

Number 11 - July 2, 2010

Last Weekly Issue

This is the last weekly issue of the Home, Yard, and Garden Pest Newsletter for 2010. We will continue with issues every other week through July, August, and September. We will follow with a final issue in late October.

We reduce the number of issues at this time of year in response to a slackening of pest problems as the summer progresses. Thank you for your continued interest in this newsletter. We appreciate the reports and responses provided by several of you. This helps us make the newsletter more useful for everyone. --*Phil Nixon*

White Grubs

Japanese beetles and masked chafers are actively laying eggs at this time in turfgrass. The severity of this infestation is primarily governed by the adult population size and rainfall patterns.

White grubs are C-shaped, white scarab larvae with six legs, and brown heads. The ones that are the larval stages of Japanese beetle and masked chafers grow to about one inch in length. They feed on the roots of turfgrasses, causing wilting and death of large turf areas when numerous. In heavily-damaged areas, the sod can be peeled back like a carpet due to the lack of roots.

Three species of scarab are most important in Illinois turf. Japanese beetle grubs tend to require more moisture with the adults laying eggs in moister soil and the resulting larvae needing about 11 inches of rainfall and/or irrigation through the balance of the summer and fall. Northern and southern masked chafers will lay their eggs in drier turf and the white grubs will survive less moisture. Both species of masked chafers are found throughout Illinois. Japanese beetle is most numerous in the northern two-thirds of eastern Illinois, in southwestern Illinois centered in Collinsville, and in other Illinois cities. They are less numerous in many rural areas, but are increasing in number and range every year.

Adult Japanese beetles are obvious, feeding at this time on the upper leaves of various trees, shrubs, and fruit, particularly linden, crabapple, rose, birch, willow, cherry, apple, peach, grape, raspberry, currant, and blackberry. They probably prefer to feed most on smartweed. The adult beetles are three-eighths to one-half inch long, stocky, and metallic green with coppery wing covers. They will be present in large numbers into August.

Masked chafer adults are less obvious as they do not feed. They are active at night, and are attracted to lights. Masked chafers are tan June beetles, being stocky and about one-half inch long.

They can be seen flying over the turf for a couple of hours after 10:00 p.m. Shining vehicle headlights across the turf is an easy way to observe this activity. Because they do not feed, they only survive for a couple of weeks around the end of June and early July.

Japanese beetles tend to be the dominant white grub in areas where they are present, partially displacing the masked chafers. We have reports of high numbers of Japanese beetles this year in the Peoria, Pekin, Chillicothe, and Rockford areas. This year, they are about one-third as numerous as they have been in the past in the Champaign area.

All three species of scarab dig into the soil to lay their eggs. As a result of that and being attracted to green grass, many more eggs are laid in moist turf. In a normal year, this concentrates the egg-laying and resulting larvae in irrigated turf as unwatered turf is usually brown and dormant and the soil is dry and hard. However, this year, as in the previous two years, we have experienced abnormally heavier and later rainfall. This makes unwatered turf attractive to egg-laying as well as irrigated turf. In these wetter years, the eggs and resulting white grubs are spread out over larger areas and turf damage is typically spotty and not widespread. There are dry areas of Illinois this year that can expect high grub populations in irrigated turf, but many areas should have less than damaging numbers.

If high grub populations are expected, preventative application of a long-lasting white grub insecticide is recommended. This includes

chlorantroniliprole (Acelepryn), clothianidin (Arena), imidacloprid (Merit), or thiamethoxam (Meridian). In recent years, we have also recommended halofenozide (Mach 2) for this application. However, widespread failures of this product across the U.S. have been reported, possibly due to microbial degradation. In microbial degradation, microbes adapt to eat the pesticide. If you have had good results with Mach 2 in the past, feel free to continue using it but rotation with at least one other of the above insecticides on a yearly basis is recommended. If you have had treatment failures with Mach 2, microbial degradation may be the cause.

In most areas of the state, we recommend a wait-and-see management strategy. If you are in an area that has received adequate or more rainfall, put off applying grub insecticides until early August. At that time, scout for the white grubs by cutting through the turf with a heavy knife, pull back the sod, and look for white grubs in the root zone. Till the underlying two to three inches of soil with the knife to reveal deeper grubs.

If there are ten to twelve or more grubs per foot square, treatment will be needed to prevent damage later in the month and into the fall. With fewer grubs, treatment should not be needed unless there is a history of raccoon, skunk, armadillo, or bird damage from feeding on the grubs. These animals will damage turf while feeding on as few as one to three white grubs per foot square. Moles are more attracted to earthworms, so white grub numbers are less important to them.

If treatment is needed, apply any of the above insecticides or trichlorfon (Dylox). Trichlorfon is quicker acting than the above insecticides, killing the grubs within three days, but it is short-lived, breaking down to non-effective compounds in about five days. This short residual makes it ideal for treatment of sports fields as well as rescue treatments where damage is evident later in the season.--*Phil Nixon*

Diplodia Blight Vs Pine Wilt and Dothistroma Blight

We have seen quite a bit of Diplodia blight on pines lately through the clinic. Many Plant Clinic clients ask for help in distinguishing this disease from pine wilt or Dothistroma blight. All three diseases will cause needles to turn brown. The pattern of symptoms will help with diagnosis in each case, as will the presence of fruiting bodies in the needles.

Diplodia tip blight causes entire needles to turn brown, not just tips of needles as might occur with Dothistroma blight, scorch, salt injury, or transplant shock. Diplodia blight causes all of the needles at the tip of a branch to turn brown as seen in the first image. A more definitive diagnosis can be made when fruiting bodies are found embedded in these brown needles. A fruiting body is a structure holding spores of a fungus. The fruiting bodies of Diplodia are pin-head sized, black, and embedded in the needles as seen in the second image. They are often most prevalent at the base of needles. If fruiting bodies are not visible, place the needles in a plastic bag with some moist (not dripping wet) paper toweling; blow some air into the bag; and seal with a twist tie. After 24 hours, again

look for the fruiting bodies on the needles. They are large and difficult to miss on moist needles. With recent rains the fruiting bodies should be visible, even without incubation (plastic bag technique). If you do not see the fruiting bodies, *Diplodia* is not part of the problem. In the lab we like to take things one step further. We rarely make a disease diagnosis without seeing the spores of the pathogen causing the disease. We use a razor blade to remove a few of these fruiting bodies, then place them on a microscope slide, add a cover slip, and observe them with a compound microscope. When *Diplodia* is present, we see the spores flowing out of the fruiting bodies.

Pine Wilt, caused by the pinewood nematode (see issue #10, 2010), causes browning of needles too, but entire branches or entire sections of the tree are affected. Occasionally the whole tree turns brown at once. You will not see green needles at the tips of branches that are infested with pinewood nematodes.

If you look at a declining pine from a distance and see brown two- and three-year-old needles with green current growth, Dothistroma needle blight (see issue #3, 2009) is a strong possibility. Often Dothistroma blight causes the lower needles in the tree to exhibit bands of brown or yellow tissue. Often the tissue beyond those bands dries out, resulting in death of the needle tips on affected needles. The overall appearance is browning of the lower third to half of the tree. Early defoliation may occur in spring and summer. You might confuse these symptoms with salt burn or scorch which cause needle tips to turn brown on the exposed side of the tree.

Correct diagnosis of these diseases may save time and money in management practices. For further help, consult the following University of Illinois reports on plant diseases:

Diplodia Blight --

<http://www.aces.uiuc.edu/~vista/abstracts/aSPHAERO.HTML>

Pine Wilt --

<http://www.aces.uiuc.edu/~vista/abstracts/a1104.html>

Needle Blights of Pine --

<http://www.aces.uiuc.edu/~vista/abstracts/a624.html>--Nancy Pataky

Spruce Rhizosphaera Vs. Cytospora

Rhizosphaera needle cast has been a common Plant Clinic sample in the last two weeks. Spruce trees with purple/brown one- and two-year-old needles are suspect. The newest growth will appear green. Affected needles are cast (dropped). Since evergreens do not re-foliate along the branches, the disease will cause bare areas scattered throughout the tree if untreated. Norway spruces are considered resistant to this needle cast while Colorado blue spruce is a common host.

The image shows a spruce tree with a severe Rhizosphaera needle cast infection. Notice that the tips of all branches are still green while older needles are affected. There is a fairly simple test you can try on your own to confirm the presence of the causal fungus. This fungus will form fruiting bodies that are black and about the size of a pinhead. In humid conditions the fruiting bodies will emerge through the

stomates on the needle, appearing in neat rows down the needles. It helps to incubate suspicious needles overnight in a plastic bag with a moist paper towel. Then observe the needles for fruiting bodies. A hand lens is helpful but not necessary.

The only other disease we see regularly on spruce in Illinois is Cytospora canker. That disease causes entire branches to turn purple/brown. Cytospora affects all needles from the tip of the branch to the base. Often lower branches are affected first, as in the image. The disease may progress up the tree slowly, killing branches over a number of years. Cytospora (aka Leucostoma) canker will occur on young trees, but it is more common on trees at least 15 years old. On spruce there is usually a sappy exudate associated with the canker, but this sap is a thin layer, not the large blobs of sap associated with some insect pests such as pine bark and pitch moths. The wood under the bark of a tree with Cytospora canker is brown (dead) rather than green or white. The fungus is known as a stress pathogen, meaning it invades spruce trees growing in less than ideal sites or environmental conditions.

If Rhizosphaera needle cast is diagnosed, get a good look at the affected tree. Often Cytospora canker and Rhizosphaera needle cast appear on the same tree. Assess the big picture so that you can manage the problem correctly. A University of Illinois disease report, *Cytospora or Leucostoma Canker of Spruce*, RPD No. 604, is available on the Internet at

<http://www.aces.uiuc.edu/~vista/abstracts/a604.html>--Nancy Pataky

Bacterial Blight of Ornamentals

Bacterial blight, caused by *Pseudomonas syringae*, has been common this past spring and early summer. In most plant pathology literature, *Pseudomonas syringae* is considered a weak pathogen. It requires a wound to enter the plant and does most damage to plants under stress. It can do major damage to a susceptible host in a stressed site or during a stressed season. It has been known to cause severe cankering on some cultivars of Callery Pear. There are strains of this bacterium that can aid in ice formation (ice nucleation) at temperatures just above freezing. Bacterial blight of ornamentals is more common with late spring frosts, cool, wet weather (spring or fall), plant injuries of any kind, and high nitrogen.

Hosts of this disease include (but are not limited to) lilac, magnolia, forsythia, mountain ash, flowering cherry, apricot, Callery pear, flowering dogwood, and viburnum. Most gardeners have seen it on lilac in early spring and probably thought it was frost injury. The image shows bacterial blight on lilac with an isolate of the causal bacterium.

Symptoms vary from flower blast or bud death to leaf spots to shoot tip dieback, and even cankers. I tend to see it most commonly as a shoot tip dieback that resembles frost or fire blight. Often the external tissues are darkened but inner tissue may still be green. Fire blight results in brown tissue inside and out. Microscopic observation of bacterial streaming and isolation of the bacterium may help rule out more serious pathogens.

The bacterium can overwinter on buds, in cankers, as an epiphyte on many plants, as latent infection in plants, and even in weeds and grasses. If you have had problems with bacterial blight in your landscape, there are a few management suggestions that may help prevent its recurrence.

1. Avoid high nitrogen applications that produce great quantities of succulent growth in spring or fall. This tissue is most likely to be injured by frost, sudden weather changes, wind, etc; and injured tissue is most susceptible to bacterial infection. Fertilization is a good thing, but it should be balanced and not excessive.

2. Some research in nurseries has shown that pruning trees in the fall and early winter actually increases their subsequent infection by *Pseudomonas syringae*. The suggestion is to prune in January or February.

3. There is current research with the goal of developing plant cultivars resistant to this bacterial pathogen. Look for mention of such resistance when looking for plants for your landscape. As an example, most cultivars of common lilac are susceptible to infection by *Pseudomonas syringae*. Trials in Western Washington are attempting to identify resistant or tolerant lilac species and cultivars.

4. Fixed copper fungicides have been tried with varying success in nurseries with production problems caused by *Pseudomonas syringae*. The compounds are used in the fall to kill the overwintering bacterium before winter injury occurs. Homeowner use of such compounds has not yet been advocated.
--Nancy Pataky

Common Teasel: Highway Invasive

Teasel is a frequent sight along Illinois roadways and in abandoned lots. This plant was introduced in the 1700's from Europe, most likely as an ornamental. Teasel prefers open and sunny habitats, often along roadsides and at disturbed sites. Once established in an area, teasel will crowd out native plants and reduce plant diversity. This plant is a severe threat to Illinois ecosystems; it does not take long for this plant to quickly form a monoculture that excludes all natural vegetation. Teasel plants produce over 2,000 seeds per plant and the seeds get spread by mowing along roadways. These seeds may also stay viable in the soil for at least 2 years.

Teasel starts its life cycle as a rosette. It stays in its rosette form for about a year and then sends up a flowering stalk. The mature plants of common teasel are 2-8 ft tall and have oblong hairy leaves that form cups around the stem in order to catch water. Flowers are small and

packed into dense oval-shaped heads with purple flower clusters that will bloom from June through October. Cut-leaf teasel blooms from July through September and produces white flowers. Leaves of cut-leaved teasel are generally broader, have feathering lobes, and the stems are prickly.

These plants send down a deep taproot and can be difficult to remove, however it is not impossible. Cutting, burning and digging are all possible methods of removal; it is important to remove as much of the root as possible to prevent resprouting. Another control method is to cut and remove the stalk of a flowering plant just before it flowers. Be certain to cut just before the plant flowers, after it has sent up a bud, or it may send up new stalks. Herbicides have also been shown to be effective. All of these methods may take several years to show results but should remove teasel, provided there is no nearby teasel spreading more seeds into the area.--*Stephanie Mclaughlin, Kelly Estes*