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Woolly Aphids

We've been getting calls about flying lint and tiny drifting angels from throughout the state. These are the winged adults of woolly aphids appearing as a white fuzzy, close to 1/4 inch in diameter, which seems to float through the air. If you try to catch one, you soon realize that it is capable of powered flight. These aphids are green to blue and covered with white waxy strands that stand out from the body.

Woolly aphids typically feed on two hosts during a 1-year period, with most species apparently having to switch hosts. This host-switching occurs in various species from late June to late July, and these fuzzy female adults are their means of getting to the other host. Once reaching their summer host, they feed and give birth to additional wingless generations of females, producing winged individuals that fly back to the other host in the fall to lay eggs. These eggs hatch in the spring into females that give birth to more wingless generations of females, producing the winged females that switch hosts at this time of year.

There are several species of these woolly aphids in Illinois. The woolly apple aphid feeds in the spring on apple, pear, hawthorn, and mountainash leaves and then moves to elm leaves for the summer. Woolly elm aphid feeds on elm

leaves in spring and then moves to serviceberry, where it feeds on the roots for the summer. Woolly alder aphid feeds on alder and then silver maple. There are also the woolly elm bark aphid, beech blight aphid, *Prociphilus tessellatus* (ash host), and *Prociphilus corrugatus* (serviceberry host) that do not apparently switch hosts. We have been seeing more woolly aphids on elm this spring than normal, so these are probably woolly elm aphids.

These insects are more curiosities than pests. Occasionally, a host will experience enough leaf curling and honeydew production to warrant aesthetic control, and woolly elm aphid can damage serviceberry roots. Many insecticides are effective against them while on leaves, including many pyrethroids, imidacloprid, and insecticidal soap. The woolly elm aphid can be controlled on elm leaves to reduce serviceberry root damage later. (*Phil Nixon*)

Hollyhock Insects

Hollyhock weevil adults are slender, smooth, blackish, one-eighth inch long beetles with very long, obvious snouts. They eat one-eighth inch or larger, roundish holes in hollyhock leaves in mid-summer. The white, legless larvae grow to one-eighth inch long in the developing hollyhock seed pods, pupate there, and adults emerge through

pinhead-sized holes that they eat in the seed pod. The reduced seed production caused by these weevils impairs the ability of this biennial flower to maintain itself through self-seeding. Carbaryl (Sevin), permethrin (Astro), and other labeled insecticides applied to the leaves reduces adult feeding damage and may allow increased seed production. Removing and destroying infested pods can keep the weevil population low enough to allow some seed production.

Hollyhock plant bug adults are green, slender, and about one-eighth inch long. The nymphs are similar in color but smaller. Both nymphs and adults actively run on the stems and leaves when approached. They are sap-feeders, with feeding damage appearing as pinhead-sized, brown spots on the leaves. The leaf tissue of these brown spots common falls out, leaving tiny holes in the leaves. Overall, damage can cause the leaves to be lighter colored and slightly cupped with brownish areas. A single spraying of the leaves with insecticidal soap, summer spray oil, carbaryl (Sevin), permethrin (Astro), or other labeled insecticides should provide control. (*Phil Nixon*)

Genista Caterpillar

Genista caterpillar, *Uresiphita reversalis*, is common this year on wild indigo, *Baptisia*. The caterpillars web the leaves together with silk, eat holes in the leaves, and eat leaf margins to the midvein. There are two generations per year. This is probably the second generation as we had some reports in early June.

Genista caterpillars are colorful, being green to brown with white spots and

short, black tubercles sprouting white hairs. They are slender and are about one inch long when fully grown. They feed not only on wild indigo, but also on crepe myrtle, honeysuckle, Texas laurel, golden chain, and yew. They pupate in thin, white cocoons on the plant foliage and nearby buildings.

They can be controlled with *Bacillus thuringiensis* (B.t., Dipel, Thuricide, others), spinosad (Conserve), and other labeled insecticides. Be sure to spray thoroughly to get penetration onto the curled, webbed leaves. (*Phil Nixon*)

Sod Webworm

We have been receiving reports of high numbers of sod webworms throughout the state. Sod webworm caterpillars are more common in nonirrigated turf in Illinois during seasons of drought. The larvae are very susceptible to microsporidia disease, particularly under cool, damp conditions.

Several species of sod webworms occur in Illinois. The most common is the larger sod webworm, the species primarily discussed here. Other Illinois species of turfgrass-feeding webworms appear similar but may be slightly different in size and may prefer some turfgrass species to others.

Sod webworms overwinter as larvae in the thatch. Sod webworm larvae are slender caterpillars that are grayish to tan and covered with brown spots. They construct a silk-lined burrow in the thatch, where they hide during the day. At night, they leave their burrow to feed on grass blades. They cut individual grass blades within 1/8 inch of the plant's

crown and take many of the blades back to their burrow to eat. Fully grown, 1-inch-long caterpillars pupate in their burrow, emerging later as adult moths.

The adult moths are tan, about 3/4-inch long, with a wingspan of about 1 inch. The palps on the front of the head are elongated, giving the moth the appearance of having a long snout. When at rest, the wings are held tightly against the body so that the body appears tube-shaped; these moths are commonly called tube moths or closed-wing moths. They sit in the turf during the day. When disturbed, the moths rarely fly higher than 5 or 6 feet above the turf and fly in a jerky up-and-down manner before settling back into the turf within 30 feet of where they were disturbed. If a moth is approached slowly and quietly, it can be observed at rest, typically sitting crosswise on a grass blade.

The moths mate, and females drop eggs into the turf as they fly closely above it. Within a couple of weeks, the eggs hatch into larvae. There are usually three generations per year in Illinois. Overwintering larvae emerge as adults from late May to mid-June, with the second generation present as moths from late July to mid-August. The third generation will be present as moths from late August to September or even October, depending on the year. These moths lay eggs that hatch into the overwintering larvae.

Damage appears as scattered brownish areas of turf, with these areas combining into large brown areas later. Close examination reveals firmly rooted turf that appears brown because many of the grass blades are missing and the thatch

is exposed. Close inspection of the crowns of the turfgrass plants reveals very short stubs remaining from green grass blades eaten off by the sod webworm larvae. Green, pinhead-sized, fecal pellets will be easily seen at the base of the plants. Damage may occur from spring into fall but is most common in midsummer. Areas of turf that have turned brown due to hot, dry weather should be checked frequently for sod webworms. It is common in Illinois that some of these areas will fail to green up with subsequent rainfall or irrigation due to sod webworm attack.

Scouting for sod webworms can be accomplished through several methods besides observing damage signs. Probably the most common method of scouting is to observe when sod webworm moths are present in large numbers in turf areas. Through turf maintenance such as mowing or fertilization, the moths fly up and are easily recognized by their jerky, short flights. Note heavy numbers on the calendar, and plan to scout for larvae or treat with insecticide about 2 weeks after large numbers of moths are seen. Because the moths in the turf lay eggs that take 2 weeks to hatch, a treatment after egg hatching effectively controls a large population before they cause meaningful damage. If the weather is cool and damp, scouting for larvae is recommended before treatment occurs because insect development may be slow and diseases kill many of the larvae.

Insect-feeding birds, particularly starlings, feed heavily on sod webworm larvae in turf. The presence of starlings and other birds in large numbers on turfgrass areas for several days in

midsummer is a clue that they may be feeding on sod webworm larvae. Close examination of the turf reveals holes (poked into the turf by beaks) that are 1 to 2 inches deep and almost 1/2 inch in diameter. Further turf examination should reveal sod webworm feeding damage or frass.

Although sod webworm larvae are difficult to locate in the thatch, they can be brought to the surface where they can be easily seen and counted. Irritating drenches of 1 teaspoon of 6 percent pyrethrin (or 1 ounce of liquid dishwashing detergent per gallon of water) applied to 1 square foot of turf drives out the sod webworms. Two or more sod webworm caterpillars per square foot are sufficient to cause obvious damage.

Control sod webworms by applying bifenthrin (Onyx, Talstar), carbaryl (Sevin), deltamethrin (DeltaGard), lambda-cyhalothrin (Scimitar), spinosad (Conserve), or trichlorfon (Dylox) to the turf, usually as a liquid, and allowing it to dry on the grass blades to poison the sod webworm larvae when they feed on the grass blades at night. Granular insecticides are effective, but they must be watered lightly to activate them.

Nonchemical control in Illinois occurs naturally almost every year by microsporidian diseases of the sod webworm larvae, particularly during the winter. In addition, birds and predatory insects are effective control agents. The insecticidal nematode, *Steinernema carpocapsae* (Biosafe), is also effective. Endophyte-containing turfgrasses, such as some fescues and ryegrasses, effectively control sod webworm larvae as well. (*Phil Nixon*)

Testing for Bacterial Leaf Scorch of Trees

Scorch may be of the noninfectious or infectious type. Environmental stress, root injury, drought, and many other factors may cause leaf margin necrosis, a condition we call scorch. It is usually widespread in a tree and is fairly uniform. Such a condition is not necessarily repeated in following years and is noninfectious. Unfortunately, we are seeing a lot of scorch symptoms on leaves brought on by this season's environmental stress.

Bacterial leaf scorch (BLS) is an infectious disease that spreads systemically and causes a slow decline and death of the tree. This disease is not new but is beginning to appear more frequently in the Midwest. Possibly this is a function of more people recognizing the symptoms.

The infectious leaf scorch is caused by the bacterium *Xylella fastidiosa*. The bacterial pathogen is found only in xylem tissue. Xylem-feeding leafhoppers and spittlebugs are thought to spread the bacterium in landscape trees. It can also be transmitted between trees through root grafts. The transmission methods must not be very effective, though, because we do not see rapid spread of the disease from tree to tree.

The most frequent hosts of this disease include elm, oak, sycamore, mulberry, sweetgum, sugar maple, and red maple. Look for scorch symptoms that occur in early summer to midsummer and then intensify in late summer. The scorched leaf edges or tissue between veins may be bordered by a yellow or reddish-brown color. The symptoms occur first

on one branch or section of branches and slowly spread in the tree from year to year. It is one of those situations that you hope will be better next year but only gets worse. Symptoms will often show on oldest leaves first, distinguishing this disease from environmental scorch that first appears on the newest leaves.

Of course, diagnosis is never that simple, and oaks are an exception. We did not observe this pattern on pin oaks in Illinois. In fact, most references say that oaks show symptoms on an entire branch at once. Bacterial scorch often allows infected leaves to remain on the tree until the fall. Oaks are again the exception. They will drop leaves early. If you have seen a slow decline in your oak, leaf scorch symptoms showing each July to August, and fall leaf drop about a month ahead of healthy oaks, BLS may be present.

We will be testing for this bacterium at the U of I Plant Clinic. There is a fee. As of this writing, the fee will be \$25 per sample. It is suggested that you call ahead to be certain you have prepared the correct sample and avoid resampling at your expense.

Leaf petiole tissue is preferred for this test, so leaves with green petioles are the usual request. Please send your samples in the next several weeks. We will collect samples, store them, and then run ONE test on all the submitted samples in August, 2012.

What can you do if bacterial scorch is present? First, there is probably nothing you can do to keep the tree from dying. You can help by pruning out dead wood as it appears. Start thinking of tree replacement and plant something that is

not known to host this disease. Be sure to pick a species that does well in the site you have in mind. Investigate drainage pattern, soil type, amount of sunlight, and any oddities about the location. There are not any fungicides, insecticides, or bactericides that can be sprayed on a tree to effectively prevent or cure this disease. There may be antibiotics that can be injected, but they may need to be repeated as frequently as every year, can be costly, and afford no guarantees. (*Stephanie Porter*)

Botryosphaeria Dieback of Rhododendron

Several fungal pathogens are known to cause wilt and dieback on rhododendrons. Phytophthora Dieback and Phytophthora Root Rot are often our first suspects when diagnosing in the field. Phytophthora dieback usually appears during flushes of new growth. The disease causes individual shoots and leaves of new growth to wilt and curl inward. The leaves develop a brown-black discoloration that forms a "V" shaped pattern from the mid-rib to the leaf margins. The pathogen moves quickly through succulent stems and causes a brown discoloration of the wood. Botryosphaeria Dieback can cause similar symptoms and is just as common in the landscape. There are some key differences between the diseases to help with diagnosis.

Botryosphaeria dieback on rhododendron is caused by the fungal pathogen *Botryosphaeria dothidea*. Unlike Phytophthora dieback, which usually appears during flushes of new growth, Botryosphaeria can appear at any time. The disease causes wilting and

death to leaves and individual branches; however, several branches can be involved. Leaves on diseased branches droop and curl downward and parallel to the leaf midrib. Unlike Phytophthora, the leaves turn gray-green, then brown and remain attached to the stem. Xylem tissues on affected stems turn medium reddish brown color. Discolored tissues often appear on one side of the stem. The discoloration may extend several inches along the stem. When viewed in cross section, the stained wood may be wedge shaped, pointing towards the center of the stem.

In the landscape, the disease often appears on recently planted rhododendrons that do not have well established root systems. Established plants are subject to infection as well. On older plants, the pathogen causes sunken cankers that slowly enlarge and eventually girdle the stem.

Heat stress and drought stress increase the incidence and severity of the disease.

Disease Management Strategies

- Affected branches should be promptly pruned out to remove all discolored wood. Utilize proper pruning techniques and avoid injuring other portions of the plant. Diseased branches should be removed from the site.
- Avoid conditions that are stressful to the plants. Rhododendrons should be planted in partial shade in a site with acidic, well-drained soil.
- Irrigate the plants during extended, dry weather. Newly planted shrubs are especially sensitive to drought.
- Fungicides are not considered to be effective in treating this disease.

However, some resources suggest they may be helpful when applied immediately after pruning.

(Travis Cleveland)

Tomato Woes

The tomato is one of the more popular vegetable grown in home gardens. With it, however, come a plethora of problems and this season has no shortage. Below are some of the problems that gardeners may be seeing.

Flower drop. Tomatoes do not set fruit when day temperatures are above 95°F, especially with hot, dry winds. Night temperatures above 70° also can reduce fruit set. The recent blast of hot weather most likely put tomato plants into a holding pattern. The advent of more seasonal weather should aid in more normal fruit set. There is nothing to do about this but continue to water the plants, fertilize as needed, and mulch.

Blossom-end rot. This disorder appears as a dry, sunken, leathery rot on the bottom, or blossom end of the tomato fruit. Typically, early maturing fruits are most affected. It is actually caused by a calcium deficiency exacerbated by lack of available moisture. Plants that are pruned (as in removing the suckers on staked tomatoes) have increased susceptibility to this condition as well as those where cultivation around the plants is too excessive, cutting off roots which restricts water uptake. It is most prevalent during prolonged dry periods that occur while the plant is making vigorous growth. The best way to prevent blossom-end rot is to provide uniform water to the plants once a week

(twice a week during extremely hot weather) with 1 inch of water. Use a 2 to 4-inch mulch around the plants to retain moisture. If you are staking or caging the plants, avoid pruning severely. The fruit is typically not usable and should be discarded.

Cracking. Erratic watering (or sudden summer rains) after a dry period may cause fruit cracking. The cracks are generally concentric – located around the sides of the fruit. Fruits are still useable. Gardeners should water on a regular schedule when rainfall is lacking and use mulches to retain moisture in the soil.

Foliar diseases

- **Early blight** (*Alternaria solani*). This disease occurs on the leaves, stems, and fruits, though it is most noticeable on the lower leaves of the plant. Look for small, dark brown spots with concentric rings. Similar spots may appear on the stems. Spots on the fruits will be dark, sunken, and leathery. The disease is favored by humid weather and temperatures above 75°F. To control this disease, provide ample spacing around plants for good air circulation. Avoid watering the plants late in the day, and preferentially, keep water off the foliage by watering near the base of the plants. Regular application of fungicide sprays can be used for control. At the end of the season, be sure to rake up all plant residue and plan on rotating the tomato planting to a different area next year.
- **Late blight** (*Phytophthora infestans*). Tends to be more serious with cool, wet weather. Leaves infected with this disease first develop greenish-brown or black water-soaked spots starting at the tip. In moist weather, a white, downy mold will appear along the margins of the infected area and on the undersides of the leaves. Fruits of infected plants develop grayish-green, water-soaked spots. The spot becomes brown and often covers half the fruit. Infected plants eventually wither and die. Controls are same as Early blight.
- **Septoria leaf spot** (*Septoria lycopersici*). This is a serious foliar disease. Infected leaves develop circular water-soaked spots that have gray centers and blackish borders. Tiny dark specks develop in the centers of the spots. If spotting is severe, the leaves eventually die and fall, and fruits are subject to scald.
- **Fusarium wilt** (*Fusarium oxysporum*). A soil-borne disease that causes rapid wilting of the plants. Symptoms include a yellowing, wilting, and dying of the leaves progressing from the bottom of the plant upward. This usually happens about the time of fruit set but may occur any time during the growing season. The disease is most active during warm weather when soil temperatures are between 75 and 85°F. It can be prevented by growing resistant varieties but many old-time favorites lack resistance. Infected plants should be removed immediately. Gardeners should choose resistant varieties when selecting plants in the spring and rotate to another garden location next year.
- **Verticillium wilt** (*Verticillium* sp.). Another soil-borne fungus with symptoms similar to Fusarium wilt, though it tends to be more serious

with cooler weather. The leaves wilt, gradually wither, die and drop off. Eventually only the tip leaves appear green and alive, and the fruit may be small. Defoliation exposes the fruit to sunscald. As with Fusarium wilt, selecting resistant varieties and planting in a different location the next year are recommended practices.

(Jim Schmidt, Extension Specialist, Horticulture)

The Drought of 2012--How Should I Water my Lawn?

Is my lawn dead? I hear that question every year, but particularly this summer. The good news is that turfgrasses have an excellent dormancy mechanism that allows them to tolerate most droughts. The bad news is that there is no way to visually tell whether grass is dead or just dormant. So, when someone tells you your turf is dormant they're probably correct but it could also be dead; you can't tell by looking. Once rains return in the late summer, your lawn will either green up, in which case it was dormant, or it won't green up and is dead. Usually, this isn't an all or nothing event. Often portions of the lawn will green up and other parts won't. Why does this occur?

All grasses can go dormant, but those that have damaged or compromised root systems may not be able to tolerate much moisture stress. Poor soils, insects, or diseases can result in a reduced root system and plants that can't tolerate much drought. If you suspect this is the case, then irrigation will be necessary to survive drought.

As good as the grasses are in surviving drought, even dormant turfs require some water. Dormant turfs survive because their need for water is reduced to a small fraction of a green, growing turf, and because they have a few deep roots that can continue to extract small amounts of water. Once these roots have exhausted all available soil moisture, those dormant plants will die as well. A healthy Kentucky bluegrass lawn should be able to survive at least 6 weeks without any rainfall or irrigation. If the drought extends beyond six weeks, it is wise to lightly irrigate your turf with approximately ¼" of water every 2 weeks. This will provide enough water to keep your lawn alive, but not bring it out of dormancy. It is important not to water enough to bring the turf out of dormancy, let natural rainfall do that. You simply want to keep enough moisture in the ground that the dormant turf stays alive.

A phrase I hear with frequency is that "brown is the new green." As a turf specialist, I don't necessarily agree with that view, but turfgrasses have evolved to tolerate summer droughts and can do so quite well. Dormancy is a water-saving feature of turfgrasses, and in most summers can reduce the irrigation requirement to zero. That is, a healthy lawn can get through most summers without irrigation and recover fully in the late summer/early fall. The summer of 2012 is shaping up to be one of those rare summers, think 1988, where a little irrigation may be required for survival. And while you're at it, you'll want to irrigate trees, shrubs, and groundcovers as well since the drought is stressing even trees with deep roots. (*Bruce Branham, Turfgrass Specialist, University of Illinois*)