

# HYG articles

## June 28

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### Modified Growing Degree Days (Base 50° F, March 1 through June 27)

Station Location	Actual Total	Historical Average (11 year)	One- Week Projection	Two-Week Projection
Freeport	901	961	1056	1210
St. Charles	842	907	991	1139
DeKalb	898	1024	1055	1209
Monmouth	1073	1087	1232	1390
Peoria	1142	1143	1312	1483
Champaign	1252	1181	1426	1601
Springfield	1301	1274	1484	1671
Perry	1283	1184	1451	1622
Brownstown	1361	1350	1548	1736
Belleville	1467	1363	1652	1840
Rend Lake	1534	1475	1727	1921
Carbondale	1508	1392	1688	1873
Dixon Springs	1554	1465	1737	1925

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*

## Japanese Beetles on Ornamental Plants



Japanese beetle on rose.

They're back! Adult Japanese beetles (*Popillia japonica*) have emerged in Illinois and are beginning to feed on ornamental plants. Japanese beetle adults have a broad host range, feeding on over 100 plants including linden, buckeye, rose, crabapple, apple, grape, and raspberry. They may feed on the foliage, flowers, and fruits of their host plants, skeletonizing leaves so only the leaf veins remain. Beetles tend to feed on and damage the upper portions of plants which can lead to heavy damage in the tops of trees. In some cases, this means that the damage can go unnoticed by passers-by and may not require treatment. While the damage can be unsightly, it does not usually result in dieback or the death of the plant.

Japanese beetle adults are conspicuous in the landscape and can be easy to identify. They are about 1/3 inch long with a metallic green head and pronotum, copper-brown wing covers and six white tufts of hair that run down each side of their body.



Japanese beetle on corn foliage.

Early control can help reduce future damage from these voracious herbivores because Japanese beetles are attracted to plants with previous feeding damage. Early control can also help reduce populations in the following year by killing adults before they deposit eggs.

Japanese beetles can be controlled by hand-picking. Beetles tend to drop off plants when they are threatened so they can be collected and removed by holding a cup of rubbing alcohol or water and soap beneath the beetles and knocking them into the liquid. This can be done every few days to control the population if a chemical-free control method is preferred. However, this is time consuming, and if populations are heavy, this method is not practical.

Some chemical controls that can be effective in treating adult Japanese beetles include carbaryl (Sevin), bifenthrin (Talstar), cyfluthrin (Tempo), lambda-cyhalothrin (Scimitar), or permethrin (Astro) foliar sprays. These foliar sprays can be effective in controlling adult beetles for about two weeks. Since Japanese beetle adults are active for about six weeks, more than one application may be required for control. Identify and treat susceptible plants that are focal points in the landscape rather than spraying a broad area. Because Japanese beetles are unlikely to feed enough to cause dieback or kill the plants, this can be effective in reducing aesthetic damage while reducing the use of insecticides in the landscape and protecting pollinators.

Japanese beetle larvae can be controlled by applying imidacloprid (Merit) to soil or turfgrass. This can be effective in controlling the soil-dwelling larvae for the whole summer. Imidacloprid is a systemic insecticide, meaning it is taken up by plants and transported to different plant tissues, including flowers and pollen. This can leave pollinators at risk for exposure to these toxins, so it is important to avoid applying imidacloprid or other systemic insecticides to flowering plants, including linden trees.

Remember to avoid Japanese beetle pheromone traps. Pheromone traps release attractant chemicals that are intended to lure beetles into a trap where they are killed. Unfortunately, in landscapes with attractive host plants, the traps tend to attract more beetles to the area, resulting in additional feeding and aesthetic damage.

(Sarah Hughson)

## Turf Weeds with Leaflets of Three

The Weed Gods have blessed us with several similar weedy trifoliate legumes. Then to make it more interesting, they threw oxalis (with its likeness of appearance) into the mix. It's no wonder so many confuse these species. Fortunately, identification can be fairly simple if you know what to look for. The easiest identifiers are the flowers and leaves. Luckily, some of these are in bloom a little early this year.

White clover (*Trifolium repens*) is a cool-season, perennial legume that may not be a weed at all to some. Prior to the advent of chemical control methods after World War II, clover was a common addition to turf seed mixtures. It is drought tolerant and serves as a source of nitrogen for lawns. Somewhere along the line, it became an undesirable species due to its ability to cause stubborn grass stains and attract bees to children's play areas. Broadleaf herbicides used to target other broadleaf weeds such as dandelion often injured or killed white clover too. Today, many have returned to adding clover back to the landscape as it requires fewer inputs and attracts pollinator insects. Low-growing, white clover spreads by stolons, creeping stems that root at the nodes and forms patches. Its roots are fibrous. The trifoliate leaves have three unstalked, oval leaflets, each marked with a faint white crescent. Petioles are longer than the leaflets. The pea-shaped flowers are white, sometimes tinged with pink, and are combined into rounded (globose) heads (inflorescences). White clover likes moist, low-fertility soils and cool, moist springtimes, which we've certainly experienced this year.



***White clover in turf.***

Black medic (*Medicago lupulina*), unlike white clover, has a stalked central leaflet. This is the first thing to look for unless there are flowers present. The bright yellow, pea-shaped, clustered blooms should tip you off right away that this plant may look like white clover but it's certainly something else. The petioles of black medic are shorter than the leaflets and it has a shallow taproot. Also, it's usually a summer annual (sometimes a winter annual or biennial) and likes droughty, low-fertility sites. I've noticed quite a bit of black medic this year despite its preference for dry conditions.



*Black medic in turf.*



***Black medic up close.***

Yellow woodsorrel (*Oxalis stricta*) also has three leaflets, but each leaflet is heart-shaped rather than oval. Like black medic, the flowers are yellow but instead are comprised of five petals. Like white clover, the central leaflet is not stalked. Petioles are much longer than the leaflets. Yellow woodsorrel is a perennial that spreads by rhizomes, but it can act as a summer annual. It often grows more erect than the previously mentioned species and seems to tolerate a wide variety of soil types and site conditions.



***Yellow woodsorrel.***

After proper identification, controls may be administered. Refer to "Broadleaf Weed Control in Turf," issue no. 2 in 2018 of this newsletter (<http://hyg.ipm.illinois.edu/article.php?id=967>) for further assistance.

*Michelle Wiesbrook*

*Adapted from an article published June 10, 2003, written by Tom Voigt and Michelle Wiesbrook.*

## Bacterial Leaf Spot on Oakleaf Hydrangea

This year's frequent rain events have resulted in an abundance of leaf spot diseases. While fungal pathogens cause the majority of these leaf spots diseases, we occasionally see some caused by bacterial pathogens. Oakleaf hydrangeas, in particular, are known to develop leaf spots caused by the bacterial pathogen *Xanthomonas campestris*.

Bacterial leaf spot on hydrangea overwinters in diseased plant debris. In the spring, the pathogen moves to developing plant tissues by splashing water from rain or irrigation. Once in contact with the host, the bacteria enter the plant through stomata, other natural openings, and/or plant wounds. Symptoms of infection first appear on lower leaves as water-soaked spots that eventually darken to a reddish-purple color and develop an angular shape. Multiple spots may enlarge, coalesce and cause death to mature leaves. Disease development is favored by warm, wet conditions which allow for increased bacterial production and dissemination. Overhead irrigation and close plantings extend the duration of time leaves remain wet and favor disease development.

Cultural disease control options should be your first course of action.

1. Remove diseased debris from the site. Debris harbors the bacteria and provides inoculum for future infections. Infected debris should be burned, buried or discarded. On-site composting is not advised.
2. Monitor the plants closely during the growing season. Leaves displaying leaf spot symptoms should be removed from the plant and site.
3. Avoid pruning or working near problematic plants when they are wet. These activities will likely spread the pathogen as well as create wounds and entry points. Disinfecting your pruners between cuts will further help reduce the spread of the pathogen.
4. Avoid overhead irrigation and wetting the foliage. If un-avoidable, irrigate at a time of day that minimizes the duration of leaf wetness. Adequate plant spacing will also help limit the duration of leaf wetness.

Pesticides containing copper sulfate and copper octanoate (copper soap) are broadly labeled for control of leaf spots on ornamentals, but are only marginally effective. They should be applied preventatively or at first sign of disease. Use products containing copper with caution as they may cause phytotoxicity.



Bacterial Leaf Spot (*Xanthomonas campestris*) on Oakleaf Hydrangea



**Bacterial Leaf Spot (*Xanthomonas campestris*) on Oakleaf Hydrangea**

## Hosta Petiole Blight

Hosta Petiole Blight, Hosta Crown Rot, and Southern Blight are common names for a fungal disease caused by *Sclerotium rolfsii*. Under favorable conditions, the pathogen can rapidly take-over and defoliate an otherwise healthy hosta. This disease is particularly devastating because of the pathogen's ability to survive in the soil and on the soil surface from several months to years. A tough, mustard seed-like overwintering structures, known as sclerotia (Image 1), contribute to the pathogen's long-term survival.

The pathogen becomes active during warm, humid weather at which point the sclerotia germinate and tufts of white mycelium fan out over the soil surface (Image 2). When the fungus comes in contact with a host, it releases oxalic acids that break-down plant cells walls and tissues. On hostas, symptoms begin as wilting and discoloration of lower leaves (Image 3). In a short time, the upper leaves also wilt; and close inspection shows a soft, brown rot of the base of petioles (Image 4). The entire leaf soon collapses above the site of infection.

Prevention and sanitation are important for disease management. The fungus spreads by sclerotia or by mycelium growing from the sclerotia. Contaminated nursery plants and plants exchanged between gardeners aids long distance spread of the disease. Closely inspect plants for symptoms and signs of the disease before purchasing or be accepting new plants. If you spot the disease in your landscape, remove all of the infected plant parts, placing them directly into a bag to remove them from the garden. Be careful not to spread any of the fungal mycelium or sclerotia. Do not compost diseased plants. Remove the top several inches of soil around the plant, again being careful not to spill any as you work. Fungicide options are limited, and will suppress but not completely eliminate the pathogen. For homeowners, a few products with the active ingredient Tebuconazole list Southern Blight on their labels. Commercial applicators also have access to products with Flutolanil as their active ingredient. Mulch may contribute to the overwinter survival of the pathogen. Pulling mulch back from the base of plants before winter may help to kill the fungus. There are differences in levels of susceptibility among hosta cultivars, but nothing with high levels of resistance. Iowa State University has an excellent publication on Sclerotium Blight: <http://www.plantpath.iastate.edu/files/SUL8.pdf>

(Travis Cleveland)



**Image 1. Mustard seed-like sclerotia of Hosta Petiole Blight**



Picture 2. Hosta Petiole Blight mycelium spreading over soil surface and hosta petioles



Picture 3. Early symptoms of Hosta Petiole Blight. The lower leaves are discolored, wilting and collapsing.



Picture 4. Blighted petiole with sclerotia

## Contaminated Neem Oil Products

On June 20<sup>th</sup>- The Oregon Department of Agriculture stopped the sale of 6 products containing neem due to pesticide contamination. According to the National Pesticide Information Center- Neem oil is a naturally occurring pesticide found in seeds from the neem tree. It is yellow to brown, has a bitter taste, and a garlic/sulfur smell. It has been used for hundreds of years to control pests and diseases. Neem oil is a mixture of components. Azadirachtin is the most active component for repelling and killing pests and can be extracted from neem oil. The portion left over is called clarified hydrophobic neem oil. The products tested in Oregon found malathion, chlorpyrifos, and permethrins. These additional pesticides were not on the label and not approved for organic use, and therefore a statewide removal of these products was issued for Oregon.

- Bonide, Neem Oil, EPA #70051-2-4, Lot #18082202
- Schultz Company, Garden Safe brand, Neem Oil Extract, EPA #70051-2-39609, Lot #U071818 L 002817
- Woodstream Corporation, Safer Brand, Neem Oil, EPA #70051-2-42697, Lot #LBL5182B 0617
- Lawn and Garden Products Inc, Monterey, 70% Neem Oil, EPA #70051-2-54705, Lot # 1800241958 MLN #70892947
- Certis, Trilogy, EPA #70051-2, Lot #71133547
- Bayer Advanced, Natria Neem Oil, EPA #70051-2-72155, Lot #NP65FX7081

Pennsylvania has also issued a warning to consumers about these products.

[https://www.media.pa.gov/pages/Agriculture\\_details.aspx?newsid=799](https://www.media.pa.gov/pages/Agriculture_details.aspx?newsid=799)

For more information- you can read the full release here.

<https://odanews.wpengine.com/a-complaint-leads-oda-to-issue-stop-sale-use-and-removal-order-for-6-over-the-counter-pesticide-products-claiming-to-be-organic/>

(Maria Turner)