

Number 4 - May 21, 2018

Modified Growing Degree Days (Base 50°F, March 1 through May 17)

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	319	307	391	471
St. Charles	332	295	399	473
DeKalb	295	339	374	461
Monmouth	404	387	488	576
Peoria	426	421	511	601
Champaign	460	424	550	648
Springfield	560	475	661	767
Perry	568	454	657	752
Brownstown	540	528	644	756
Belleville	573	555	681	796
Rend Lake	616	603	730	852
Carbondale	575	571	681	798
Dixon Springs	642	621	754	875

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)

Oystershell Scale

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 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. 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. When that is the case, 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.

There are two races of oystershell scales 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 race 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 race crawlers are present when 400 – 600 degree-days have accumulated (base 50) or when VanHoutte spirea has finished blooming. Many areas in Illinois are already moving into those degree-day ranges and are seeing spirea bloom so it is the perfect time to begin scouting for oystershell scale. 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.

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 and would prefer to control adults, oystershell scales can be mechanically removed from a plant. 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)

Praying Mantis Egg Cases

Many gardeners may have noticed these foamy hard cases stuck to their shrubs or ornamental grasses. These unusual masses, formally known as ootheca are praying mantis egg cases that will soon deliver hundreds of hungry immatures ready to devour all the bad bugs in the garden. It is startling to see one looking at you as you are working outside but they are a good sign of a healthy ecosystem. Praying Mantis get their name from a Greek word meaning “prophet,” “seer” or “diviner.” How they stand when they are in position to catch their prey underwrites their name. Two things contribute to high numbers of praying mantis. They are larger later in the season and therefore more noticeable by an unsuspecting passerby, and warm temperatures cause populations to grow faster.

Two of the most common species are Chinese mantis (*Tenodera aridifolia sinensis*) and the Carolina mantis (*Stagmomantis carolina*.) A Chinese mantis is normally tan to pale brown with some green or yellow striping, and it is larger than the Carolina mantis, growing up to 5 inches. A Carolina mantis comes in a variety of colors (green, gray and brown) and patterns; it grows up to 2 ½ inches. The ootheca case for a Chinese mantis is rounded, reminiscent of a sponge and the size of a large walnut compared to Carolina’s ootheca that is smaller, flatter and more elongated.

Alien in their façade, all mantises have a fierce pair of grasping legs allowing them to catch their prey, long legs that allow them to lunge and a triangular head that twists 180 degrees around so that they may see all around them. They wait mo-

tionless and use camouflage accompanied with a body designed to catch, making them formidable against unsuspecting insects. Some tropical species can mimic a beautiful orchid flower, leaves or twigs. They can change their color to match their surroundings in a period of days.

The most common prey are bees, wasps, flies, scale, mosquitoes, aphids, leafhoppers, grasshoppers, sometimes frogs and an occasional hummingbird. Considering they are nondiscriminatory eaters, they eat bad bugs and good bugs. I have personally seen them eat bees and butterflies. If you spy a preying mantis on your hummingbird feeder, relocate him carefully as he or she may attack your precious hummingbird.

Males tend to be smaller than females. They tend to fly more than their female counterparts, particularly when the females are swelling with eggs. When a female is ready to mate, she emits a hormone. The male cautiously approaches because she may confuse him as prey if she is hungry. Rarely, she will eat his head for nutrition, but copulation persists, transferring his spermatophore. The male is usually allowed the chance to mate again.

After mating, a mass of eggs may be laid on branches or ornamental grasses and quickly hardens for winter slumber. Nymphs will emerge the following spring like an eruption from a foam appendage. They then start their journey to find insects, which may include their brothers and sisters and may be spread by the wind. Most of the mantises that hatch from an egg case will die from starvation or cannibalism; they are territorial and by the end of the summer usually only one adult is left.

Most people are happy to see these ruthless garden warriors and hold off to cut back perennials and grasses until spring when the new crop has hatched. (*Kelly Allsup*)

Speedwells

These little plants have really escaped my attention over the years. Because they are low growing and their populations seem to be less abundant than their better-known counterparts of henbit and chickweed, they are often overlooked. For some reason, the populations are very high this spring. Perhaps the growing conditions have been perfect for it with the cool temperatures we had for so long. Several types of speedwell also prefer shady conditions.

To add to the lack of familiarity surrounding these weeds, there are actually several species of speedwells (*Veronica*), which can create some confusion. Many are very similar in appearance with slight differences in leaf arrangement and leaf margin. The book, *Weeds of the Northeast* features a table that compares nine species, many of which can be found growing in Illinois.

Many speedwells are attractive with their low growing, compact growth, dark foliage, and small flowers. They have close relatives that are ornamental types available in nurseries. It can be tempting to leave these weedy types untouched in the landscape. Many of these are winter annuals that are short lived with the impending heat of the summer. Bear in mind that seed will be left behind to ensure a more abundant population and resulting greater presence the following year. Some of the more com-

mon species in Illinois (corn speedwell, Persian speedwell, and purslane speedwell) are winter annuals, but some types are perennial.

The flowers are 4-petaled, small and white, blue, purple, or pink, with certain types having dark colored stripes. Flowers are found in the spring. The seed capsule is generally heart-shaped but can be four-lobed on certain types.

Speedwells are found typically in lawns, gardens, roadsides, and fields and can be a particular problem in spring turfgrass seedings. Fortunately, they are shallow rooted and can be easily hand pulled or removed with a hoe. For turfgrass situations, mowing higher will help to shade out this weed. Postemergent herbicide options that have resulted in good control include: triclopyr, fluroxypyr, sulfentrazone, mesotrione, and carfentrazone. Various 3- and 4-way products are available that are combinations of these active ingredients. Preemergent herbicides could also be used in the fall or early spring to prevent seed germination. Read and follow all herbicide labels carefully. (*Michelle Wiesbrook*)

Rhizosphaera – What It Is, and What It Is Not

Observations of Rhizosphaera needle cast (Rhizosphaera) have been widespread throughout the state for the past several years. As a result, I've been seeing a lot of pictures/videos/articles showing home growers what to look for (and recommending treatment). The issue is, some of those pictures/videos/articles are not actually pictures of Rhizosphaera. They are pictures of a spruce with brown needles, or

a video of a spruce with discolored needles, but not likely due to a Rhizosphaera infection. Therefore, I decided to write this article about what Rhizosphaera is, but more importantly, what it is not.

What IS Rhizosphaera Needle Cast

Rhizosphaera is a fungal needle cast, common on blue Colorado spruce in Illinois. Most infections occur during a roughly 2-month period following bud-break. Symptoms, however, do not appear until fall, and are most evident the following spring. Diseased needles develop a characteristic purple or brown color before dropping from the tree. Premature defoliation results in thin, bare branches with only tufts of new needles on the branch ends. Healthy trees have branches with needles that remain attached for several years. Rhizosphaera will generally start low in the tree and advance upward through the canopy over many years. Scout for Rhizosphaera with the aid of a hand lens or microscope. Look for fungal fruiting bodies protruding from the needles' pores. Fruiting bodies have smooth edges and develop in perfectly aligned rows on the needles. Be aware, the disease symptoms and fruiting bodies can easily be confused with Stigminia needle blight.

Rhizosphaera IS:

- Affected needles become dark brown or purple
- Older growth needles are affected
- Affected needles will eventually fall from the branch
- Affected trees will have bare branches with little tufts of new growth at the tips

- The disease usually starts at the bottom of the tree and works its way up
- Mostly found on blue Colorado spruce or other spruce under stress

What IS NOT Rhizosphaera Needle Cast

There are many other issues that can cause discoloration of spruce needles, including spider mite feeding, cankers, chemical exposure, and abiotic injury such as winter burn or desiccation. Incorrectly diagnosing these symptoms, and subsequently applying a fungicide to treat for *Rhizosphaera* will do nothing if the damage is actually due to any of the above. So, take a moment to double-check that the tree is truly infected with *Rhizosphaera*. The extra effort will help you provide better controls as well as save you money and time.

Rhizosphaera IS NOT:

- Light brown, straw-colored, or yellowing needles
- New growth showing symptoms
- Banding or spotting or stippling of needles
- Exudate or cankers on branches or trunk
- Branches bare to the tips
- Severe defoliation on a white spruce or Norway spruce (*Rhizosphaera* needle cast does not affect these species, unless the trees are under high stress)

Rhizosphaera Needle Cast Management

Management for *Rhizosphaera* consists of fungicide applications twice a year in spring, usually for multiple years. Fungicides with the following active ingredients are labeled for use against *Rhizosphaera*: chlorothalonil, chlorothalonil +

thiophanate-methyl, copper, and copper hydroxide. Keep in mind that infected and fallen needles will not regrow, so recovery can take many years if the infection is severe. In those cases, removal and replanting with a less susceptible host may be a better option. Trees under stress are more likely to become infected, to reduce stress on spruce by lightly mulching the base of the tree, watering during periods of dryness during the growing season and going in to winter, pruning out dead wood during dry weather, and fertilizing in spring right before new growth expands.

If you're having spruce issues and aren't sure what the cause is, consider sending a sample to the University of Illinois Plant Clinic for pathogen and pest identification. For more information about submitting a sample, please see our website:

<http://web.extension.illinois.edu/plantclinic/> (*Diane Plewa*)

Black Knot

Black knot is a common fungal disease that affects at least 25 *Prunus* species, both edible and ornamental. The disease is caused by the fungus *Apiosporina morbosa* (also known as *Dibotryon morbosum*), which infects the new twigs, branches, and fruit spurs during the spring. Trunks also can become diseased. Most infections occur between bud break and 2 weeks after bloom when wet conditions are accompanied by temperatures of 55° to 77°F.

Early symptoms of the disease are easily overlooked and appear in the autumn as swellings of the current year's growth. Swelling of infected branches is arrested

during winter dormancy, and resume the following spring. The bark on swelling branch eventually ruptures revealing corky, olive-green fungal tissue. By the fall, affected tissues are hard, brittle, rough, and darken to a characteristic coal black color. Affected branches often fail to leaf out the following spring or wilt and die by early summer. The infected branches that remain living have black knots that elongate on a perennial basis. Some knots can develop to be one foot or longer. The disease becomes more severe with each growing season. Black knot does not typically kill a tree but causes deformed growth if left unchecked.

Disease Management Options

- Purchase disease free plants. Carefully inspect the plants prior to purchase. Avoid plants with visible knots or abnormal swelling on branches and twigs.
- During the dormant season (late winter or early spring), prune out infected branches. Make cuts 4 to 8 inches below any obvious infected tissue. Destroy (burn) or bury affected branches
- Remove and destroy any unwanted *Prunus* species that may be harboring the pathogen. Wild plums and cherries are more susceptible to black knot than cultivated varieties. If your landscaped area is near a wooded site, look for galls on the wild *Prunus* species. Infected wild trees should be removed.
- Fungicide sprays should be applied as soon as buds open and must be continued every 2 weeks until about 3 weeks after petals fall. Many copper fungicides are registered for use against black knot. Carefully read the product label to ensure that it has been approved for the host and disease. (*Travis Cleveland*)

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