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

Number 3 - May 14, 2018

Modified Growing Degree Days (Base 50°F, March 1 through May 13)

Station Location	Actual Total	Historical Average (11 year)	One-Week Projection	Two-Week Projection
Freeport	252	267	323	398
St. Charles	267	258	333	402
DeKalb	233	296	310	391
Monmouth	322	339	407	491
Peoria	343	372	430	515
Champaign	371	373	461	552
Springfield	461	419	561	662
Perry	471	402	562	652
Brownstown	443	470	545	651
Belleville	476	495	582	692
Rend Lake	506	540	617	733
Carbondale	475	513	578	688
Dixon Springs	537	559	647	762

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*)

Emerald Ash Borer Adults Emergence

Emerald ash borer activity should be under way in the southern part of the state and we expect activity to begin in central Illinois soon. Adult emergence generally begins with the accumulation of 450-500 degree-days.

Emerald Ash Borer		Base =50F	Biofix= March 1
Accumulated Degree-Days	**Generation**	**Stage**	**General Activity**
450-500	1	Adult Emergence	Foliage Feeding
1000	1	Peak Activity	Mating Egg-laying on bark surface, cracks, & crevices

Table 1. Degree-days and corresponding emerald ash borer activity.

Station Location	Actual Total	One- Week Projection	Two-Week Projection
Freeport	252	323	398
St. Charles	267	333	402
DeKalb	233	310	391
Monmouth	322	407	491
Peoria	343	430	515
Champaign	371	461	552
Springfield	461	561	662
Perry	471	562	652
Brownstown	443	545	651
Belleville	476	582	692
Rend Lake	506	617	733
Carbondale	475	578	688
Dixon Springs	537	647	762

Table 2. Degree-days and projected degree-day accumulations for the emerald ash borer.

Retired, University of Illinois Extension Entomologist shared this information on the importance of emerald ash borer adult emergence and their management at this time last year:

Now is the time to apply systemic insecticides to control this pest if emerald ash borer has been found within 15 miles. The systemic insecticides azadirachtin (Azatin), dinotefuran (Safari), emamectin

benzoate (Tree-Age), and imidacloprid (Merit), provide excellent control of emerald ash borer by killing adults feeding on ash leaves. This is probably the major method of control with the exception of emamectin benzoate which has been shown to also be very effective in killing larvae within the tree.

Many female beetles rely on leaf-feeding after emergence to mature their ovaries prior to egg production. It is likely that male beetles benefit by leaf-feeding as well. Although emerald ash borer beetles can fly one-half-mile or more, it appears that they do not fly as far if suitable hosts are close at hand. Long-distance flights apparently are most common when an area's trees are heavily infested.

Heavily damaged, untreated trees are likely to produce large numbers of beetles that are likely to fly to nearby healthy, treated trees. However, because heavily damaged trees typically have few leaves, those flying to treated trees are likely to feed on the treated trees' leaves and be killed before laying eggs. This is borne out by many instances of healthy, treated trees surviving while nearby untreated trees die.

Pollinating insects generally do not visit wind-pollinated trees such as ash. The pollen of wind-pollinated plants typically does not contain the high protein content found in pollen of insect-pollinated plants. However, ash produces large quantities of pollen when local higher quality sources such as dandelion and other spring flowers might not be present. When this occurs, up to 30% of the pollen collected by honey bees during this time has been found to be ash. Because systemic insecticides are likely to enter pollen, we recommend treating after ash leaflets have expanded to at least three-quarters of full size. By that time, ash have completed pollination, greatly reducing the potential of harm to honey bees and other pollinators. Three-quarter leaflet expansion has occurred in southern and central Illinois.

Also important to note – while EAB is deregulated in the state, we are still interested in where this insect is being found. Sixty-four counties have been confirmed positive for emerald ash borer in Illinois. We encourage the reporting of EAB in counties where it is not known to occur. This can be done by contacting your local Extension office or the Illinois Department of Agriculture. (*Kelly Estes*)

Reports of May Beetle Activity

I've received several reports of the presence of May beetles in several areas of the state. Phil Nixon offered a refresher on these insects in a Home, Yard, and Garden article last May. (*Kelly Estes*)

Broadleaf Seedlings Recently Seen in Central Illinois

Weeds can be challenging to identify. Tiny seedlings can be even trickier. Often times, letting your mystery seedlings grow a little so that all the parts are easier to see and handle can greatly help your identification efforts. Of course, waiting until your weeds are *too* tall can result in weeds that are more difficult to control. Therefore, timely identification is essential.

The following are 10 seedlings that have been prevalent the past few weeks. Of

course, the southern part of the state likely saw these already. If that's the case for you, simply view this as a refresher if you will. For you Northerners, these weeds will be popping up soon if they have not already. I trust they are there already with the warmer days we've had.

Prostrate knotweed *(Polygonum aviculare)* – is a flat growing summer annual that germinates early in the spring. Cotyledons are narrow and grass-like. Plants form a tough, wiry mat. True leaves are rounded and a bluish green. At the base of the leaf, the stems are surrounded by a papery sheath (ocrea). The flowers are small and inconspicuous. This weed is a common lawn species and can invade landscape plantings from lawns. It is often found on compacted soils and paths.

Speedwells *(Veronica* spp.*)* – are low-growing and freely branched. Many types exist. Some of the more common species in Illinois (corn speedwell and purslane speedwell) are winter annuals, but some types are perennial. Flowers occur in the spring; they are small and white, blue, purple, or pink. The seed capsule is generally heart-shaped but can be four-lobed on certain types. Leaf margin and arrangement vary according to type. Speedwells are common in lawns, gardens, roadsides, and fields and can be a particular problem in spring seedings. Shade and moisture are favored by several types.

Yellow woodsorrel *(Oxalis stricta)* – is a low, dense, perennial weed that can stand about 12 to 18 inches tall. Spread is primarily by seeds but can also be by rhizomes. The stems are weak, branched at the base, and hairy. The leaves have long petioles and are divided into three heart shaped leaflets. The flowers have five yellow petals. The seed pods are five ridged, pointed, and about 1 inch long.

Dandelion *(Taraxacum officinale)* – is a perennial weed that reproduces mainly by seeds but also by broken taproot segments. The leaves are borne in a rosette around the stem and are simple, 3 to 10 inches long, and deeply lobed (teeth point toward the leaf base). Seedlings can easily be confused with similar growing rosette forming species such as shepherd's-purse. Leaves, flower stalks, and taproot exude a milky juice when cut. The flower heads are 1 to 2 inches wide and bright yellow.

Broadleaf plantain *(Plantago major)* – is a rosette forming cool-season perennial that reproduces by seed. The leaves are dark green, broad-oval, with prominent parallel veins. The flowers are small; borne in dense clusters at the upper ends of 8 to 20 inch tall leafless flowering stalks that appear like fingers or rat-tails.

Violets *(Viola* spp.*)* – are a low growing cool-season annual or perennial spreading by seed and creeping rhizomes. The leaves are kidney-shaped to broadly oval with heart-shaped bases; 2-4 in. wide, often cupped, with margins that are toothed. The flowers appear early in spring and are pansy-like, white to blue to purple, and sometimes yellow. Violets prefer moist, shady, fertile sites.

White clover *(Trifolium repens)* – is a cool-season perennial spreading primarily by seeds but also by creeping stolons that can root at the nodes and form patches. The leaves are comprised of 3 unstalked oval leaflets on one long petiole; leaflets are dark green, often with faint, white, crescent-shaped markings.

Flower heads are ballshaped, white to pink, up to 1¼ inches across.

Henbit *(Lamium amplexicaule)* – is a winter annual weed that appears in late fall and very early in the spring. The leaves are opposite, with rounded teeth to deeply lobed on the upper leaves, and only the lower leaves have petioles. The stems are square, green to purple, erect but branching at the base. Pinkish-to-purple flowers are borne in the axils of the upper leaves. It is found in gardens, lawns, and cultivated fields.

Ground Ivy (Creeping Charlie) *(Glechoma hederaceae)* – is a perennial member of the mint family that reproduces by seeds and root pieces. It may form patches as it creeps on square stems that can grow up to 2-1/2 feet long, sometimes rooting at the nodes. Occasionally, the stems grow in an ascending fashion. Leaves of ground ivy are opposite, round to kidney-shaped, and 1/2 to 1-1/2 inches in diameter. They may be smooth or hairy, medium to dark green, and have long petioles and a rounded, toothed margin. They produce a minty odor when crushed. The flowers are small, lavender to blue-purple, funnel-shaped, and clustered in leaf axils. Ground ivy flowers occur from April to June. This weed normally occurs in shaded sites with poorly drained, fertile soils. It can spread into sunny areas.

Common chickweed *(Stellaria media)* – is a winter annual with a shallow, fibrous root system. It grows 4 to 12 inches tall. The leaves are light green, opposite, and often teardrop shaped. The flowers are small and white and have five deeply notched petals. It is common in lawns, gardens, and landscape plantings.

For assistance in identifying weeds, please consult with your local University of Illinois Extension office. You may also submit plant samples to our Plant Clinic located in Urbana. Please see http://web.extension.illinois.edu/plantclinic/ for more information. (*Michelle Wiesbrook*)

Dothistroma Needle Blight of Pines

We usually see a large number of pine, spruce and other conifer samples at the Plant Clinic in spring. This year we've already diagnosed a few samples of Austrian pine with Dothistroma needle blight. This is a fairly common fungal needle blight pathogen affecting Austrian, ponderosa, Mugo, red, and Scots pine. We usually see a handful of samples every year with this disease. Diplodia tip blight is more common, while Lophodermium needle cast is less frequently seen at the Plant Clinic.

Dothistroma causes banding and dieback of affected needles. The very new growth at the tip of the branch often stays green for several months. Infection typically occurs from May through October, with symptoms developing in autumn and early winter. Symptoms are often not noticed until spring. Small, water-soaked or chlorotic spots develop on older needles, which become yellow to tan, then brown to reddish brown as the season progresses. Often, the spots will expand into bands and girdle the needle, killing the tip end which turns brown while the base remains green.

Eventually the entire needle will die, leaving dead, brown needles attached to the branch for a season or two before the needles drop. Greatest needle loss is usually seen in spring and summer. In-

fection usually begins at the base of the tree and progresses upwards.

Fruiting structures develop on affected needle in spring, and occasionally in autumn. Small, black structures will erupt through the epidermis of the needle. These fruiting structures are seen in affected areas of the needles and do not develop on healthy tissue.

This disease is frequently mistaken for Diplodia tip blight and Lophodermium need cast. Diplodia affects new growth leaving branches with brown needles at the tips. Lophoderium can be more difficult to distinguish, but the fruiting structures of Lophodermium resemble a football with a slit down the center, or a pair of lips.

Management for Dothistroma needle blight consists of sanitation and fungicide applications. Fallen needles should be removed from around the tree, and dead branches should be pruned out during dry weather. Copper, copper hydroxide, copper + mancozeb, or copper sulfate sprays can be used but must be applied just before buds begin to elongate or swell to protect the previous year's growth. During wet years, additional applications may be necessary for good protection. Because different active ingredients and different applications times are recommended for control of Dothistroma, Lophodermium, and Diplodia, accurate diagnosis of the specific fungal pathogen is necessary for good control of these diseases. (*Diane Plewa*)

Gymnosporangium Rusts on Eastern Red Cedar

Gymnosporangium rusts have been active in many parts of the state for a few weeks. This past weekend, I observed several eastern red cedar trees in the Chicagoland area loaded with sporulating rust galls. This stage of the disease causes minimal damage to the evergreen host. However, the spores produced on these galls will infect nearby apples, crabapple, and hawthorns where injury is much more noticeable. Three Gymnosporangium rusts commonly affect trees in Illinois landscapes: Cedar-apple rust, Cedar-hawthorn rust, and Cedar-quince rust. As their name suggests, these pathogens require two hosts to complete their life cycles. A portion of each disease's life cycle occurs on Juniper (*Juniperus* spp.) hosts, while the remainder occurs on one of several deciduous host within the Rosacea family. These rust pathogens overwinter Eastern red cedar and other *Juniperus spp*. as hard and pitted galls or spindle shaped swellings on young branches. Galls are light brown to reddish or chocolate brown and range from 1/8 inch to 2 inches in diameter. Galls formed on evergreen hosts are not usually damaging, but serve as an important stage in each pathogen's life cycle. Over the past few weeks, telial sporehorns have emerged from overwintering galls. The sporehorns have a distinct, orange, gelatinous appearance. Sporehorns swell when moisture is present, then discharge spores as the dry. Discharged spores can be carried several miles by wind, but mostly infect susceptible trees within several hundred feet. Sporehorns exhaust all their spores approximately 30 days after apples and crabapples have bloomed.

Apples, crabapples, hawthorns and quince are some of the more commonly affected deciduous species. They are also the hosts we are most concerned about

when apply controls. Infections to deciduous hosts occur the spring as beginning as apples and crabapples are in their pink-bud to early bloom stage. This timeframe coincides with the development of sporehorns on *Juniperus* spp. Cedar-apple rust and Cedar-hawthorn rust causes mostly aesthetic injury in the form of pale yellow to orange leaf spots often with a reddish border. Severe infection may result moderate defoliation, especially during dry summers. Cedar-quince rust can be quite damaging to hawthorn, causing deformed swellings, galls, infected fruit, and stem tip dieback.

The most common control strategies for Gymnosporangium rusts in the landscape focus on protecting the deciduous hosts. These recommendations start with utilizing resistant or immune species and varieties. Though not always practical or feasible, infections to broad-leaved host can be reduced by removing unwanted host trees within a ½ mile radius. Overwintering galls can also be hand-picked or pruned from small junipers during the fall and winter months. Fungicide sprays are effective at protecting susceptible trees from infection, but are rarely utilized on Juniper hosts. Fungicides are applied to deciduous hosts beginning at the pink-bud stage, with re-applications at labeled intervals until 1-2 weeks after petal fall. It is too late to begin protective spray for this year's foliage. However, you can make note of susceptible trees, and treat those at the appropriate time next spring. Fungicide options are listed in the Commercial Landscape & Turfgrass Pest Management Handbook and the Pest Management for the Home Landscape.

The Report on Plant Disease (RPD): Rust Diseases of Apples, was updated December 2015 and can be viewed via the following link:

http://extension.cropsciences.illinois.edu/fruitveg/pdfs/802-Rust_Diseases-2015.pdf (*Travis Cleveland*)

Keeping It Clean

Tool sanitation isn't something we typically think about, but as we go from yard to yard with our equipment, we can pick up some unwanted guests. These guests can be as simple as weed seeds, insects, or as complex as fungal diseases. Pruning tools can carry or harbor plant diseases like fire blight, Dutch elm disease, and boxwood blight. Since we don't want to spread these diseases, a cleaning routine needs to be a priority. There are many *household disinfectants* readily available for tool sanitation. These products have been proven effective on indoor pathogens in the home, but not necessarily with plant pathogens. Household disinfectants include products such as Lysol. Most can be purchased cheaply and safely used on pruning tools. They also tend to be less corrosive than other cleaners that we will discuss. However, limited research has been done with these types of products, so use them with caution since you might not be getting everything clean. *Chlorine bleach* is inexpensive, effective, and even found in convenient handy wipes. Much like household disinfectants, bleach has its disadvantages and advantages for use. Bleach is an oxidizing agent meaning that it is very corrosive. Repeated use on pruning tools will cause pitting. These pits will be great places for pathogens to reside and may leave the blades weaker. Bleach has harmful fumes and can cause asthma

flare-ups and aggravate other lung conditions. One of the more notable drawbacks to using bleach is that it can ruin clothing.

Alcohol (ethanol or isopropyl) can be used as a wipe to sanitize your tools. This product is nice in that you do not need to soak or mix a solution in order to use. It does not have to be wiped away or rinsed and it is effective immediately. The concentration of alcohol should be 70-100% to use as a disinfectant. Alcohol is very flammable so do take caution if using near a heat source. They are available in a variety of stores for a variety of prices.

Steam or Dry heat method means heating your tools to 180-200 F for 30 minutes under a cover to maintain the temperature. This will kill off any bacteria, fungi, insect, nematode or weed seeds. However, this method may not be practical or easy to do without the proper equipment.

There are many types of *commercial disinfectants* used in the horticulture industry. There are *quaternary ammonium compounds*, commonly called "quats" or "q-salts", used to control fungal, bacterial, and viral plant pathogens. Products include Green-Shield® and Kleen-Grow™. There are also hydrogen dioxides, which are labeled as a disinfectant for use on greenhouse surfaces, equipment, tools, and for use on plants. Products include ZeroTol® 2.0 and terracleran®. Follow the label for directions of use. Most do require that you rinse tools to prevent corrosion of metal.

Before disinfecting, all tools or equipment need to be free of dirt and debris. This allows the disinfectant to reach the cutting surface and any crevices. Whichever solution or product you choose to use, make sure that the container has a large opening for the tools you want to dip inside or have rags available to be able to wipe excess cleaner from the tools.

Now that you are armed with a variety of choices for cleaning your gardening tools, choose a disinfectant that will be effective, affordable and safe to handle. Be sure to clean dirt and debris from the tools prior to disinfecting. Clean your tools in between plants, and if a plant is diseased, it is also best to disinfect in-between pruning cuts. It is a good practice to have multiple pruners for homes or landscapes so that you can rotate through your tools and reduce the risk of corrosion or contamination. Having good sanitation practices will allow for health plants wherever you work. (*Maria Turner*)

http://gardeningsolutions.ifas.ufl.edu/care/tools-and-equipment/disinfecting-tools.html
https://extension.psu.edu/disinfecting-tools-equipment-pots-flats-and-benches