COOPERATIVE EXTENSION SERVICE
HOME, YARD & GARDEN PEST NEWSLETTER
College of Agricultural, Consumer and Environmental Sciences, University of Illinois at Urbana - Champaign
Illinois Natural History Survey, Champaign

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Modified Growing Degree Days (Base 50°F, March 1 through May 14)

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	331	277	402	478
St. Charles	325	267	391	461
DeKalb	328	307	405	488
Monmouth	437	351	521	606
Peoria	457	384	543	629
Champaign	481	386	571	664
Springfield	565	433	665	767
Brownstown	530	485	632	739
Belleville	604	510	710	821
Rend Lake	662	556	773	891
Carbondale	618	528	722	833
Dixon Springs	641	575	751	867

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*)

Diplodia Tip Blight on Pine

The Plant Clinic has received a number of pine samples with various ailments this spring. Diplodia (also known as Sphaeropsis) Tip Blight has continued to be a common diagnosis on Austrian, Scots, and other pines. It can also affect spruce, fir, Douglas fir, cedar, arborvitae, and juniper plants, though the disease is much less common on these hosts. Diplodia Tip Bight is considered a stress disease because it is much more common on plants under stress. The pathogen is a fungus which causes both a needle blight and cankering of the branches leading to very ugly trees which, if the disease is allowed to continue for several years, may succumb.

Diplodia can be a bit tricky to diagnose in the field as there are a number of needle blights in Illinois and microscopic observation of spores is needed for a definite confirmation of the pathogen. However, there are some characteristic symptoms that are associated with the disease.

Tip Blight: As the name of the disease implies, Diplodia causes a blighting, or browning of new needles. In most situations, the fungus only affects current-season needles, shoots (candles), and cones. On trees with new infections, this results in branches with green, living older needles and brown, dead new growth. Trees that have been infected for multiple seasons will lose the green needles over time and eventually, all the needles remaining on the branch will be brown.

Fruiting Structures: This disease is caused by a fungal pathogen. While the spores are microscopic, the fruiting structures can be seen with the naked

eye or a magnifying glass. Fruiting structures are often found on mature pinecones. These structures are easy to spot on the scales of the pinecones.

Fruiting structures may also appear on dying needles. However, I see the structures much more commonly on the pinecones than on the needles. I suspect that environmental conditions and the longevity of the infection on the host may play a part in determining if the fruiting structures form on the needles.

Cankers: If the infection continues for several years without being managed, cankers may form on affected branches. These cankers can be difficult to see. They appear as distorted wood and they may produce a white, sticky exudate. As with any canker, it disrupts the flow of water and nutrients within the plant and, if it fully girdles the branch, can lead to the death of all tissue beyond the canker.

Management for Diplodia Tip Blight relies on sanitation and fungicide sprays. Pinecones should be collected and removed as they fall. Infected branches with cankers should be pruned out of the tree in dry weather. Fungicides containing the active ingredients propiconazole, thiophanate-methyl, copper, mancozeb, or myclobutanil are labeled for use to manage Diplodia Tip Blight. The sprays must be applied three times in a season to achieve good control: when buds begin to swell and elongate, just before the new needles emerge from the sheath, and 10 to 14 days later. Affected trees should also be mulched lightly and watered during periods of dryness to reduce stress on the tree. If caught early, this disease can be managed. However, as the disease progresses, it further weakens the tree and damages its aesthetic value. (*Diane Plewa*)

Bronze Birch Borer

Bronze birch borer is a native species in the same genus as emerald ash borer and attacks the tree in a similar manner, except that it attacks birches instead of ash. Bronze birch borer attacks mostly nonnative, white-barked birches as their growth starts to slow down, typically when the trees reach 10 or more years old. It attacks younger trees that are mechanically damaged or planted in poor sites. Native white-barked birches are attacked much later in life, as they decline into old age. Whitespire, a variety of an Asian species, is resistant to the borer, but many other Asian and European varieties and species are very susceptible to attack. The North American native river birches are also resistant to attack, and Heritage is a variety of river birch commonly planted because of its light-colored bark.

Adult bronze birch borer beetles lay eggs under loose bark and in bark cracks near the top of the tree. The hatching larvae tunnel through the cambium. If the tunneling circles the stem, this girdling kills the stem beyond that point. Leaves turn brown and fall off. Early attack is recognizable as dead, leafless branches at the top of the tree. In subsequent years, the beetles attack lower and lower on the tree until the entire tree dies.

Bronze birch borer larvae are elongate, white, and flattened, with obvious beadlike segments. Fully grown larvae are about 1 inch long. The larvae feed through the summer, overwinter as larvae, and pupate in the cambium area in spring. Although the life cycle can be completed in 1 year, a 2-year life cycle is more common.

Adult beetles emerge through D-shaped holes during vanhoutte spirea bloom in

mid spring. Cross-sections of adult beetles are flattened dorsallly and rounded ventrally, that is, D-shaped. They are about 1/2 inch long and appear bullet-shaped from above, being quadrate in front and tapered posteriorly. As the name indicates, they are bronze in direct sunlight but appear blackish in indirect light. The adult beetles feed on the leaves of alder, poplar, and birch, but this feeding is not severe.

It is now time to treat for bronze birch borer throughout the state. The ideal application time for systemic insecticide application is 30 days before beetle emergence, but acceptable control should still be possible even in southern Illinois where the beetles will have already emerged. Effective control includes emamectin benzoate (Tree-age) as a trunk injection, imidacloprid (Merit, IMA-jet, Imicide, Xytect) as a trunk injection, soil injection, or soil drench, and dinotefuran (Safari) as a trunk spray, soil injection, or soil drench. (*Phil Nixon*)

Pine Needle Scale

Pine needle scale is a serious pest of pines throughout the state, killing branches and entire trees. It is most prevalent on Scots and mugo pine but is common on many other pine species. It also is found on spruce and hemlock and is likely to cause dieback on spruce. It is probably most serious to Christmas tree growers but commonly kills landscape plants as well.

Pine needle scale appears as elongate, white insects about 1/8 inch long on pine needles. There is a small, tan area at one end. Numbers commonly build up until the foliage appears whitish from a distance. In these high populations, branches and even entire trees can be killed. Pine needle scale overwinters as eggs. Eggs hatch into brick red crawlers as vanhoutte spirea is in full bloom. The crawlers, first-stage nymphs, roam on the foliage before settling down to feed and are susceptible to insecticide applications. They secrete a white, waxy substance that covers and protects the scale from desiccation, natural enemies, and insecticides. Over several molts under the waxy covering, the scale lose their legs, eyes, and antennae, becoming a protected sucking blob.

Adult legless females remain under their waxy coverings, but adult males emerge as tiny, two-winged insects. These exist only to fertilize the females, having no mouthparts, so they die after only a few days. Mated females fill the area under the waxy covering with eggs and die. These eggs hatch into a second generation of crawlers susceptible to insecticide application when hills of snow hydrangea, *Hydrangea arborescens* "Grandiflora", blossoms turn from white to green. Also, Queen Anne's lace or wild carrot, *Daucus carota*, is in bloom at this time. These scale grow throughout the rest of the summer, molting into adults and producing eggs that overwinter.

Being an armored scale, these insects suck out the contents of individual cells and do not produce honeydew. Severely attacked foliage turns yellowish, eventually dies, and turns brown. It is common for this scale to be numerous on only one branch or one side of the tree. In landscapes, it tends to appear first on the side of the tree next to a building. On Christmas tree farms, only occasional trees may be infested or uninfested, depending on the severity of the infestation. When scouting, be sure to check all sides of a landscape tree, and be sure to

check the entire field in a nursery or Christmas tree farm.

Application of acephate (Orthene), bifenthrin (Onyx, Talstar), cyfluthrin (Tempo), insecticidal soap, or summer oil should be effective if applied when the crawlers are active. One application is typically sufficient at this time of year. If insecticidal soap or summer spray oil is used, apply a second spray 7 to 10 days after the first spray due to their short residual effects. The second generation of crawlers emerges over a longer period, so any insecticide application should be repeated after 7 to 10 days. Realize that summer spray oil removes the blue bloom from Colorado blue spruce, resulting in a green spruce.

Dead scale do not fall off of the needles. The easiest way to determine control is to look for scale on the current year's growth once the needles have matured. This is most effective as an end-of-season evaluation. You can also determine control with a hand lens or microscope. Using a needle, you can easily flip off the waxy covering to reveal the scale insect below it. Brown, shriveled scale are dead; plump, smooth scale are alive. Realize that a number of scale must be checked because dead scale from previous years will still be present. (*Phil Nixon*)

Elm Leaf Beetle

Elm leaf beetle larvae are present in southern and central Illinois. This pest is less common in northern Illinois but larvae should be present by the end of the month. These larvae can be serious leaf skeletonizers of elm and zelkova. In general, European elms are attacked heaviest including Siberian (*Ulmus pumila*), English (*U. procera*), and "urban" (*U. pumila X U. hollandica X U. carpinifolia*) elms. Chinese elm (*U. parvifolia*) is usually only lightly damaged, with American elm (*U. americana*) feeding damage intermediate between Chinese and European species.

Young larvae are gray to black and window feed by eating the leaf's lower surface and interior, leaving the upper surface intact. Although this window feeding is initially clear to whitish, the exposed cells die and turn brown. Heavily attacked trees are covered with brown leaves. Mature larvae are about 1/4 inch long. They are yellow with a black lateral stripe on each side. Large larvae skeletonize the leaves. Fully grown larvae form bright yellow pupae in bark crevices and at the base of the tree.

Adult beetles are about 1/4 inch long. They are yellow with black lines down the middle of the back and along each side. They eat roundish holes in the leaves; heavy infestations defoliate trees through skeletonizing the leaves. Adults lay ¼ inch long oblong masses of yellow eggs on the leaf undersides. There are two to three generations per year, with three generations in southern Illinois. Adults overwinter under loose bark. Overwintered adults have a dull appearance as the bright yellow of the newly emerged adult turns an olive green over the winter.

Insecticidal soap can be used to control young larvae, but is not as effective against older larvae. Acephate (Orthene), carbaryl, (Sevin), imidacloprid (Merit), lambda-cyhalothrin (Scimitar, Demand), and spinosad (Conserve) are effective as sprays against all larval stages and adults. Imidacloprid is also effective as a soil drench or injection. (*Phil Nixon*)