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Peach Leaf Curl

Recently, there have been a number of requests for information on how to control peach leaf curl, a disease caused by the fungal pathogen *Taphrina deformans*. Peach leaf curl is one of the most common diseases of peach and nectarines in home plantings. This disease also occurs in commercial orchards, but is much less common due to the frequent use of fungicides. A number of other *Taphrina* species are known to cause several common diseases in the landscape including oak leaf blister and plum pockets.

Peach leaf curl causes infected plants to produce severely distorted leaves with thickened, puckered, and curled areas covering nearly the entire leaf. Affected tissues are initially light green, but eventually develop red and purple tints before transitioning to yellow or brown in color. Infected leaves drop prematurely, often within several weeks of the initial infection. Defoliated trees develop a second flush of growth by early summer. The resources required to produce the new leaves weakens and stresses the tree, predisposing it to a number of other problems. The good news is that peach leaf curl is a monocyclic disease and will not cause secondary infection to the new flush of leaves.

Taphrina pathogens over-winter in buds and twigs. Infections occur in developing leaves early in spring as the buds

begin to swell and continue until the buds are open. Cool spring temperatures slow plant development and allow a longer window of opportunity for fungal infection to occur. Therefore, cool wet springs enable more severe infections.

Unfortunately, once the fungus enters the developing leaf, the disease cannot be controlled. Thus, trees infected with peach leaf curl cannot be treated during the growing season. Instead, mark your calendar as a reminder to apply fungicide during dormant season to protect next year's foliage. A single application in late fall, winter, or very early spring before the buds begin to swell should provide adequate control. Apply fungicides containing either chlorothalonil or a copper product such as copper octanoate. Before purchasing and using, be sure the product is labeled for use on stone fruits as well as Peach Leaf Curl. Lime Sulfur sprays are also effective, however these products are no longer marketed or registered for homeowner use. Homeowners with existing supplies can continue to use Lime Sulfur products until their supply is exhausted. Please note that Lime Sulfur may cause severe leaf burn if applied to green foliage. (*Travis Cleveland*)

Lightning Damage

Lightning damage to trees may be one of the easiest problems to diagnose, and

also potentially one of the most heart-breaking when the big old tree dies. However, lightning damage doesn't always mean death. Unfortunately, there's not much to be done once the lightning has struck.

Lightning doesn't always produce the same symptoms. The easiest to see and diagnose is when the bark is completely blown away from the branches and trunk, leaving jagged edges and the exposed smooth wood beneath.

Sometimes, the bark will remain but be split and puckered or buckled where you can easily slip your hand under the bark.

Other times, you can see a path of damage from upper limbs to the ground, with the bark blown away or raised, or just blackened.

It's easy to diagnose when the bark is immediately blown away. However, it may take several weeks before the bark actually becomes loose, and the tree could be dead by then.

Lightning can just kill the cambium under the bark, preventing the tree from producing new water-carrying xylem vessels. This gives the illusion the tree made it through the damage, only to start wilting as the xylem tubes become woody and water isn't moved from the roots. Depending on the type of tree, this can take days to weeks to months, but the tree usually dies within a year.

If the lightning strike is significant enough, the xylem vessels can be blown apart, as the water in the vessels is turned to steam by the heat and expand to rupture the xylem tubes. When this happens, the tree quickly starts wilting as

no water is moved. Leaves start browning in a matter of days. (If you look closely at the base of the tree, there typically are dead plants surrounding the tree.)

Sometimes the damage may only affect one side of the tree. When that happens, the tree might be able to re-route water, especially in the early spring or late fall. However, May through September damage usually kills the branches on that side of the tree.

What can you do? Not much once the damage occurs. The cambium can't be regenerated quickly. Xylem tissue doesn't reproduce, so once it's destroyed, that's it. Watering may help if the damage is confined to one side of the tree. Fertilizing doesn't really help.

For high value trees or historic trees, an arborist can install lightning protection devices which funnels the strike to the ground through wires instead of through the tree. Of course, this is a preventative step. (*David Robson*)

Convict Caterpillar

Convict caterpillars have been found feeding heavily on daylily foliage in Metropolis in far southern Illinois. In previous years they have also decimated the foliage of surprise lilies in that area of the state. They also feed on spider lilies, narcissus, and amaryllis in the southeastern U.S., feeding not only on the foliage, but also on bulbs and rhizomes.

They are unlikely to be found very far north in Illinois because this is a tropical species that only rarely ventures very far north. They likely overwinter reliably only southern Florida and Texas in the U.S.

Convict caterpillars are banded black and white and grow to be about one-and-one-half inches long. They have orange legs, head, and last abdominal segment. The last abdominal segment is similar in appearance to the head, being about the same size, color, and dark markings, so it appears that they have heads at both ends of the body.

After feeding for several weeks, they pupate and emerge as moths with two inch wingspans called Spanish moths. These moths are very attractive with pink wings containing black and yellow markings. The thorax is covered with black hairs giving the appearance of a feathered boa.

Infestations can be controlled with an application of *Bacillus thuringiensis* kurstaki (Dipel, Thuricide), spinosad (Conserve), and labeled pyrethroid insecticides. (Phil Nixon)

Bagworm

Bagworms have hatched throughout the state and are a little earlier than normal. Treatment is recommended in southern Illinois at this time as they have completed their ballooning and are settling down to feed in earnest. They will still be ballooning farther north, so treatment should be effective in central and northern Illinois after mid-June.

Bagworm overwinters as eggs in the female bag. They hatch in late spring, exiting the bottom of the bag. The tiny caterpillars climb to the top of the tree where they each spin out a silk strand 1 to 3 feet long. This catches in the wind and carries the tiny larva wherever the wind blows. This is called ballooning.

The bagworm population continues this process for about 2 weeks. They are most common on spruce, eastern red cedar, other junipers, arborvitae, white pine, crabapple, and pin oak but are found on many other species of trees and shrubs. They are more common on deciduous hosts in southern Illinois than farther north.

Bagworm larvae feed on the edges of broadleaf foliage, sometimes to the midvein. Leaves of needled evergreens are eaten back to the base until nothing remains. Defoliated needled evergreen branches or entire trees frequently die. Because bagworms start at the top of the tree and work their way downward, it is common to see the top third of evergreens dead due to defoliation. Deciduous trees will re-foliate, with the damage being primarily aesthetic.

Bagworms spin individual silk tents and cover them with host foliage. The bagworms feed through the summer. As the caterpillars grow, they increase the size of the spindle-shaped bags up to 1-1/2 inches long. Pupation ranges from mid-August to very early September. As long as the caterpillar is feeding, it places bits of host foliage around the top of the bag. Once it has pupated or died, this practice stops and the top of the bags turn from green to brown. This is useful in scouting because pupated bagworms are not susceptible to insecticide sprays, and killed bagworms do not fall from the tree.

After mating with male bagworm moths, the female bagworms fill their bodies with fertilized eggs and die in the bag. Each female bag contains 300 to 1,000 eggs. Because bagworm eggs overwinter in the old bags, an effective control measure on shrubs and smaller trees is

to handpick the bags from September into spring and destroy them.

Bacillus thuringiensis kurstaki (Dipel, Thuricide), spinosad (Conserve), cyfluthrin (Tempo), permethrin (Astro), and other pyrethroids are effective even on older larvae. Even so, they are more effective on younger larvae, so treatment soon after they stop ballooning is recommended. In addition, controlling younger larvae prevents the damage that would be caused by the larvae through the season. (Phil Nixon)

Modified Growing Degree Days (Base 50°F, March 1 through June 4)

Station Location	Actual Total	Historical Avg. (11 year)	One-Week Projection	Two-Week Projection
Freeport	629	511	738	878
St. Charles	624	483	726	857
DeKalb	630	559	745	889
Monmouth	747	617	866	1013
Peoria	779	655	902	1053
Champaign	821	674	950	1107
Springfield	916	748	1051	1214
Brownstown	854	813	994	1159
Belleville	963	848	1099	1253
Rend Lake	1053	914	1202	1375
Carbondale	981	866	1122	1284
Dixon Springs	998	928	1143	1308

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 Department of Crop Sciences at the University of Illinois and the Illinois Water Survey). (Kelly Estes)

Viburnum Leaf Beetle Activity Reported

Reports of viburnum leaf beetle injury continue to come in out of Cook and DuPage counties. A relatively new pest in Illinois, we saw feeding begin to be more noticed in 2014. That trend continues this summer.

Over the past two weeks we have had several emails and calls concerning the defoliation of viburnum. Larvae typically hatch from overwintered eggs in May. They feed on host plants, primarily on the undersides of leaves, skeletonizing the foliage, leaving only midribs and major veins intact. Mature larvae drop to the ground, enter the soil and pupate. By early July, adults will emerge and also feed on viburnum foliage. Development from egg hatch through adult emergence generally takes 8 to 10 weeks.

Adult feeding will vary from the injury caused by the larvae. Injury caused by adult viburnum leaf beetles consists of irregular circular holes in the leaves. Adults will continue to be active throughout the summer until the first killing frost. Females will chew holes in small branches or twigs of viburnum (usually the current year's growth) and deposit several eggs into the cavity that will overwinter.

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, Rafinesque 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).

<p>Highly susceptible:</p> <ul style="list-style-type: none"> • V. dentatum complex, arrowwood viburnums • <i>V. nudum</i>, possum-haw, smooth witherod viburnum • V. opulus, European cranberrybush viburnum • V. opulus var. <i>americana</i> (formerly <i>V. trilobum</i>), American cranberrybush viburnum • <i>V. propinquum</i>*, Chinese viburnum, Taiwanese viburnum • <i>V. rafinesquianum</i>, Rafinesque viburnum <p><i>Highly susceptible species are the first to be attacked, and are generally destroyed in the first 2-3 years following infestation.</i></p>	<ul style="list-style-type: none"> • 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. <i>V. alnifolium</i>), hobblebush • V. lentago, nannyberry viburnum • V. macrocephalum, Chinese Snowball Viburnum • <i>V. x pragense</i>, pragense viburnum • V. prunifolium, blackhaw viburnum • V. x rhytidophylloides, lantana-phyllum viburnum • <i>V. tinus</i>*, laurustinus viburnum <p><i>Moderately susceptible species show varying degrees of susceptibility, but usually are not destroyed by the beetle.</i></p>
<p>Susceptible:</p> <ul style="list-style-type: none"> • V. acerifolium, mapleleaf viburnum • V. lantana, wayfaringtree viburnum • <i>V. rufidulum</i>, rusty blackhaw, southern black-haw • V. sargentii, Sargent viburnum • V. wrightii, Wright viburnum <p><i>Susceptible species are eventually destroyed, but usually are not heavily fed upon until the most susceptible species are eliminated.</i></p>	<p>Viburnum most resistant to the viburnum leaf beetle:</p> <ul style="list-style-type: none"> • <i>V. bodnantense</i>, dawn viburnum • V. carlesii, Koreanspice viburnum • <i>V. davidii</i>*, David viburnum • V. x juddii, Judd viburnum • <i>V. plicatum</i>, doublefile viburnum • V. plicatum var. tomentosum, doublefile viburnum • V. rhytidophyllum, leatherleaf viburnum • V. setigerum, tea viburnum • V. sieboldii, Siebold viburnum <p><i>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.</i></p>
<p>Moderately susceptible</p> <ul style="list-style-type: none"> • <i>V. alnifolium</i> (syn. V. lantanoides), hobblebush 	<p>(Source: http://www.hort.cornell.edu/vlb/suscept.html)</p>

In regards to management options, Cornell has a very helpful management guide for homeowners (<http://www.hort.cornell.edu/vlb/manager.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. (Kelly Estes)

Be on the Lookout for Giant Hogweed
A friendly reminder from Chris Evans, Illinois Invasive Species Campaign Coordinator with Illinois Department of Natural Resource.

Now is the time of year when Giant Hogweed starts to bloom. This invader

has been found in Illinois a handful of times in the northeastern part of the state but we do not know of any active populations at this point.

With the health risk associated with giant hogweed, we definitely want to know of any new populations.

As you've likely heard, exposure to the sap of giant hogweed on your skin in the presence of sunlight can cause extremely serious chemical burns. If you really want to know more about the health risks of giant hogweed (including photos of the burns) then check out this link - <http://www.dec.ny.gov/animals/72556.html>

In Illinois we have a native look-a-like called cow parsnip. This species is in the same genus as giant hogweed and can be easily mistaken. Take a minute to look at the following identification guide that does a great job distinguishing the two species - <http://www.dec.ny.gov/animals/72766.html>

We covered giant hogweed and some look-a-likes in a Home, Yard and Garden article last year - <http://hyg.ipm.illinois.edu/article.php?id=590>.

If you think you've found a population of giant hogweed, please DO NOT TOUCH it! Instead, take some photos, in particular close up of the leaves, flower heads and stem if you can and report the infestation. You can report it to me at kcook8@illinois.edu or to Chris - chris.evans@illinois.gov, or call your local Department of Agriculture or University of Illinois Extension Service office. (Kelly Estes)