

Number 6 - June 9, 2014

### **Oak Leaf Blister**

Oak leaf blister has started to appear on oak trees on the Illinois. This disease is caused by the fungal pathogen, *Taphrina caerulescens*. Members of the red oak group are more commonly affected by the disease. Symptoms are distinctive, and appear as scattered blister-like, puckered, or raised areas on the leaves. Affected areas appear concave or sunken in on the opposite side of the leaves. Symptomatic tissues are often thickened and have light green color which transitions to reddish-brown as the season progresses. Severely diseased leaves may drop prematurely.

The pathogen survives over the winter in buds and on twigs. Infection occurs early in the spring during cool moist weather as the buds start to swell and open. Damage to trees in Illinois is mostly aesthetic and the disease is generally not considered to be a significant landscape problem. Management should focus on promoting oak tree vigor through pruning, watering, and fertilization. Though not usually warranted or recommended, several fungicides are labeled to control oak leaf blister. These products are only effective if applied as a dormant application to buds and twigs. For more information on this disease of oaks, visit our Report on Plant Disease at <http://www.ag.uiuc.edu/~vista/abstracts/a663.html>. (Travis Cleveland)

### **Mushrooms Growing in Turf**

Wet spring weather has provided an excellent environment for mushrooms. They can form wherever sufficient moisture and organic matter is present. When found growing in turf, mushrooms tend to stand out and be unsightly to some. The fungi responsible for producing the mushrooms live off organic matter in the soil, such as decaying tree roots or buried construction debris. The fungi are not harmful to lawns, and the mushrooms will eventually disappear on their own. However, they can be picked, raked or mowed off to speed up the process.

Mushrooms can form in distinct circles or arcs in turf with diameters ranging from a few inches to 50 feet or more in diameter. These circles can reappear from year to year as the fungi expand radially below ground. These circles are referred to as "fairy rings," a name obtained from old folklore that theorized the rings to be areas where elves, pixies, or fairies danced and played. Fairy ring fungi free nitrogen as they break-down organic matter, essentially fertilizing the turf. This can result in distinctive circles or arcs of lush dark green growth. Fertilizing will help mask the symptoms by promoting lush green growth of the turf surrounding the ring. The fairy ring will essentially blend in with the fertilized turf.

Some fairy rings are associated with areas of brown, dead or dormant grass. The dead or dormant grass is likely caused by the dense subsurface layer of fungal growth that creates a hydrophobic soil condition and impedes water movement in to the turf. Some other theories suggest the subsurface fungal growth depletes nutrients essential for plant growth, and may even produce toxic levels of ammonia or hydrogen cyanide that kill the grass. Areas of killed turf are difficult to re-establish and are often invaded by weeds. Fungicide applications have provided mixed results in suppressing fairy ring development. The fungicides need to be applied with a soil surfactant at a time when the fungus is actively growing. Symptoms can be "masked" by deep watering. Core aeration and the use of wetting agents will help the water move deeper into the soil. (*Travis Cleveland*)

### **Anticipation... of Tomato Diseases**

Tomatoes! We all love them but you need to anticipate that disease issues can quickly arise. Now is a good time to review common disease and environmental issues that may arise with the tomato plants. Some issues may be in the form of foliar diseases or even environmental mayhem, so it's a good idea to keep in mind some examples of what to look for and what options are available for treatment.

#### ***Foliar Diseases***

##### **Early Blight** (*Alternaria solani*)

Early blight is not overly common but on occasion you will see it. This disease affects the stems, leaves and fruits while

being most prominent on the leaves. The symptoms consist of dark, sunken, leathery spots on the fruit. The disease is exacerbated by humid weather conditions above 75°F. Control of this disease consists of providing good air circulation to plants, avoiding watering late in the day while watering near the base to keep water off the foliage, and application of fungicide sprays. Lastly, make sure to plan ahead on rotating the next year's tomato plants to a different area while raking up this year's plant residue.

##### **Late Blight** (*Phytophthora infestans*)

Late blight is a devastating fungal disease. Leaves exhibit a green/brown or black water-soaked area originating at the tip, and the fruit causing a gray/green water-soaked spot that becomes brown and eventually covers half the fruit. Moist weather can cause a white downy mold along the margins of the underside of infected leaves. Unfortunately, plants that are infected will ultimately wither and die. Controlling this disease is similar to the strategies of Early Blight; provide air circulation, avoid watering late while keeping water off foliage, and apply fungicide sprays.

##### **Septoria Leaf Spot** (*Septoria lycopersici*)

Leaves to develop circular patterns of gray water-soaked spots with black borders. Small dark specks will develop within the spots. If the spotting is too severe, the leaves will die and fall off, subjecting the fruit to sunscald. The best control method is prevention while treating with copper spray or biofungicide helps to lessen symptoms. Prevention examples are; rotating crops, providing good air circulation, keeping water off foliage while watering, etc. Emphasis on don't water from above.

**Fusarium Wilt** (*Fusarium oxysporum*)  
 Fusarium wilt is a soil-borne fungal vascular wilt that causes yellowing, wilting, and dying of leaves starting from the base of the plant moving upward. Symptoms usually occur during the time of fruit set but can happen throughout the duration of the plant's growth. This disease is exacerbated by warm weather with soil temperatures around 80°F. Prevention is key when it comes to this disease. Removing infected plants immediately, planting resistant varieties and rotating to a different location next year are all viable prevention methods.

**Verticillium Wilt** (*Verticillium sp.*)  
 This disease is also a soil-borne fungus that causes a vascular wilt, leaf yellowing, and dying of the leaves. Most typically, one side of the plant is affected first. The leaves will ultimately drop, opening up the fruit to sunscald. This disease tends to be exacerbated by cooler weather temperatures. Eventually leaving the fruit small and only the leaf tips green. Prevention strategies for this disease are similar to that of Fusarium wilt; remove infected plants, plant resistant varieties, and annually rotate to different locations.

**Environmental Disorders**

**Flower Drop**

Hot, dry winds with day temperatures above 95°F and night temperatures above 70°F can reduce or prevent fruit set. Nothing can really be done about this aside from keeping the plant healthy; water, fertilize, and mulch.

**Cracking**

Dry periods followed by sudden summer rain or even erratic watering can cause

fruit cracking. Cracks tend to appear on the sides of the fruit; however the fruit are still viable. To prevent cracking, water on a regular basis and apply mulch to keep moisture in the soil.

**Blossom-end Rot**

Characteristics of Blossom-end Rot are dry, sunken, leathery rot on either the blossom end of the fruit or on the bottom. This disorder tends to affect the early maturing fruits more prominently. Ultimately, this disorder is caused by calcium deficiency tied with lack of moisture. Pruning plants and over-cultivation around the plants tend to make them more susceptible. This condition is exacerbated by long dry periods while the plant is undergoing vigorous growth. Prevention relies on a uniform watering schedule about once or twice a week depending on weather while using mulch to retain moisture. Fruit suffering from this disorder are generally not usable. (*Fernand Lopez and Suzanne Bissonnette*)

**Modified Growing Degree Days (Base 50°F, March 1 through June 5)**

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	719	525	833	976
St. Charles	589	496	695	829
DeKalb	609	574	728	876
Monmouth	723	632	846	995
Peoria	757	571	885	1038
Champaign	792	691	926	1086
Springfield	925	766	1064	1229
Brownstown	908	831	1052	1220
Belleville	958	866	1097	1254
Rend Lake	1010	934	1163	1338
Carbondale	1003	885	1147	1311
Dixon Springs	1023	948	1171	1338

Insect development is temperature dependent. We can use [degree days](#) to help predict insect emergence and activity. Home, Yard, and Garden readers can use the links below with the degree day accumulations above to determine what insect pests could be active in their area.

[GDD of Landscape Pests](#)  
[GDD of Conifer Pests](#)

Degree day accumulations calculated using the [Illinois IPM Degree-Day Calculator](#) (a project by the University of Illinois Department of Crop Sciences and the Illinois Water Survey). –*Kelly Estes*

### **Invasive Species ALERT: Viburnum Leaf Beetle**

We've shared several articles in in the Home, Yard, and Garden Pest Newsletter about the viburnum leaf beetle. Up until the last 2 weeks, we've only had a couple of isolated reports of viburnum leaf beetle in the state, in both DuPage and Cook counties. Over the past couple of days, several reports of severe defoliation caused by viburnum leaf beetle have come in from these same two counties. Viburnum leaf beetles overwinter as eggs on twigs of the host plant. In May, larvae hatch from the overwintered eggs and begin feeding on host plants. The larvae are greenish-yellow and develop dark spots as they age. They are usually found feeding in groups. Between early and mid-June, larvae drop to the ground and pupate. They remain in the ground for about 10 days.

Adult emergence generally occurs from mid- to late July. The adult beetle is small, ¼ to 3/8 of an inch long and is a golden brown color with sheen when in

sunlight. Adults will remain active until the first frost. Development from egg to adult takes eight to ten weeks.

In late summer and fall, females will begin laying eggs. They chew holes in the bark of twigs to deposit eggs and then cover them with excrement and fragments of chewed bark. A female can lay up to 500 eggs.

Despite the severe winter, it appears that overwintering was not affected and this beetle is causing serious injury. This pest has the potential to become a serious problem in nurseries and landscapes. Both the adult and larval stages of the viburnum leaf beetles can be severe defoliators. Larvae and adults feed on the leaves, defoliating between the midrib and larger veins. Heavy infestations can defoliate shrubs, cause die-back, and eventually kill the plants. It is the only pest known to skeletonize viburnum leaves.

Feeding is limited to species of viburnum. The viburnum leaf beetles have a preference for viburnums with little hair (pubescence) on the foliage, including the European cranberrybush viburnum, arrowwood viburnum, and American cranberrybush viburnum. They also feed on wayfaringtree viburnum, Rafinisque viburnum, mapleleaf viburnum, nannyberry viburnum, and Sargent viburnum. There are several resistant varieties, including Koreanspice viburnum, Burkwood viburnum, doublefile viburnum, Judd viburnum, lanatanaphyllum viburnum, and leatherleaf viburnum.

Table 1. Preliminary list of viburnum that are relatively susceptible or relatively resistant to viburnum leaf beetles (compiled by Dr. Paul Watson, Cornell University).

**Highly susceptible:**

[V. dentatum](#) complex, arrowwood viburnums  
*V. nudum*, possum-haw, smooth witherod viburnum  
[V. opulus](#), European cranberrybush viburnum  
[V. opulus](#) var. *americana* (formerly *V. trilobum*), American cranberrybush viburnum  
*V. propinquum*\*, Chinese viburnum, Taiwanese viburnum  
*V. rafinesquianum*, Rafinesque viburnum  
*Highly susceptible species are the first to be attacked, and are generally destroyed in the first 2-3 years following infestation.*

**Susceptible:**

[V. acerifolium](#), mapleleaf viburnum  
[V. lantana](#), wayfaringtree viburnum  
*V. rufidulum*, rusty blackhaw, southern black-haw  
[V. sargentii](#), Sargent viburnum  
[V. wrightii](#), Wright viburnum  
*Susceptible species are eventually destroyed, but usually are not heavily fed upon until the most susceptible species are eliminated.*

**Moderately susceptible**

*V. alnifolium* (syn. [V. lantanoides](#)), hobblebush  
[V. burkwoodii](#), Burkwood viburnum  
[V. x carlcephalum](#), Carlcephalum viburnum  
[V. cassinoides](#), witherod viburnum  
[V. dilatatum](#), linden viburnum  
[V. farreri](#), fragrant viburnum (except 'Nanum', which is highly susceptible)  
[V. lantanoides](#) (syn. *V. alnifolium*), hobblebush  
[V. lentago](#), nannyberry viburnum  
[V. macrocephalum](#), Chinese Snowball Viburnum  
*V. x pragense*, pragense viburnum  
[V. prunifolium](#), blackhaw viburnum  
[V. x rhytidophylloides](#), lantanaphyllum viburnum

*V. tinus*\*, laurustinus viburnum

*Moderately susceptible species show varying degrees of susceptibility, but usually are not destroyed by the beetle.*

**Viburnum most resistant to the viburnum leaf beetle:**

*V. bodnantense*, dawn viburnum  
[V. carlesii](#), Koreanspice viburnum  
*V. davidii*\*, David viburnum  
[V. x juddii](#), Judd viburnum  
*V. plicatum*, doublefile viburnum  
[V. plicatum var. tomentosum](#), doublefile viburnum  
[V. rhytidophyllum](#), leatherleaf viburnum  
[V. setigerum](#), tea viburnum  
[V. sieboldii](#), Siebold viburnum

*Resistant species show little or no feeding damage, and survive infestations rather well. Most species in all susceptibility groups exhibit more feeding damage when grown in the shade.*

(Source: <http://www.hort.cornell.edu/vlb/suscept.html>)

In regards to management options, Cornell has a very helpful management guide for homeowners (<http://www.hort.cornell.edu/vlb/manage.html>). At this time of year, for homeowners who are experiencing defoliation, the best option is going to be pesticides. It is important to make sure larvae are present and to make a thorough application so the pesticide comes in direct contact with the larvae. Spraying adults or eggs is less effective. There is some information on the use of horticultural oils and insecticidal soaps (<http://www.hort.cornell.edu/vlb/newtools.html>).

The viburnum leaf beetle, a native to Europe, was brought to North America on infected viburnums. While it is established in several northeastern states, we've only confirmed this pest in two

counties in Illinois. If your viburnum plants are showing signs of defoliation, please keep your eyes open for larvae now or Viburnum Leaf Beetle adults in the next few weeks. ***Residents are urged to report suspected infestations; we are continuing to gather information on where this pest is in Illinois.*** If you see this pest or have questions, please contact or Kelly Estes at the Illinois Natural History Survey - Cooperative Agricultural Pest Survey [kcook8@illinois.edu](mailto:kcook8@illinois.edu). (Kelly Estes)

### **Periodical Cicada**

Periodical cicadas should be emerging in northwestern Illinois. This is the Iowa brood, also known as Marlatt's Brood III, that covers most of the southern two-thirds of Iowa. It extends into Illinois, being present in Henderson, Warren, Knox, Fulton, and Schuyler counties. It has a disjunct area in northern DeWitt, and northwestern Champaign counties.

Both sexes of cicadas will be present for 2 to 3 weeks, with the males dying by mid-June. Only the males sing, so that will stop by that time. While the males are singing is a good time to check your clientele areas to determine whether small trees need to be protected. Periodical cicadas expand their range by only about one-half mile at each emergence; and egg-laying is heavier where the cicadas are more numerous, that is, where the male singing is louder. Based on previous experience, egg-laying will be heavy within 1/8 mile of heavy infestations and dwindle to almost nothing 1/2 mile away.

Although a few eggs will be laid before the males die, most egg-laying occurs from mid-June through mid- to late July.

As a result, while the males are singing is the best time to protect young trees from egg-laying damage. The female cicadas use ovipositors (egg-laying devices) to slit twigs and insert eggs. Most attacked twigs are about 1/4 inch (pencil-sized) in diameter, but eggs can be laid in branches up to about 2-1/2 inches in diameter. This egg-laying damage weakens the stems, making them susceptible to breaking by high winds. Broken branches will be replaced by new branches, but broken trunks will not. Broken stems of shrubs will be replaced by the root system.

Protect trunks of young trees with cheesecloth, shade cloth, nylon screening, or other flexible mesh that keeps the female cicadas from laying eggs. This protection should extend from the soil line to the first branches. Tie it at the top and bottom to keep cicadas from getting under the mesh. Ties along the trunk may also be needed if there are openings where cicadas could enter.

Insecticide application is not recommended. Although pyrethroid and other insecticides kill large numbers of periodical cicadas, research has shown that they have little effect on the amount of egg-laying and subsequent tree damage. (Phil Nixon)

### **Buffalo Gnats**

We have received reports of large numbers of buffalo gnats, also known as black flies, attacking people particularly in western Illinois. Buffalo gnats are small, 1/16- to 1/8-inch-long, humpbacked black flies. They bite exposed skin, typically leaving a small, red welt. When the gnats are numerous, the toxins from their

bites can kill poultry and other birds. They feed on the thinly haired areas of dogs, cats, and horses, such as ears and undersides. There are a number of species that occur in Illinois, and some species are relatively specific to host. With this host specificity, one type of animal may be attacked much more than others. Only in the last few years have we had common human-biting species.

Many buffalo gnat species live as larvae in clear, fast-moving streams and feed by filtering food from the water. With the public activity in reducing water pollution and associated federal and state water protection legislation over the past few decades, the streams, rivers, lakes, and ponds of Illinois are becoming clean enough to support life that has been much reduced since the 1930s. Although there are species of buffalo gnats that live in eutrophic, nutrient-laden water, increases in human-biting species has coincided with measurably-cleaner streams.

Adult buffalo gnats can fly from 7 to 15 miles from their source; but generally, Illinois residents that are bothered live within a half mile of the stream producing the flies. Although there are reports of DEET-containing insect repellents not being effective, scientific literature reports that DEET repellents provide the most effective protection. In areas with high populations of buffalo gnats, people commonly wear head nets, hats with insect protective netting that covers the head down to the shoulders. These are sold in sporting goods stores. Unlike mosquitoes, buffalo gnats do not bite through clothing, so only exposed skin is susceptible to attack. They also do not enter buildings.

Controlling the buffalo gnats as larvae is generally not an option. Insecticide ap-

plication would not only be in violation of federal and state laws but would likely kill fish and other wildlife. Running water is extensively protected by law because most running water eventually is used as human drinking water. If the buffalo gnats follow the pattern of previous years, they should be a problem for only 3 to 4 weeks and are not likely to return until next year. (*Phil Nixon*)

### **Bagworm**

Bagworms will have hatched in southern Illinois. They should hatch by mid-June in central Illinois. When newly hatched bagworms emerge from their mother's bag, they climb to the top of shrubs, trees, and any other erect object. They spin out two to three feet of silk which catches in the wind and blows them to new locations. They repeat this process, called ballooning, for about two weeks before settling down to serious feeding.

There is little to gain from spraying for bagworms during ballooning because most insecticide residues under the high sunlight and temperatures at this time of year only last for a few days. This allows later arriving ballooning caterpillars to feed and survive due to insecticide breakdown.

Treatment will be most effective in mid-June in southern Illinois, during the first week of July in central Illinois and a week later in northern Illinois. *Bacillus thuringiensis kurstaki* (Dipel, Thuricide), spinosad (Conserve), cyfluthrin (Tempo), permethrin (Astro), and other pyrethroids are effective even on older larvae. They are more effective on younger larvae, so treatment soon after they stop ballooning is recommended. (*Phil Nixon*)