three weeks.

The white and bur oak group generally shows symptoms on scattered branches of the crown. Leaves become light brown or straw-colored from the leaf tip toward the base. The leaves curl and remain attached to the branches. This tree group may die in one season, but trees are much more likely to survive for many years with a stag-headed appearance. Recent appearances of anthracnose on white oak have caused concern among many tree specialists who fear oak wilt. Anthracnose causes brown spotting scattered over the leaves and may cause slight leaf cupping as well.

Other problems, including construction damage, soil compaction, changes in the soil grade or water table, lightning damage, nutritional disorders, insect and animal injuries, chemical damage, cankers, and root decay, can mimic oak wilt. None, however, has the distinct vascular discoloration found with this disease. To detect this discoloration, peel the bark back with a knife. The sapwood of a healthy tree is white or tan. A suspected oak wilt tree will show brown and white streaking of the wood. Samples without streaking do not yield the oak wilt fungus even if the fungus is present elsewhere in the tree. Therefore, the disease can go undetected if the tree is not properly sampled. There is a slight brown streak to healthy wood as air comes into contact with the sapwood, but the distinct discoloration from oak wilt is visible as soon as the bark is peeled back and does not intensify as the wood dries. Sometimes, the discoloration is visible just under the bark; other times, it is deeper in the wood and visible only when viewed from the end of a cut branch.

If you think your tree is infected with oak wilt, the Plant Clinic can prepare cultures from the wood and detect the fungus when it is present. Samples should be 6 to 8 inches long, about thumb thickness, alive but showing symptoms, and must contain vascular discoloration. It takes about seven days for the fungus to develop in the lab to the point that a positive confirmation can be made.

Occasionally, we hear from clients who thought oak wilt was present when the tree was sampled, but the clinic did not isolate the fungus. The fungus is slow to grow but it is not tricky to isolate in the lab. Assuming a proper sample was taken, the problem may be the sensitive nature of this fungus. Many states report that oak wilt fungus in sampled wood does not survive high mail-truck temperatures. Many southern states require oak wilt samples to be shipped on ice. If you have had this problem in the past,

consider shipping samples with ice packs in the package and using overnight shipments. We will do our best at this end to get oak wilt suspects in culture as soon as possible.

Oak wilt is particularly threatening because there is no complete control or cure once the fungus infects. The fungus infects through fresh wounds and a beetle vector, and it can spread by root grafts between trees. You cannot save the infected tree, but you may be able to save surrounding trees, so a positive diagnosis is important in many cases. Prune oaks only in the dormant season if at all possible. Refer to *Report of Plant Disease* No. 618 for more on oak wilt. This serious disease has been found in all parts of Illinois over the last decade. We have not, however, found that it is spreading more quickly than it has in the past, and we do not expect to see an epidemic of oak wilt. (Nancy Pataky)

Black Root Rot of Strawberry

Symptoms of black root rot of strawberry are not often easy to detect. The plants exhibit a lack of vigor and productivity. When root systems are washed of soil, they show many black, rotted roots with only a few white feeder roots. Strawberry roots at this time of year are generally brown externally but should still be white internally. You may have to break a few roots to get a good idea of root health.

The black root rot complex is caused by a number of fungal pathogens that invade when plants are grown in tight clay or poorly drained soils. With this year's abundant rains, these areas should be easy to spot. The disease can be initiated by environmental stress as well, especially winter freeze/thaw injury.

This disease cannot be identified any more certainly in the lab than in the field. Isolations from the roots would provide several fungal pathogens, none of which could be identified as the sole cause of this decline. Many fungi have been implicated in this disease complex, but treating the fungi does not cure the problem. In other words, chemicals are not recommended for black root rot of strawberry. As long as the site stress continues, the problem will exist.

If you have strawberries that have declined each year, including dead plants with roots as described above, consider establishing a strawberry bed in a new site. Make certain the soil is well drained and that water moves away from the planting bed. Planting on clay sites or in low spots in the field or garden causes chronic problems with strawberries. (Nancy Pataky)

Cankers: Thyronectria on Honey Locust

Cankers are dead areas on stems, usually on trees, but they are also present on herbaceous plants. Fungal organisms are blamed for the cankers but, in most cases, the fungus can only infect a weakened plant, such as one growing under stress. Wounds are ideal sites for canker fungi to invade. If the canker girdles the stem, wood beyond that point dies. At this time of year, such dead wood is obvious because gardeners are looking closely at their plants and because it stands out clearly against the new green growth of spring.

The Plant Clinic has received several calls and a few samples of honey locust problems that did not involve insects. The complaint has been yellowing and wilting of the foliage, premature leaf drop, and stem dieback. These symptoms can be caused by the disease Thyronectria canker. Look closely for these cankers. The wood is often slightly sunken; the canker is cracked and has a yellow-orange color. The cankers are elongated and can occur on young or old wood. If you are in doubt about the presence of a canker, do a bit of investigating, trying not to do too much tissue damage. Use a knife to peel back some of the bark in the suspect area. The sapwood beneath the canker will be discolored, appearing reddish brown. Healthy wood should be white, tan, or slightly green.

This canker disease is fairly common on stressed honey locust, although the canker can be easily overlooked. It has been linked to drought stress in many cases. Keep in mind that drought stress may have initiated the problem a year ago or even longer.

The canker did not pop up overnight. Some areas of the state, including the Chicago area, were very dry early in the season last year. The Morton Arboretum has already reported Thyronectria in 1999.

As with most canker diseases, there is no rescue treatment that can be sprayed on the tree. Prune out dead wood in dry weather, water the trees when two weeks of drought occur, and avoid physical damage to the trees. When you see a canker problem, try to determine the cause of stress and take measures to alleviate that stress. (*Nancy Pataky*)

Home, Yard & Garden Pest Newsletter is prepared by Extension specialists from the University of Illinois at Urbana-Champaign and the Illinois Natural History Survey. Information for this newsletter is gathered with the help of staff members, Extension field staff, and others. Karel Jacobs and Donna Danielson of The Morton Arboretum also provide information and articles.

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