



No. 11 • July 5, 2000

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## INSECTS

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### Bugs to Watch For

Continue to be watchful and to treat bagworms and Japanese beetles. At this time of year when temperatures are very warm, these and other pests can cause serious damage very quickly. Be also watchful for the caterpillars of summer, including yellownecked caterpillar, walnut caterpillar, white-marked tussock moth, and catalpa caterpillar. (*Phil Nixon*)

### Slugs

The recent wet weather throughout Illinois favors an increase in slug populations. Slugs are destructive pests, feeding on many plants in landscapes and gardens including annuals, perennials, bulbs, ground covers, trees, and shrubs. In addition, slugs can devour young seedlings overnight. One of their favorite plants to feed on is hosta.

Slugs are mollusks, related to oysters and clams, and are referred to as “naked snails,” as they have no shell. Slugs lay clusters of translucent, pearl-shaped eggs under debris or buried beneath the soil surface. They can lay between 20 to 100 eggs several times per year. The gray garden slug, *Deroceras reticulatus*, is the slug generally encountered in Illinois. It is approximately 3/4 to 1-1/2 inches long. It ranges in color from pale yellow, to lavender, to purple. In addition, it is covered with black or brown spots and mottling. Less common is the spotted garden slug, *Limax maximus*. It is up to 7 inches long and is yellow-gray to brown with black mottling.

Slugs have chewing mouthparts and cause plant damage by creating large irregularly shaped holes in leaves with tattered edges. They prefer to feed on succulent foliage such as seedlings, herbaceous plants, and fruit lying on the ground.

Slug activity is highly dependent on soil moisture, as they require moisture to move around. They secrete a slimy mucous substance, which they use to move about. This then dries up into a shiny noticeable trail.

Slugs are active at night (nocturnal) when humidity is high from evening rains or irrigation. They hide during the day under mulch, plant debris, rocks, boards, weeds, and ground covers.

Slug management involves a combination of strategies such as hand picking, habitat modification, barriers, traps, baits, and commercial molluscicides. Monitoring is important to determine the effectiveness of slug-management strategies. Monitoring involves going out in the evening with a flashlight and looking for the presence of slugs. During this time, hand picking can be performed to reduce slug populations. Hand picking is especially effective during moist weather conditions. Placing slugs into a jar with soapy water will kill them. Another possibility is to employ some children to collect slugs (this will keep them off the streets). There are also two other methods of killing slugs once they have been collected. However, both are quite macabre. One method simply involves stepping on the critters. Slugs make a squishy sound when stepped on. The other method involves scattering slugs on a driveway and simply driving back and forth over them with a truck or car. Although this method is not environmentally sound, it does appear to be psychologically satisfying to most individuals. A more environmentally sound method is to have children run over the slugs with bikes (it is important that they run over the slugs more than once).

Habitat modification is one of the most effective strategies in reducing slug populations. This involves eliminating hiding places such as mulches, weeds, old vegetation, and debris. Proper watering practices can also minimize slug populations. Avoid watering late in the day as this creates moist conditions conducive to slug activity. Instead, water plants early in the morning. Research has demonstrated that morning watering provides protection from slug injury comparable to metaldehyde pellets. In addition, the use of drip irrigation systems where water is directed toward individual plants may lead to fewer slugs.

Copper barriers can be placed around the base of shrubs and trees that are being fed on. Slugs receive a slight electric shock when their moist bodies contact

the copper; this then repels them. However, widespread use of this method may not be feasible. In addition, copper bands have sharp edges, which can harm children and pets.

Diatomaceous earth, shredded bark, eggshells, and wood ash have been used as barriers to prevent slugs from feeding on plants. These materials work best during dry periods when slugs are less active. However, the effectiveness of these materials is reduced by rainfall, which means they have to be reapplied regularly. These materials also lose their effectiveness after becoming wet. The use of some of these materials such as eggshells and wood ash is discouraged because over time they may raise the pH of the soil. Also, never pour salt on slugs as this may burn plant foliage and roots.

Traps, such as wooden boards or rolled-up newspapers, can be placed where slugs are feeding. Check traps early in the morning. Do this once or twice per week.

Baits are available that attract slugs into traps where they then drown. One popular type of bait is the use of beer. Although there are better uses for beer, some diehard practitioners swear that beer reduces slug populations. Beer is poured into a shallow pan (although some may “accidentally” be poured into the individual’s glass), which is then sunk into the ground with the pan edges sticking up 1/8 to 1/4 inch. Slugs are attracted to the yeasty smell of beer, and they fall into the pan and drown. (Some folks claim that slugs have a massive beer party, and eventually they get very “sluggish” with a high enough alcohol content that eventually kills them.) Studies from Colorado State University have shown that Kingsbury Malt Beverage (from Heileman Breweries) is the beer most preferred by slugs. However, beer does not have an EPA registration number, so the use of beer as a pesticide is not technically legal. The use of beer to manage slugs may also be a problem on college campuses that don’t allow alcoholic beverages.

Commercial poison baits include metaldehyde (Deadline) and methiocarb (Mesurol). These materials are applied to areas that need protection. Metaldehyde does not kill slugs directly. It works by paralyzing and causing slugs to secrete excess amounts of mucous. Death generally occurs from water loss and/or exposure to direct sunlight. However, in cool, moist weather, slugs may recover. Metaldehyde is very sensitive to environmental conditions, as it breaks down very rapidly in direct sunlight and under moist

conditions. However, the new formulation of Deadline is more resistant to breakdown when exposed to sunlight. Methiocarb is a true nerve poison as it interferes with nerve-impulse transmission. However, methiocarb may be toxic to nontarget organisms, such as earthworms. These materials are less effective during hot, dry times of the year when slugs are less active. Irrigate before applying materials to promote slug activity. Make spot applications as opposed to broad-scale applications. A new molluscicide called Sluggo is also available. The active ingredient is iron phosphate. Sluggo is a bait that attracts and kills slugs. Once they consume the material, they crawl away and die. It will kill slugs within 3 to 6 days. Sluggo can be used around pets and wildlife, and it remains potent for a longer time compared to metaldehyde.

Various beetles such as firefly larvae and ground beetles feed on slugs. However, these predators may not be present in sufficient enough numbers to keep slug populations below damaging levels. (*Raymond Cloyd*)

### Tortoise Beetles

A 1/4-inch round beetle that shines a bright gold color in the sunshine is probably a tortoise beetle. Both the adult and larva feed primarily on ornamental sweet potato and morningglory, but the adult may be found on a wide range of other plants. They can feed heavily enough to warrant control with carbaryl (Sevin) or another labeled insecticide. The elongate larva grows to 3/8 inch long and is covered with spines. For protection, the larva covers the end of its abdomen with its own feces and then curls its abdomen up over its back. These insects are relatively uncommon, but this year they seem to be more abundant. Although rarely needing control, it is useful to be able to identify such a striking insect for clients. (*Phil Nixon, Susan Grupp, and Sandy Mason*)

## PLANT DISEASES

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### Black Spot of Rose

This fungal disease, caused by *Diplocarpon rosae*, is common in rose gardens and causes nearly circular, black leaf spots with fringed margins. It is usually seen on the upper leaf surface but may also appear on the underside of leaves. The spots are easy to see, getting as large as 3/4 inch in diameter, although most are in the 1/2 inch in diameter range. When these

spots merge, they create large, irregular lesions on the leaves. A yellow margin may appear, followed by early leaf drop. Black spot may also appear on the flowers (look for red spots and possibly some distortion), the stems (purplish red to black lesions), and the fruit. The major concern with this disease is that it weakens the plant to infection by other pathogens. Infected plants are often predisposed to environmental and site stress as well.

The black spot fungus thrives in warm, humid weather. It infects when the leaf surface is wet. Because many secondary cycles of infection occur under these conditions, we should be having a booming summer for black spot. That does seem to be the case.

Ideally, the management of this fungus should begin in the dormant season when plants are pruned of old cankers and winter-killed stems. Remove this material from the site because the causal fungus may overwinter on those tissues as well as on old leaves.

Chemical options are very effective (and time consuming) in controlling the fungus. Sprays should begin as soon as the disease is seen. Generally, sprays are continued on a weekly basis per label instructions until hot, dry weather occurs. Then sprays can be limited to just after each rain until weather is cool again. Yes, this is a high-maintenance disease for rose growers. The good news is that rose cultivars vary from highly resistant to very susceptible, so you can choose a cultivar with resistance. Because other diseases also bother roses, look for plants that are resistant to black spot, powdery mildew, and possibly rust. Prune surrounding vegetation to allow better air movement in the garden. This helps plants dry more quickly and reduces the time that the fungus can infect the plant. For the same reasons, avoid overhead watering where possible.

For more information, consult *Report on Plant Diseases (RPD)* No. 610, *Black Spot of Rose*. The many chemical options are listed in the *Commercial Landscape and Turfgrass Pest Management Handbook 2000* or the *Illinois Homeowners' Guide to Pest Management*. (Nancy Pataky)

## Hawthorn Rusts

Many of you are seeing (or will soon see) rust on your hawthorns. There are two major rust diseases that we see on hawthorn in Illinois, both of which were mentioned in issue No. 2 of this newsletter in the "Cedar-Apple and Related Rusts" article.

Cedar-hawthorn rust (fungus name, *Gymnosporangium globosum*) causes the typical yellow-orange, rusty colored pustules on the leaves of hawthorn. The spots appear on the upper leaf surface, and eventually the cuplike structures of the fungus (aecia) appear on the underside of the leaves. These cups are only about 1/4 inch in diameter but when massed together are quite visible and spectacular. These structures produce spores that are released in the morning hours or with rain. Often homeowners first notice this disease when they see an orange, spore-covered sidewalk or lawn below their hawthorns. If the disease is severe, the leaves will turn yellow and drop early. Cedar-hawthorn rust causes the leaf spots described. Occasionally, it will also infect the fruit. The other host of this disease is cedar, most often eastern red cedar. The galls produced on the cedar are similar to the cedar-apple rust galls but smaller. They are spherical, flattened on the stem side, perennial, and reddish brown.

Resistant varieties would be ideal against these rusts. Not many choices are available. English hawthorn is reported to be resistant to cedar-hawthorn rust. Also there are some junipers resistant to this fungus.

Cedar-quince rust also infects hawthorn. The causal fungus is still a *Gymnosporangium* but a different species—*G. clavipes*. The cedar-quince fungus does not usually cause a leaf spot. It may infect a large leaf vein, causing the leaves to curl and die. It typically infects the fruit, petioles, and stems, causing much tissue distortion. The fruit become covered with fungal aecia, giving them an orange, fringed appearance. The fruit then dry and drop. The stems develop spindle-shaped galls that may girdle the stems and kill all tissue beyond that point. The winter host for cedar-quince rust is juniper. There are many species that can be infected with eastern red cedar, the most common in Illinois. The stems become roughened and swollen at the point of infection, but a large gall is not visible. Typical rust sporulation will occur on the swollen stems.

It is not a practical management tool to separate the hawthorns from their alternate host (junipers). Both are used commonly in the landscape, and the fungi can infect trees as much as a quarter of a mile away. Protection of the hawthorn with fungicides is an option that may be considered if these rusts are problems on specimen or high-value hawthorns. Sprays are used in the spring to protect new growth and developing fruit. Consult the *Illinois Home-*

owners' Guide to Pest Management, Commercial Landscape & Turfgrass Pest Management Handbook 2000, and RPD No. 802 for additional information. If your hawthorns have a chronic problem with rusts, mark your calendar now to spray next spring. Sprays in summer do not provide disease control for the hawthorns. As a general rule, cedars are not targeted for disease control. (Nancy Pataky)

**Plant Clinic Findings**

Many of you have asked what diseases we are seeing at the Plant Clinic, so I have prepared a short list of some of the more significant disease findings. Of course, we do see insect, cultural, and other problems as well. On trees, we have seen Verticillium wilt; Dutch elm disease; oak wilt; Sphaeropsis blight of pine; rust and scab on crabapple; anthracnose of sycamore, maple, and oak; Sirococcus blight of conifer; Botryosphaeria canker of crabapple, redbud, and willow; and Cytospora of spruce. Other ornamental hosts have yielded Phoma stem blight of vinca, Cladosporium of peony, as well as virus and black spot of rose. Vegetable problems have included bacterial canker, Verticillium wilt, and Septoria leaf spot of tomato. On fruit, we have seen plenty of black rot on grape, fire blight of apple, black rot of straw-

berry, and damping-off/root rot of melons. Let us know what you are seeing and what you would like discussed. You can send an electronic note to npataky@uiuc.edu. (Nancy Pataky)

Home, Yard, and 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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