

## PLANT DISEASE

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### Cankers of Rose

Cankers can occur on many plant species, as explained in issue number 16 of this newsletter. Roses in Illinois are severely injured by cankers following winter stress. We'll have to watch woolly-worm coats to determine the severity of weather to expect this upcoming winter, but it is unlikely that we will be blessed with two mild winters in a row.

Three canker diseases (brown canker, stem or common canker, and brand canker) are common in Illinois and are generally confused with winter injury or other problems. The first symptoms of canker are small, roundish lesions on the canes. The spots are pale yellow, reddish, or bluish purple. They gradually enlarge, turn brown or grayish white (often with a darker margin), and may partially or completely girdle the cane. Complete girdling results in dieback or poor growth of the plant parts above the affected areas. Cankered areas are sprinkled with black, speck-sized, fungal fruiting bodies. When left unchecked, infections may spread downward into the crown, causing entire rose plants to wilt, wither, and die. Infection occurs chiefly through variety of wounds, including thorn abrasions. Infections may also occur on the leaves and flowers.

Some simple steps now can help minimize problems with rose cankers. Good sanitation is critical to controlling these cane diseases. Prune the canes in fall and in early spring, according to the type and cultivar grown. Remove and burn or haul away with the trash all infected, dead, and weak parts of canes, as well as infected leaves, flowers, buds, and hips. When pruning cankerous stems, cut back to a strongly growing shoot or branch at least two to three inches below any sign of infection. Before each cut, dip the shears in a disinfectant such as 10% chlorine bleach or 70% rubbing alcohol. Use sharp tools to make clean, slanting pruning cuts no more than 1/4 inch above a node.

When planting new rose bushes, use only top-quality, disease-free plants from a reputable nursery. The plants should be free of cane bruises or colored spots. Bargain roses are often infected. Maintain plants in high vigor by proper planting, spacing, fertilizing, watering, winter protection, and thorough spraying with fungicides. Start treatment as the buds break open in the spring and continue at seven- to ten-day intervals into September or early October. The fungicides that control black spot usually control cankers as well, so no additional spraying is required. Adding a spreader-sticker material to the spray, however, helps wet the canes for better protection.

Consult *Report on Plant Diseases* No. 626 for more information on rose cane cankers. Chemical options are listed on page 38 of the *Illinois Homeowners' Guide to Pest Management* and page 104 of the *Illinois Commercial Landscape and Turfgrass Pest Management Handbook, 1998-1999*. (Nancy Pataky)

### Wetwood and Slime Flux of Trees

You likely have seen trees with seepage from a major crotch or wound in the trunk. Questions about this condition are fairly common at the Plant Clinic, especially since the condition is not easily sampled. We call this condition bacterial wetwood.

Wetwood causes a watersoaked condition of wood in the trunk, branches, and roots of many shade and ornamental trees, especially old street trees. Elms, poplars, cottonwoods, and maples seem most commonly affected in Illinois. This is a chronic disease of trees that can contribute to general decline in tree vitality but is not known to cause tree death.

Wetwood is most visible externally as a bubbling seepage of bacteria and toxins from wounded tissue in V-shaped branch crotches, pruning wounds, injection holes, and trunk cracks. Internal gas pressure commonly reopens old wounds; the sour liquid flows down the bark. As it dries, a light gray to white encrustation is left. This encrustation is called slime flux. The liquid commonly causes localized death of the cambium. The fluxing occurs from April to December but is most conspicuous in the summer.

There is no cure for this condition, but the following suggestions may be helpful. Fertilize stressed trees in the spring to stimulate vigorous growth. Some people like to install perforated plastic or iron drain tubes in the tree to relieve the gas pressure and to allow continual drainage away from the tree. The idea is to keep the liquid off the trunk so that the cambium is not killed. A disadvantage of drain tubes is that another deep wound is made, breaking the “compartment” that the tree has made to encompass the wetwood, thereby allowing the internal discoloration and any future decay to spread outside the wetwood-affected area. Removing dead or weak branches, plus promptly pruning and shaping bark wounds is helpful. Consult *Report on Plant Diseases* No. 656 for more on this condition. (*Nancy Pataky*)

### Witches' Brooms

When many shoots seem to originate from a single point on a stem, the result is a mass of dense shoots that resemble a broom—thus, the name witches' brooms. Many plants develop this brooming symptom. The cause varies with the host, but essentially there is a lack of apical dominance, which means all shoots develop equally.

Cherry and blackberry witches' brooms are caused by fungi. Some witches' brooms, such as those on trees infected with elm yellows or ash yellows, are the result of phytoplasmas (formerly called mycoplasmas). Still other witches' brooms are caused by insects. An aphid that causes brooms on honeysuckle is known as the honeysuckle witches' broom aphid.

Witches' broom of common hackberry is thought to be caused by a powdery mildew fungus in association with an eriophyid mite. This is such a common condition on Illinois common hackberry trees that one would think that witches' brooms were a characteristic of the species. Many of the twigs in a broom will die back in the winter. Buds on the surviving twigs are numerous, larger than normal, usually grayish, and with looser scales than normal buds. The overall effect on the tree is many clumps of thick growth throughout the canopy. The brooms may be unpleasant in appearance but will not kill a hackberry tree.

As far as we know, there are no practical control measures for witches' brooms on hackberry. If you want a tree without the brooms, do not plant a common hackberry. Sugarberry is less frequently affected, and both Chinese hackberry and Jesso hackberry are considered resistant. For more information about witches' broom on hackberry, refer to *Report on Plant Diseases* No. 662. (*Nancy Pataky*)

## INSECTS

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### White Grubs

Reports continue to be sparse on white grubs, as would be expected this year. We have received reports of damaging white grub infestations in Will and DuPage counties in northeastern Illinois. In all likelihood, these are Japanese beetle grubs because adult beetles were very numerous in these same areas. There have also been some reports of spotty infestations in the Bloomington and Peoria areas, but they do not appear to be widespread. (*Phil Nixon*)

### Green Cloverworm

Throughout Illinois, we are experiencing large numbers of green cloverworm moths. These moths are very dark brown and about one inch long. The head is elongated slightly into a pointed snout caused by protruding palps that are associated with the mouthparts. When sitting, the moths form a triangular or inverted V shape. Although these moths are not pests of landscapes, they are so numerous this year that landscapers, garden center operators, and other readers of this newsletter are probably being asked about them.

Green cloverworm feeds primarily on legumes including clover, alfalfa, soybeans, and garden beans. It also feeds on raspberries and strawberries. The caterpillar is slender and green with two thin white stripes on each side. The full-grown caterpillar is about one inch long. Most years, the caterpillars are decimated by a fungal disease that keeps their numbers low. They are also attacked by several parasitic insects.

They overwinter as adult moths, but do not survive the winter north of 41 degrees north latitude, which is slightly north of Galesburg and slightly south of Dwight. However, observations in Illinois indicate that they usually do not survive the winter north of the southern few counties of the state. Typically, moths fly from southern locales to populate the state in the spring. There are usually two generations per year in this part of the country, but three or four generations occur in southern areas of the United States.

Why are there so many green cloverworm moths this year? We don't know for sure, but we have a couple of ideas. One is that the mild winter of 1997–1998 allowed the moths to overwinter farther north throughout most or all of the state. This would mean more moths laying eggs earlier than usual. In addition, we had warm weather early this year, creating an

“early spring.” We are also about two weeks ahead in heat units. These conditions may have allowed the green cloverworm to have three generations in Illinois instead of the normal two. This extra generation naturally would result in many more moths being produced.

Another possibility is that the disease that normally kills many green cloverworm caterpillars was not a major factor in keeping down numbers this year. However, with the above-normal rainfall in spring and early summer, one would think that the fungus had good conditions for attack and growth. Perhaps the fungus was scarce for other reasons. Also, perhaps the parasitic insects that normally attack this insect were less common than normal.

The bottom line is that large numbers of moths are coming into residential areas where they are highly attracted to lights at night. They are numerous in heavily vegetated areas, where they might be searching for protected overwintering sites. They are a nuisance but are unlikely to cause any damage to landscape or garden plants. Ignore them or swat them with a fly swatter. No insecticidal control is recommended. (*Phil Nixon*)

### Fall Webworm

Fall webworm continues to be numerous, particularly in the southern half of the state. In that region (where there are two generations of this insect), moths continue to fly, eggs continue to be laid, and new tents are being formed. Mating adult moths were found as recently as August 29 in Union County in southern Illinois. With these insects overwintering as pupae in soil and debris, additional damage will continue.

It is very possible that we may be seeing at least a partial third generation in southern Illinois as a result of the early spring with continued warm weather. A partial generation is a method by which a species will try to increase its numbers while not putting all of its eggs in the same basket. Entomologically, a partial generation occurs when some of the individuals enter an overwintering stage while others develop a new generation. In this case in southern Illinois, probably some of the pupating fall webworms are staying as pupae in the soil and will overwinter there; others are emerging as adult moths, mating, and laying eggs. These eggs will hatch into caterpillars that will be able to reach pupation before freezing weather or leaf drop if we have a long fall. If not, they will die, but those that are remaining as pupae will survive for next year.

Damage by these insects this late in the growing season will not be important to the health of trees. Leaves eaten now will soon be dropping anyway and it is late enough in the season that attacked trees are unlikely to produce new leaves to replace eaten ones. The silk tents may produce aesthetic damage that can be controlled through pruning or insecticide application. (*Phil Nixon*)

### Mimosa Webworm

Mimosa webworm damage is heavy on honey locust throughout the state and on silk tree or mimosa in southern Illinois. The second generation of this insect webs several compound leaves together and then window-feeds on the leaves, causing the leaves to turn brown. This damage is very obvious when the webworm is numerous, as it is this year.

Many of the webs are empty of caterpillars and most of the damage has been done. Next summer, be watchful of trees next to buildings, where the larvae will find warmer overwintering sites along foundations and under siding. Those trees are most likely to be attacked heavily next year if we have a normal to severe winter. If we have a mild winter again this year, this insect will probably be numerous on any host trees, regardless of site. The first generation of mimosa webworm usually appears in June. (*Phil Nixon*)

### Locust Borer

Throughout Illinois, the locust borer (*Megacyllene robiniae* Frost), a longhorned beetle, attacks the trunk and limbs of smaller black locust trees and the branches of larger ones. At one time, this beetle was found only in the Allegheny Mountain region from Pennsylvania to Georgia and the Ozark Mountains. Widespread use of black locust (*Robinia pseudo-acacia* L.) in reforestation, restoration of damaged land, and as a shade tree has expanded the geographical range of the borer to include most of the country. The borer, a native to the United States, attacks only black locusts and its cultivars; it does not affect the honey locust.

The adult locust borer is a conspicuous and brightly colored beetle. Its jet-black body is encircled in yellow bands, with a distinctive W-shaped band extending across the wing covers. The adult is about 3/4 inch long with reddish legs and black antennae. The adults are most abundant in September when they feed on the pollen of goldenrod (*Solidago* spp.) blossoms.

Females lay eggs on their locust hosts in the early afternoon to late evening from late August to early October. Eggs are deposited in tissues of branch scars, under bark scales, or simply in cracks in the bark. Eggs hatch in about one week, and the tiny larvae bore into the inner bark. Larvae later construct a hibernation cell where they spend the winter.

Locust borer larvae are white and legless, reaching a maximum length of about one inch. In the spring, they begin boring into the woody parts of trees, frequently penetrating the heartwood. Throughout the spring and summer, larvae enlarge their feeding tunnels to three to four inches long and about 1/4 inch diameter. Tunnels are initially formed in an upward and inward direction from the point of entrance, then angle sharply straight down the trunk, resulting in an L-shaped tunnel. By mid-July, most larvae have matured and entered the pupal stage, which is completed by late July or the first half of August. Mature adults then emerge through holes they chewed through the bark as larvae.

Locust borer larvae weaken trees, rendering them susceptible to wind breakage and retarding growth. Severe infestations of locust borer result in many dead and broken limbs, along with swollen areas on the

tree trunks. In some cases, wet spots appear on the bark in early spring, about the time of bud swell—the result of young larvae tunneling into the inner bark. In early summer, the developing larvae push white wood dust out of holes in the bark as they bore into the sapwood. By late summer, larvae have reached the heartwood and the color of the wood dust changes to yellow.

To minimize losses from the locust borer, you should remove infested trees that harbor the larvae. Such removal may reduce the threat to healthy trees. Borer damage may also be reduced by maintaining tree vigor. There is evidence that borer injury is less serious in stands of mixed tree species where there is denser shade and more leaf litter than in pure black locust plantings. Water-stressed trees may also be highly susceptible to attack; therefore, watering trees during times of drought may increase their resistance.

Finally, spraying the trunk and large branches of black locust trees with persistent insecticides in the fall may protect them from borer attack. However, maintaining tree vigor is the more desirable and environmentally sound method of minimizing the threat from locust borer. (*Matthew Ginzel and Larry Hanks, Department of Entomology*)

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