

HYG articles

May 5, 2020

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

Station Location	Actual Total	Historical Average (11 year)	One- Week Projection	Two-Week Projection
Freeport	136	190	202	272
St. Charles	154	185	218	283
DeKalb	140	212	212	289
Monmouth	224	248	302	387
Peoria	226	275	309	395
Champaign	242	275	326	415
Springfield	276	311	369	468
Perry	293	304	377	467
Brownstown	311	358	407	509
Belleville	389	378	489	595
Rend Lake	373	414	481	592
Carbondale	406	398	505	608
Dixon Springs	420	436	526	635

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*

Hawthorn leafminer

Hawthorn leafminer (*Profenusa canadensis*) are small sawfly larvae that feed between the epidermal layers of the leaf, on the parenchyma cells, leaving small discolored tunnels behind. The areas on the leaf where tunneling has occurred eventually become brown patches. The adults are small black sawflies about 3 mm long. One of the major characteristics used to differentiate sawfly adults from other wasps can be seen when you examine the body where the thorax and abdomen meet. Many wasps have a slender “waist” that connects the thorax and abdomen, but sawflies lack this slender waist and it can be difficult to see where the thorax ends and the abdomen begins.

The adults are present when leaves are unfolding so it is best to scout for adults early in the season. At this time females will pierce the epidermal layer of the leaf and deposit one egg inside young leaves. When the larvae hatch they will begin feeding under the surface of the leaves which can cause significant aesthetic damage to landscape plants though it does not usually impact plant health.



Hawthorn leafminer (Profenusa canadensis; taken in Urbana, IL 4/15/19), Sarah Hughson, University of Illinois at Urbana-Champaign.

This leafminer’s damage is predominately aesthetic and tree health is not impacted and new growth during the summer can hide existing injury, so treatment usually is not warranted. If heavy damage was experienced during the previous year, foliar sprays can be applied to prevent similar damage the following year. Foliar sprays can be used early in the season before tunneling damage appears on the leaves. The timing of larval hatch and spray applications to hawthorn may coincide with

blooming in Vanhoutte spirea (*Spirea X vanhouttei*), blueleaf honeysuckle (*Lonicera korolkowi* 'Zabelii') and alternatleaf dogwood (*Cornus alternifolia*).

Hawthorn leafminers usually attack hawthorn species *Crataegus crusgallis*, *C. erecta* and *C. persimillis*. Planting other, less susceptible, hawthorn varieties when possible is an effective cultural control in areas where this insect is more prevalent, such as northern Illinois.

[Sarah Hughson](#)

Oystershell scale



Oystershell scale (*Lepidoasaphes ulmi*) adults, Whitney Cranshaw, Colorado State University, [Bugwood.org](#).

Oystershell scale (*Lepidoasaphes ulmi*) can be a tricky species to control without understanding their life cycle and biology. Adults are small, about 2 – 3 millimeters long and can be gray or brown. They can be easily differentiated from other scale insects by the oyster shell shaped scale that covers their bodies. When the females lays eggs, they overwinter beneath her protective covering called a "scale". The young crawlers hatch, emerge from the protective scale and become active from May through June. When crawlers choose a location to settle, they pierce the plant with their straw-like mouth parts and suck fluids from the plant and remain in that location throughout adulthood. Fluid feeding can result in leaf yellowing, leaf or twig stunting and, in some cases, plant death. Heavy infestations can also result in die back of the affected twigs and the stress can leave the plant more susceptible to wood-boring insects.

This is a pest with a broad host range, including ash, birch, crabapple, dogwood, elm, maple, poplar, walnut and willow. They often clusters together, heavily infesting individual branches on a tree or shrub rather than evenly distributing themselves among all of the branches. This can result in twigs and branches that are encrusted with adult scales.

Cultural practices like irrigation, fertilization and mulching can help reduce plant stress and allow plants to better withstand scale feeding. However, large scale populations may require insecticides for effective management. If chemical treatment is warranted, treatments should be applied when crawlers are present. Adults are not well controlled with pesticides because the products do not penetrate their protective scale. Crawlers are not always present on affected ornamental plants and when they are, their small size can make them difficult to find. Knowing when to scout and treat for this pest is the key to its control.



Oystershell scale (*Lepidoasaphes ulmi*) crawlers on lilac, Phil Nixon, University of Illinois at Urbana-Champaign.

Oystershell scale crawlers have two distinct biotypes which differ in color and timing of activity. The timing of scouting and control can be determined based on degree-days or plant phenology. Brown oystershell scale crawlers are present when 275 – 500 degree-days have accumulated (base 50) or when VanHoutte spirea (*Spirea x vanhouttei*) is in late bloom. Similarly, the gray crawlers are present when 400 – 600 degree-days have accumulated (base 50) or when VanHoutte spirea has finished blooming. Southern Illinois is already within the degree-day treatment window for brown crawlers and may be seeing spirea bloom so it is the perfect time to begin scouting for oystershell scale. And central Illinois can begin scouting in the coming week. Crawlers can be seen using a hand magnifying glass above the surface of a branch with visible adult scales or by placing two-sided tape around a branch and inspecting it for crawlers.

Table 1. Degree-days and projected degree-day accumulation as of May 1, 2020			
Location	Current total	One-week projection	Two-weeks projection

DeKalb	111	177	251
Champaign	218	294	382
Carbondale	406	496	599

Some insecticides recommended for controlling oystershell scale crawlers include acephate (Orthene), carbaryl (Sevin), malathion, insecticidal soap and horticultural oil. If you struggle to identify crawlers or would prefer to control adults, oystershell scales can be mechanically removed from a plant. Scales can be gently scraped away from the bark using a credit card or mesh dish scrubber. Twigs or branches that are heavily encrusted with scales can be easily pruned away from the plant, quickly knocking down a large portion of the scale population.

[Sarah Hughson](#)

Violets in Landscape Beds

I have a love/hate relationship with violets. In the right setting, they can be attractive and make a nice groundcover. However, they are prolific seed producers and can take over areas. A plant becomes a weed only when it is growing where it is not wanted. I find that I want it in some areas, but not others.

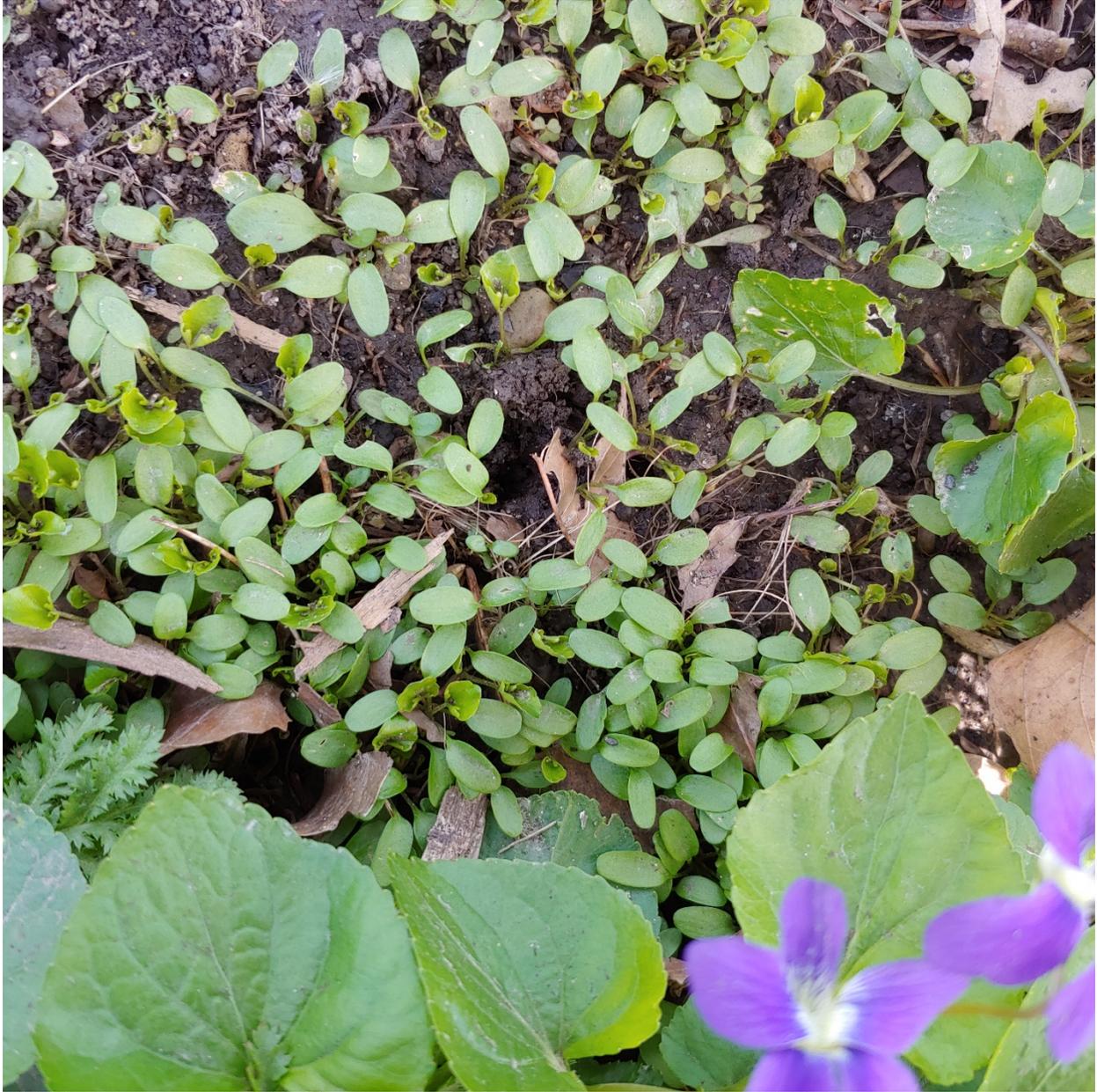
Common violet (*Viola* spp.) is considered a prevalent lawn weed by many. This cool-season perennial spreads by seeds and by creeping rhizomes. The leaves are kidney-shaped to broadly oval, with a heart-shaped base and a pointed tip. The margins are typically toothed. Leaf size is 2 to 4 inches. Stems are low growing typically but can reach 12 inches in height. They arise from a basal crown. Many colors of flowers exist from white to blue to purple to yellow. Cultivated types exist as well. Violets bloom early in the spring and prefer moist, shady, fertile sites. Blue violet is the state flower of Illinois.

Years ago, my husband talked me into transplanting violets from one area of our property to another containing a windbreak. At the time, I thought it was insane, but I must admit they grow quite well there and look nice. A dense stand of violets in bloom can be striking. Additionally, they prevent other less attractive weeds from growing there.



However, one person's flower is another person's weed and not everyone is fond of common violet. The setting often determines violet's fate. In lawns, violets disrupt that uniform appearance, desirable by many. In landscape beds, a few violets may be pretty, but the numbers will steadily increase with time making this species wear out its welcome fast.

When that occurs, violet plants can be dug by hand. Seedlings, which are abundant now in central Illinois, can be easily removed with your fingers or other favorite weeding tool. Unwanted plants should be removed before they produce seed as spread can be aggressive.



The peskiest weeds are those who grow unnoticed within other plants. I have had violet grow within a rose bush, while a recent client had it growing within her hydrangea. Successful weeds are sneaky like that. Removal can then be quite difficult in these situations. I have had the best luck with a dandelion fork but an old knife will work well too. Removal must be done carefully so that injury does not occur to the desirable plant. If not all of the weed is removed, the process will need to be repeated until the food reserves are eventually starved. Continue to monitor for new growth.

Alternatively, violet leaves could be carefully painted with glyphosate, a non-selective, postemergent herbicide. Roundup is one trade name but there are several available. Avoid herbicide contact with the plant it is growing within as injury can result. A couple of applications could be needed to achieve complete control. Triclopyr may provide greater control of violet than glyphosate, however, product

labels may not allow for its use in certain landscape situations. If a herbicide is used, be sure to carefully read and follow all label directions.

What about violet seedlings? There are a few options. Again, hand removal can be employed once they grow large enough to easily grasp with your fingers. A hoe or winged weeder can be used as well. Mulch works well to keep weed pressure down. In areas covered with rocks or gravel, it could be that more gravel is simply needed. To kill any existing growth, the area could be covered with black plastic for several days to block needed light. Spot treatments with glyphosate could be employed. Be sure to keep the spray off desirable ornamentals. For added protection, plants could be temporarily covered with plastic bags or buckets during the application. To prevent future seedlings, a preemergent herbicide such as DCPA or trifluralin can be used early in the spring. First check the label to be sure that all of your ornamental species are listed. Again, carefully read and follow all label directions.

In certain situations, such as that of my recent client's, who had one lone hydrangea growing in rock filled with violet seedlings, it may be easier to transplant any ornamentals first. I suggested she consider moving the hydrangea so she could then deal with the violets. Once the violets are controlled, then the hydrangea could be moved back. She was considering removing the rock, installing landscape fabric, and then returning the rock with additional rock to more adequately cover the soil. Depending on the size of the area, this could be a lot of work as rocks are heavy! Of course, the long-term success would be highly dependent on the ability to control the source of the seeds, which is the mother plant hiding within the hydrangea.

Garlic Mustard

While walking in my neighborhood, I spotted a single blooming garlic mustard reaching for the sun in front of a yew hedge. Knowing there can't be just one, upon further investigation, I found a larger patch growing the shade behind the yews. Garlic mustard is a weed that must be controlled now, not later. Garlic mustard is an invasive weed that wreaks havoc in our natural areas choking out native plants. The roots of this plant exude a chemical that inhibits the growth of plants around it. This plant can be found in full sun or full shade. Each plant is capable of producing thousands of seeds. Illinois Wildflowers says, "At the present time, Garlic Mustard is the worst herbaceous invader of deciduous woodlands in Illinois as it has the capacity to crowd out and destroy all of the native wildflowers that bloom during the spring."



Figure 1 Garlic Mustard Alliaria petiolata

Garlic Mustard is a biennial. During the first year of growth, the plant produces a rosette of heart-shaped leaves with coarse, round, irregular teeth on the margins. The following spring, the plants send up a 1-2-foot flowering stalk of small, four-petaled, white flower clusters. It smells intensely of garlic.



Patch of Garlic Mustard (Alliaria petiolate)

Seeds disperse when the seedpods burst at maturity in August. Seeds have a 20-month dormancy period and do not germinate until the second spring after ripening. Some plants produce as many as 8,000 seeds! Rhonda Feree, former Extension horticulture educator states, “The goal of any garlic mustard control program is to prevent seed production until the seed bank is exhausted, usually a two to five-year period. I cannot emphasize the importance of not letting this plant go to seed!”

For forest management, spring and fall burns or spot treatment of glyphosate are recommended by the Illinois Natural History survey. However, for a garden or landscape setting, hand pulling is the best method and can greatly reduce the population. It is important to scout the following years as you may already have a viable seed in the soil.

Kelly Estes states “cutting the stalk as close to the soil surface as possible as flowering begins may also be effective. Larger infestations may require chemical applications (glyphosate). Recommended treatments times are late fall or early spring as this is a nonselective herbicide and most other plants are dormant during this time frame.”

For more information, stop by the [Illinois CAPS blog](#) for all the latest news on invasive pests in Illinois.

[Kelly Allsup](#)



[Michelle Wiesbrook](#)

Updated Boxwood Blight Best Management Plan Available

By now, we should all be familiar with the various recommendations developed by public health experts to help prevent the spread of COVID-19, influenza, and other diseases. Social distancing, wearing face covers, frequently washing-hands, and regularly cleaning/sanitizing surfaces are practices intended to limit the spread of human pathogens. Experts within green industry compile similar sets of practices with the goal of preventing the introduction, establishment, and spread of plant diseases and other pests. The agreed-upon practices are often referred to as best management practices, or BMPs.

Several groups have developed best management practices to help limit the establishment and spread of Boxwood Blight, a devastating fungal disease to susceptible types of boxwood. Experts revise and update the BMPs as new research becomes available and as conditions change. The Horticultural Research Institute recently revised their BMPs for boxwood production and introduced a set of BMPs for landscape management professionals. Topics within the BMPs include employee training, steps to avoid introducing the disease to a landscape, actions to avoid spreading the disease after it has been confirmed in a landscape, as well as cultural and chemical control recommendations. You can download a PDF of the Boxwood Blight Best Management Practices Guidelines for Production and Landscape Management via the following link:

<https://www.hriresearch.org/sites/default/files/BoxwoodBlight/HRIBoxwoodHealthBMPs-V3-2020.pdf>



Severe defoliation of a boxwood plant infected with boxwood blight. Note that the defoliation is progressing from the bottom of the plant upwards

Virginia's Cooperative Extension published several BMPs, each with recommendations tailored for individual boxwood growing situations. Their current BMP catalog includes:

- Practices for Boxwood Blight for Virginia Landscapes, Public Grounds and Historic Gardens

- Practices for Boxwood Blight in the Virginia Home Landscape
- Practices for Boxwood Blight in Virginia Production Nurseries WITHOUT Boxwood Blight
- Practices for Boxwood Blight in Virginia Production Nurseries WITH Boxwood Blight
- Practices for Retail Nurseries WITHOUT Boxwood Blight
- Practices for Retail Nurseries WITH Boxwood Blight
- Practices for Boxwood Blight for Boxwood Greenery Producers

The BMPs and other useful boxwood blight information, including information on effective boxwood blight sanitizers, can be accessed via the Boxwood Blight Task Force website:

<https://ext.vt.edu/agriculture/commercial-horticulture/boxwood-blight.html>

The University of Illinois Plant Clinic produced a boxwood blight detection factsheet following the disease's first detection in Illinois. This factsheet contains information and pictures to help identifying possible boxwood blight infections as well as how to submit boxwood samples for testing.

Plant Clinic Fact Sheet: Boxwood Blight Detection: <https://uofi.box.com/v/boxwoodblight>

Boxwood blight is not considered to be established in Illinois. However, it remains a significant threat to Illinois landscapes. Take time to review the BMPs that fit your situation. Adjust your current practices where necessary to help avoid introducing and spreading boxwood blight.

[Travis Cleveland](#)

Protecting Pollinators When Using Pesticides

Spring is a time for pollinators like honeybees, native bees, hummingbirds, butterflies and moths to begin to visit our landscape flowers. At the same time, we also have nuisance pests emerging. In order to allow pollinators to continue to do their job and to control pests we should consider a few recommendations to help conserve the beneficials.

Choose the least toxic, less persistent pesticide whenever possible to minimize risk to pollinators. Choose pesticide products that have active ingredients that are the least harmful to bees. An active ingredient is the chemical in a pesticide that controls the target pest. It is common to find the same active ingredient under a variety of different trade names. More information about active ingredients can be found by talking with educators at your local Extension office, reading online Extension materials, like this one from Oregon State University that also has an accompanying app for you phone <https://catalog.extension.oregonstate.edu/pnw591> and visiting the National Pesticide Information Center website.

Always read the pesticide label carefully. Under the environmental hazards section of the label, note any bee hazard and other environmental warnings. Some products used by gardeners may not contain a bee hazard warning even if the product is highly toxic to bees, because the location for use listed on the label may not be attractive to bees. Ensure that the site and the type of plant that you intend to treat does appear on the pesticide label. For instance, do not use an insecticide labeled for houseplants on a cucumber plant in the garden.

Make targeted applications. Scout for pests regularly and selectively treat pest problems, avoiding blanket applications to the landscape. Take action while pest numbers are low and manageable in order to use the least amount of pesticide. Do not over apply the pesticide, since more is not necessarily better. Follow label directions and use only the amount indicated.

Consider the host plant. Does it attract bees or other pollinators? Some plants are extremely attractive to pollinators while in bloom, such as crabapple trees. Certain plants might not have flowers that are easily recognized or visible from the ground. For instance, black gum trees have flowers that are very attractive to bees, yet inconspicuous to us. While turfgrass is not attractive to bees, many flowering weeds found in lawns do attract bees, such as clover and dandelion. Mow the lawn to remove the flowers prior to treating a lawn with pesticides.

Avoid applying pesticides to plants during flowering. Do not apply insecticides that are highly toxic to bees to plants any time during flowering. The risk to pollinators is too great. If applying an insecticide is necessary, choose the least toxic product and plan to apply it well before or after the plants flower. Avoid applying systemic neonicotinoid insecticides to the soil around bee-attractive plants any time before bloom in the spring. Wait until the petals have dropped or use a bee-friendly product. Consider using an alternate control tactic such as removing pests manually, i.e., removing tents with tent caterpillars.

Consider the formulation. The formulation of a pesticide is the way that the active ingredient is packaged, such as a dry powder, liquid, granule, etc. Typically, dry granular formulations are the least hazardous to bees. Soil-applied granules or liquids are not a direct contact hazard, but some soil-applied insecticides are systemic and may persist at low concentrations in pollen and nectar when applied to blooming plants.

Foliar sprays provide risk from both direct contact and residues on the plant. Foliar insecticides include both short- or long-term residual materials, so contact injury may still be possible for days after treatment with the long-term residual materials.

The most hazardous formulations are dusts and microencapsulated formulations because their particles are small enough to stick to bee hairs in the same manner as pollen. Bees may pick up particles and carry them back to the hive, resulting in toxic effects on the colony. Insecticidal dusts applied to flowers can be very hazardous to bees for this reason.

Locate nearby beehives and maintain a buffer between any beehives and your treatment area. Visit beecheck.org to locate apiaries nearby.

Prevent drift. Do not spray on windy days in order to help prevent pesticide drift to non-target weeds, wildflowers, and other flowering plants. Bees inevitably travel to blooms of plants around home gardens, orchards, and fields, so they can easily be affected by pesticide residues and drift. Ensure that the pesticide does not drift to water sources, including puddles where pollinators may drink. Use a coarse spray with larger droplets and keep the nozzle as low to the ground as possible to prevent drift.

Apply pesticides at a time of day when bees are not active. If you choose a moderately toxic material with short-term residual activity, apply the product in the late evening when bees are not actively foraging. Honey bees forage during the day and will likely contact the pesticide if it is on the blossoms. Honey bees are generally inactive one hour after sunset until two hours before

sunrise. However, unusually warm weather encourages bees to forage both earlier and later in the day.

Consider bees when treating landscapes for nuisance insects like mosquitoes and ticks. Avoid harm to pollinators resulting from mosquito spraying or perimeter treatments for other nuisance insects by avoiding treating blooming plants. These kinds of applications may cover a large portion of the landscape. If an insecticide is necessary, use insecticides with a very short residual and/or low toxicity to bees when possible, and do not apply when bees are active during the day.

Do not apply pesticides before rain or if the forecast predicts heavy dew in order to help prevent contamination of water and soil. Consider nearby waterways such as streams, ditches, or ponds, and do not apply pesticides close to the water's edge.

Adapted and Permission to use- granted by author- Mary Ann Rose, director, Pesticide Safety Education Program <https://ohioline.osu.edu/factsheet/anr-68>

[Maria Turner](#)