

Number 3 - May 15, 2017

**Modified Growing Degree Days (Base 50°F, March 1 through May 11)**

Station Location	Actual Total	Historical Average (11 year)	One- Week Projection	Two-Week Projection
Freeport	244	247	314	387
St. Charles	248	239	313	381
DeKalb	251	275	326	405
Monmouth	394	315	478	562
Peoria	468	347	555	640
Champaign	402	348	491	582
Springfield	537	391	635	736
Perry	544	376	634	724
Brownstown	583	441	684	789
Belleville	610	465	715	823
Rend Lake	659	508	769	884
Carbondale	633	484	735	842
Dixon Springs	706	528	815	928

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)*

**Banded Spruce Needles**

We received two samples of spruce, one Norway and one White, with a distinctive, brown banding pattern on the needles

at the Plant Clinic in the last few weeks. We've seen similar symptoms occasionally over the years, and have never been able to associate the damage with a pathogen or insect pest.

These samples arrived in good condition. The banding appeared as light brown bands, with darker red/brown splotches within the bands. The damage appeared to be worst on the newer needles, but was scattered between branches. The sample was incubated to encourage sporulation of any fungal pathogens present, and examined microscopically for pathogens, insects, and arthropods. None were found. Norway and White spruce are fairly well-adapted to Illinois conditions and tend to be tolerant of many stressful conditions that would lead to damage on a Colorado blue spruce. We don't often see too many needle problems on these tougher spruce trees.

Thankfully, the clients had provided very detailed information on their sample submission forms. The only similarity between both samples? Dormant oil applied to the trees as a preventative for mites. Correct application of dormant oils should not harm most plants (always check the label before you apply, as there are plants that dormant oil can damage!). However, in this case it's possible that an incorrect application was made, or that there was some contamination that caused the damage. The

damage noted (splotches, on the outermost parts of the tree) is consistent with spray damage and would explain the lack of pathogen or pest associated with the symptoms.

The trees should recover, but the damaged needles will not. It will take several years of new growth to hide the damaged needles (which may fall from the branch, leaving a bare spot). Always remember to check the label of anything you choose to apply, and thoroughly clean equipment used to apply pesticides to avoid carryover! (*Diane Plewa*)

### **Weather Injury to Plants**

Illinois has experienced some interesting weather the last couple of months. March and early April seemed like late spring or early summer. The last couple of weeks have felt more like early spring. Rainfall amounts have hit the double digits for the week ending May 6<sup>th</sup> in some parts of the state. Needless to say, plants are as confused as we are.

Many plants were actively growing when a cold spell hit several weeks ago, including frost in some areas of the state. With frost, our initial worry centered on the blooming fruit plants, particularly the peaches and strawberries. With strawberries, some of the initial blossoms turned dark, but subsequent blooms haven't been affected. Older leaves may appear red and/or scorched along their leaf margins. There seems to have been no effect on peach trees, which barring disease and insect problems, should signal a good crop.

Cold can affect plants differently. In some cases, the plant is killed outright.

This usually happens with annual vegetables and flowers that weren't acclimated and were planted early based on the weather, and not on the calendar. Fortunately, we can still re-seed or replant.

On other plants, new, expanding growth may become distorted, twisted or stunted, looking almost like chemical injury, but lacking the uniformity that chemical injury usually shows. Subsequent growth is usually normal. Leaves can remain distorted until autumn. This has occurred on many perennials from daylilies to hosta, but on the older, lower leaves.

Cold injury can discolor the tissue, either causing leaves to look yellowish, or bleaching the leaves completely white. This occurs due to the destruction of chlorophyll and other pigments. Another cause may be ice crystals forming between the cells, rupturing the membranes. In either case, the damaged tissue seldom recovers, and the leaves will eventually drop. The plant may or may not continue growing. In some cases, the plant may recover so slowly and be so prone to other problems that it might make sense to replant. However, trees, shrubs and perennials typically recover when new growth occurs.

It should be noted that many trees and shrubs possess secondary and tertiary buds to allow for regrowth if all the foliage is damaged. However, this lowers the plant's food reserves. When this occurs, care must be given to make sure plants aren't under additional stress throughout the growing season. It may take several growing seasons for the plant to recover lost food reserves.

On the plus side, cold injury could destroy some of the flowers on many

shade trees, resulting in less seed production. Unlike colorful flowers that turn dark when hit by cold temperatures, you seldom see the injury of shade tree seed production simply because it doesn't stand out.

Cold, coupled with wet conditions, can also lead to problems with root injury, especially with warm loving plants such as tomatoes, peppers, petunias, marigolds and other annuals. Root and stem rots usually occur, and plants tend to fall over and die.

For most cold injury, the best approach is to wait-and-see. Be prepared to re-plant some tender bedding and vegetable plants. Look for the bleaching and discoloration in leaves, but also notice any new growth. (*David Robson*)

## **Snakes**

Few people like snakes. We might admire them begrudgingly, usually behind an inch-thick piece of glass or Plexiglas. We might attempt to stroke our hands across the snakes back that someone is holding, feeling the coldness to the scales.

The most common snake is the garter snake, and really one of the best creatures you could have in a landscape. Most snake lovers will tell you that it is moving in the opposite direction, albeit with less speed, than you are when you encounter one unsuspectingly.

Garter snakes, one of the many non-poisonous snakes in Illinois, are an interesting phenomenon in the snake world for a variety of reasons. First, garter snakes are one of the few snakes that

don't lay eggs. They give birth to living young. The young snakes leave their mother as soon as they're born to forage on their own. She has no way of nursing or feeding them.

A female can give birth up to 50 or 80 little ones a year, spread out over the course of several months; she has the ability to store sperm until she needs it. Most of the little ones are about 6 to 10 inches in length when born. When fully grown, a garter snake can reach more than 3 feet and live for 3 to 10 years.

Garter snakes feed on a wide range of creatures from grasshoppers, crickets and katydids to bird eggs, small birds, field mice and voles. Ground squirrels and moles are probably too big, but if they run across a nest of babies, it's not impossible for the snake to have a dinner.

Some garter snakes will climb a small tree or shrub which can be disconcerting the first hundred times you see one slithering down a low lying limb. A few will even go in the water and feed on fish.

The reptiles are also cold blooded, meaning they love to sun themselves for warmth. That's why you find them on top of mulch, a rock, crawling across the sidewalk or driveway, or in the middle of a mowed lawn. In warm weather, they're active during the day, hiding at night. Come fall and winter, they tend to search for some type of hole or make one themselves, and nest there, occasionally popping out on warm days.

Most snakes are solitary creatures, except for the winter when you can find 7 to 10 in a group, each providing some warmth to the others. In areas farther

north such as Minnesota, garter snakes winter together in the hundreds.

Garter snakes are docile and you can pick them up. However, they may secrete a foul smelling yellow liquid from their anal glands. And to confuse the average person even more, these glands are located about three-fourths the way back from the head. The last quarter is the snake's tail.

Garter snakes are usually dark with one to three yellow stripes running from head to tail. The Chicago type, which could be its own species or subspecies of the common garter depending on which taxonomist you talk to, has some red on the body. It's found mainly in the northeast part of the state. The body of mature snakes is dark brown to black in color, and covered with overlapping scales.

Snakes don't move fast, but will usually be moving in the opposite direction as you or any other predators, such dogs, cats, coyotes, skunks or weasels. They also can be preyed upon by owls and hawks. They'll slide under leaf litter or thick mulch to hide.

To avoid encountering snakes, stomp your feet before entering a landscape bed or other area likely to have snakes. The snakes feel the vibrations and move away from you.

Ideally, you don't want to get rid of any snake. If they startle you, or if you're overly concerned, take a shovel or rake handle and move the snake into a bucket or sack, and then take the snake to a natural area.

To reduce the number of snakes, reduce habitat for them and their prey. Don't

mulch. Keep the grass mowed. Avoid large rocks or boulders in the landscape. Keep vegetation to a minimum around buildings. (*David Robson*)

## **Moles**

Getting rid of moles is as easy as removing squirrels, and the end result is the same. Once the pesky creature is removed, nature steps in, and nature abhors a vacuum. That means another mole will take its place. Moles are a little different, but somewhat the same. You can battle and battle with the moles, feel you've won, and then find out another moves in.

Moles are carnivores not herbivores, which means they eat more meat and not plants. Plants are just a nuisance in the mole's hot pursuit of their next meal of earthworms, grubs and other soil creatures. They won't eat plants. They won't eat seeds. They won't eat bulbs. This is a key fact to remember.

Moles end up causing problems because they have to tunnel to find the earthworms, grubs and other soil creatures. So, they keep pushing through the soil, creating serpentine hills throughout the yard, with small feeding tunnels branching off one or two main ones. The tunnel becomes a hollow tube with roots dangling through the ceiling, exposed to the air, frantically trying to grab any bit of moisture. Since the only moisture in the air is humidity, the roots fail and the plant ends up wilting and dying. Usually, that's the turf. Moles will have a nest deep underground; a large mound of soil without a hole could be an indicator of a nest.

The other weird thing about moles is that they seldom congregate in packs or

herds, or in the case of moles, a group called a "labour" or "labor." It may seem like hundreds of moles are in a lawn, but in reality there may be only a couple in early spring; the male (boar) mates with the female (sow) and a litter of 3-5 young are raised, and then depart on their own.

A mole is geared for the digging with large front paws, both with an extra thumblike appendage to help move soil. Because moles have a high metabolism, your typical mole has to eat approximately 80% of his or her body weight daily in order to stay alive. A mole doesn't want to compete with another mole for food.

Those who live near meadows, woods, or have lots of trees are more likely to be invaded by moles, as they are their native habitats. Those in tree-less subdivisions that last year were cornfields are less likely to experience mole damage especially in a heavy clay soil, but that's not a 100% guarantee. If a mole is around, any yard is fair game.

Controlling moles is more taxing. You're really relegated to traps, baits or repellents.

Most repellants are castor bean derivatives that showed some good results at Michigan State University. Unfortunately, after a rain or irrigation, the repellent is washed away, so reapplication is necessary. Growing castor beans themselves only is effective around the castor bean.

Mole baits usually contain bromethalin, sold as Talpirid. The chemical is imbedded in a worm-like bait. This bait is no longer a restricted-use product, but read

and follow all the directions on the label. Gloves need to be worn when handling the bait and putting it in one of the main runs.

Just the concept of traps creates mixed emotions among animal lovers. The old fashioned traps essentially choked the mole. The new ones essentially spike/stab/guillotine the creatures. Place the trap in the straight main run and not the winding side feeding tunnels. If you can't tell which is which, stomp everything down and wait to see what pops up. That's usually the main tunnel. A trap will usually catch a mole within a day or two. (*David Robson*)

### **Insects Susceptible to Control**

The bloom of bridal wreath spirea, or Vanhoutte spirea (*Spiraea x vanhouttei*), is a major phenology event in Don Orton's book *Coincide*. With phenology, stages of plant development (usually bloom time) are used to predict stages in pest development. This method is typically more accurate than using calendar dates because plants are exposed to the same climatic conditions as insects. Thus, "early" and "late" springs associated with unusually high or low temperatures, respectively, cause similar responses in both plant and insect.

However, as has been presented in the first two issues of this year's newsletter, the abnormally long period of high temperatures in the 40's and low 50's degrees F this year has thrown off phenology timing. Bridal wreath spirea would be typically blooming now in central Illinois, but it bloomed the week of April 23. *Coincide* also lists degree-day numbers for the various pests. These should

be followed this year rather than the phenology plant information.

Insects do not develop at temperatures much below 50 degrees F so they were not developing during the weeks with highs in the 40's and low 50's degree F, but the plants were developing during that time. Although insects were developing somewhat ahead of normal with extra daytime highs above 50 degrees F, they slowed down during the last couple of weeks of abnormally cool weather. They are becoming active at about the same time as in a normal year in northern Illinois, about four days ahead in central Illinois, and about ten days ahead of normal in southern Illinois.

Pest occurrences cited in this newsletter do not constitute a spray guide. When a pest is reported to be susceptible to control, one needs to scout to verify that the pest is present and in a susceptible stage before using a control measure.

Following are the most common pests that are in susceptible treatment stages during this time. The dates listed are likely to be those of peak susceptibility. Pests are usually susceptible to control for a longer time than those listed. Suggestions are listed for central Illinois. Typically, these occurrences are two weeks earlier in southern Illinois and two weeks later in northern Illinois.

May 10-12: Birch leafminer young larvae; elm leaf beetle young larvae; European pine sawfly feeding larvae; gypsy moth feeding larvae; pine needle scale crawlers (first generation), black turfgrass atenius (first generation).

May 13-15: Lilac (ash) borer newly hatched larvae; oystershell scale

(brown) crawlers; emerald ash borer adult beginning emergence.

May 16-19: Bronze birch borer newly hatched larvae.

May 20-22: Flat-headed appletree borer larval hatch; peach tree borer newly hatched larvae; viburnum borer newly hatched larvae.

May 23-25: Oystershell scale (gray) crawlers. (*Phil Nixon*)

### **Emerald Ash Borer**

Emerald ash borer adults are emerging in southern and central Illinois and will probably do so in northern Illinois in about two weeks. They will continue to emerge over several weeks. 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. (*Phil Nixon*)