

Number 1 - April 16, 2012

### **First Issue of 2012**

Welcome to the Home, Yard, and Garden Pest Newsletter. Our purpose is to provide disease, insect, weed, and other pest information on a timely basis for the professionally-maintained landscape. We write primarily for arborists, landscapers, lawn care professionals, golf course superintendents, and garden center operators.

Although homeowners can obtain useful information from this newsletter, control options will be targeted at the professional's time constraints as well as pesticides and pesticide trade names sold for professional use. Homeowners seeking control recommendations should consult the soon-to-be-published Pest Management for the Home Landscape publication that will be available through local University of Illinois Extension offices and the Pubsplus website at <https://pubsplus.illinois.edu/>

We plan to have 18 issues this year, with the next issue in two weeks. During May and June, the newsletter will be published weekly. It will be published every other week during July, August, and September, with a final issue in mid-October. You can sign up at our website for email notifications of new issue postings. This newsletter is only published on the Internet, but a pdf file

of each issue is available for download and printing.

We try to keep each issue's length within four pages so that it can be easily read during your busy schedule. If you encounter unusual pests or unusually numerous pests please let us know. For diseases, contact the Plant Clinic with information at <http://web.extension.illinois.edu/plantclinic/>. For insects, contact me at [pnixon@illinois.edu](mailto:pnixon@illinois.edu). We are also interested in your suggestions about the newsletter. (*Phil Nixon*)

### **Weather Impacts on Insects**

This has been an unusual weather year, and there have been numerous concerns about its effect on insects. Although the winter was mild, the warmer temperatures had little effect on insect survival or spring emergence. Although we notice the difference between normal winter temperatures in the teens, single digits, and below zero degree F temperatures, and those this past winter with highs in the 30's and 40's degrees F, they are not so obvious to insects. Most insects have a base temperature of about 50 degrees F, meaning that they do not develop at temperatures below it. Being cold-blooded animals, insects are dormant and essentially non-functional at these lower temperatures. Temperatures in

the 40's result in little more development than those in the single digits.

Insects in Illinois tend to have a geographic range from about Atlanta, Georgia to the southern edge of Hudson Bay in Canada. With Illinois being in the middle of that range, it takes exceedingly warm or cold winter temperatures to have much effect on them. There are exceptions, but they are not the rule. Exceptions include Japanese beetle whose grubs die when the ground is frozen at least one foot deep for at least three weeks. Gypsy moth eggs die when exposed to three successive days of high temperatures of 20 below zero F or colder.

Overwintering larvae of mimosa webworm have a high mortality in normal northern Illinois winters. Many of those that survive the winter crawl under the shingles of heated buildings. Generally, the warmer winter temperatures had little effect on insect survival over a normal winter.

Occasional days of very warm weather have little effect on wintering insects. However, the two to three weeks of warm weather that we had this spring caused many insects to emerge earlier than normal. At this time, insect emergence and development is about four weeks ahead of schedule. Several insects that normally emerge or hatch in mid-April to early May were present in late March. These include European pine sawfly, Eastern tent caterpillar, and Gypsy moth.

The cooler days with highs in the 50's degree F that we experienced recently greatly slowed insect development and allowed the calendar to partially catch

up. Typically, early springs tend to be followed by two to three week periods of abnormally cold weather. This slows or stops insect development, resulting in a more normal year of insect activity later in the growing season. These are commonly referred to as blackberry winters. According to Wikipedia, a blackberry winter is a southern and Midwestern term for a period of about 14 days when the low temperature reaches as low as 20 degree F. It normally occurs in May when the blackberries are in bloom.

Freezing temperatures cause little mortality of spring-occurring insects. Insects reduce the liquid portion of their blood and cells during winter which lowers their freezing temperature. They also produce long chain alcohols including glycerol and ethylene glycol that also lower their freezing temperature. Spring-occurring insects retain much of these features through most of the spring, making them very resistant to cold injury. Cold injury typically occurs when ice crystals form in cells, causing cell wall rupture. With these adaptations lowering the cell contents' freezing temperature, this damage does not occur and insects survive. (*Phil Nixon*)

### **Scouting Watch**

**Eastern tent caterpillar** is more numerous in southeastern Illinois that I ever remember seeing before. It is common to see 15-foot tall trees with a dozen or so large silk tents. Although this insect can strip trees when very numerous, the trees will typically re-leaf with few, if any, obvious effects. This insect attacks tree members of the rose

family including crabapple, flowering cherry, purple-leaf plum, hawthorn, and serviceberry. *Bacillus thuringiensis kurstaki* (Dipel, Thuricide) is the insecticide of choice as it does not affect bees and other pollinators coming to the blossoms.

**European pine sawfly, Eastern tent caterpillar, and Gypsy moth** have been present throughout the state since late March. Remember that although European pine sawfly larvae look similar to caterpillars, they are the larvae of wasp-like insects and are not controlled by Btk.

**Scouting** to verify insect presence and susceptibility is even more important this year with the early spring. In early springs, most insects will emerge early but some may appear later than expected given the warm weather. Some insects require a lengthy warm-up period to break diapause which is supplied during a typical spring. Others rely more on day-length to break dormancy. Our recent period of very warm weather will have caused most insects to speed up development, but some may still be behind phenological and degree day indicators. Don't initiate insect control actions using only these data, scout to verify insect presence and susceptibility. (*Phil Nixon*)

## **2012 Season at the University of Illinois Plant Clinic**

What a fantastic start to the 2012 season! Samples have already been arriving this spring here at the Clinic in our 37th year of operation. The unusually warm weather has inspired early yard work and observations of

pest issues in home and commercial landscapes. The University of Illinois Plant Clinic began year-round operation in the fall of 2011, when we moved from our facility on St. Mary's Road to our new location in Turner Hall on the south end of the Urbana campus. During the winter our hours are reduced, but, we will resume regular business hours, 8am-12pm and 1pm-4:30pm on Monday April 30th, 2012.

Plant Clinic services include plant and insect identification, diagnosis of disease, insect, weed and chemical injury (chemical injury on field crops only), nematode assays, and help with nutrient related problems, as well as recommendations involving these diagnoses. Microscopic examinations, laboratory culturing, virus assays, and nematode assays are some of the techniques used in the clinic. Many samples can be diagnosed within a day or two. Should culturing be necessary, isolates may not be ready to make a final reading for as much as two weeks. Nematode processing also requires about 1-2 weeks depending on the procedure. We send your final diagnoses and invoices to you through both the US mail and email. If you provide your email address on the sample form you will get your information earlier.

Please refer to our website <http://web.extension.illinois.edu/plantclinic/> for additional details on sampling, sample forms, fees and services offered. If you have questions about what, where, or how to sample call us at 217-333-0519. Whenever submitting a sample, provide as much information as possible on the pattern of injury in the planting, the pattern on individual affected plants, and details describing

how symptoms have changed over time to cause you concern.

Our fees vary depending on the procedure necessary. General diagnosis including culturing is \$15, ELISA and immuno-strip testing is \$25, Nematode analysis for SCN or PWN is \$20, Specialty Nematode testing (such as corn) is \$40. Payment must accompany the sample for diagnosis to be initiated. Checks should be made payable to the University of Illinois or to the Plant Clinic. Call if uncertain of which test is needed

**Sending a sample thru US mail or delivery service address to:**

University of Illinois Plant Clinic  
1102 S. Goodwin, S-417 Turner Hall  
Urbana, IL 61801

**Drop off a sample:**

You can also drop off a sample at S-417 Turner Hall. Park in the metered lot F 28 on the east side of Turner or at the ACES library metered lot on the west side of Turner. Come in the South door. Take the elevator located in the SE corner of the building. Turn left when exiting the elevator; we are located along the SE corridor of the 4th floor. Please use the green drop box located just outside S-417 if we are temporarily out of the office.

**Social Media:** We have a lot of ways to keep you up to date on what is happening at the Plant Clinic and about other plant and pest issues. Follow the U of I Plant Clinic on Facebook, <http://www.facebook.com/UofIPlantClinic> or, follow U of I Plant Clinic's Stephanie Porter on Twitter: <http://twitter.com/skporter> or, check out our Illini Plant and Pest podcasts

<http://web.extension.illinois.edu/podcasts/plantandpest/> or, follow the U of I Plant Clinic on Blogger

<http://universityofillinoisplantclinic.blogspot.com>

(Suzanne Bissonnette)

**Widespread Frost Injury to Trees and Woody Ornamental Leaves**

The freezing night temperatures this past week took a toll on the leaves of woody ornamentals and tree that were still in the early process of leafing out. Frost injury occurs when ice crystals form within the plant cells and rupture the cells. This produces a water soaked appearance to the tissue. In other words, the leaf will look like it was smashed, which essentially is what happens when the cells burst. Succulent shoots may appear blackened.

Some of the reported species damaged by frost include: catalpa, black walnut, golden rain tree, Japanese pagoda, hackberry, ginkgo, hydrangeas, fringe tree, magnolia, viburnums, mulberry, ash and the list marches on. Tree and shrub leaves that were not still in the process of succulent growth were not as dramatically affected.

These symptoms are notably similar to disease symptoms you might see from bacterial diseases such as fire blight *Erwinia amylovora*, or bacterial blight *Pseudomonas syringae*. The difference will be in the sheer quantity of damage and species affected. Frost injury will directly follow a frost/freeze event and will typically uniformly affect all the leaves. Whereas, the two bacterial diseases will develop over time and affect individual branches. Frost is not

selective. It affects any of the deciduous plants in the same type of site exposure. For instance, if the viburnum in your front yard is frosted, other nearby deciduous plants should also show some leaf, bud, or stem injury. Look specifically at plants that are not hosts of fire blight. Fire blight affects only plants in the rose family. Finally, cut into some stem tissue to determine whether only leaves are affected (more typical of frost) or stem tissue is discolored (more typical of fire blight).

**Bottom line:** What will this mean for these frosted and freeze damaged species? Although the trees and shrubs look pretty bad to you now, the best recommendation is to just 'wait'. Trees and shrubs that were in good health prior to the damage should begin to re-leaf in about 3 weeks. That's a long time to wait in the spring but your patience will be rewarded. (*Suzanne Bissonnette*)

### **Can Drought Stress of Tree and Shrubs = More Disease (and Other Problems)?**

During the summer of 2011, large portions Illinois were subject to drought and below average precipitation. Central portions of the state were especially dry. During a drought, plants grown in landscapes often suffer stress due to an inadequate supply of available water. To alleviate this stress, homeowners often turn to the garden hoses and sprinklers. Unfortunately, we often focus our watering turf and herbaceous plants while neglecting trees and shrubs. This neglect can be costly as drought can have immediate and long term effects on the health of trees and shrubs.

Drought can have primary as well as secondary effects on trees. Primary effects occur as various plant tissues (roots, leaves, twigs, etc.) dry and become desiccated. This type of damage is commonly first observed as yellowing and browning along the margins of leaves and progresses towards the center of the leaves.

Secondary effects of drought stress occur as normal plant physiological functions are inhibited. In trees, drought stress can cause photosynthesis to cease, thereby hindering plant growth. Drought stress may also prevent the production of defensive chemicals, and could make the tree more susceptible to climate extremes (sunscald, frost crack from winter injury, and high winds). Trees may also be more sensitive to pesticide injury, phytotoxicity, salts from deicing, construction damage, insects, animals, and nutrient competition.

Drought is more likely to affect trees that are newly transplanted, planted in a poor site or location (clay soils or limited space), consist of a poor root system (rotted roots or girdled roots), planted improperly (too deep), have a mechanical injury (lawn mower or construction), known to have a shallow root system (conifers, maples, honey locust, and London plane), or smaller tree species (dogwood, redbud, or crabapples).

Overall, drought can cause a tree to decline and, in turn, predispose trees to disease. There are many disease pathogens that will take advantage of trees under stress. Here are a few examples:

### ***Fungal Cankers***

Canker diseases are fairly common on stressed honey locust trees. Research has shown that honey locust cultivars vary in susceptibility to the canker fungi. Look for resistance ratings when purchasing new honey locust trees. The disease has been linked to drought stress in many cases. Where tree selection is not a choice, avoid injury, provide water in periods of drought stress, and help tree vitality by removing dead wood and fertilizing in the spring. As with most canker diseases, there is no rescue treatment that can be sprayed on the tree. When you see a canker problem, try to determine the cause of stress and take measures to alleviate that stress.

### ***Dutch elm disease***

Drought-stressed elm trees are more attractive to the elm bark beetle, which may carry the Dutch elm disease fungus. With Dutch elm disease you will want to watch for yellowing of the leaves, followed by wilting and browning. Often this happens so quickly that the problem is first noticed when branches with brown leaves appear in the canopy seemingly overnight. A single branch will usually show symptoms first (called flagging), with rather rapid spread to adjacent branches and the entire tree. Look for vascular discoloration to help with diagnosis of this disease. DED will cause a streaking of the sapwood. Peel back the bark of a symptomatic branch to reveal the brown streaks in the otherwise tan outer sapwood. It is generally too late to save a tree once it is infected, but an accurate diagnosis of the problem may help save nearby elm trees.

### ***Pine wilt nematode***

Pines under drought stress lack the ability to make resins to protect against pinewood nematodes and pine wilt disease. Pine wilt symptoms to watch for are gray-green foliage or needles that appear dull or off-color. The tree will not improve. Instead, as the summer progresses, the foliage will turn yellow and then brown and remain attached for a long time. Trees that were infected last fall may not develop any new growth this spring. Although eventually the entire tree will be affected, initial symptoms may appear on one branch or area of the tree. Pine wilt occurs on any of the pines we grow in Illinois except for white pine. There is no cure for a tree infested with pinewood nematodes. Trees confirmed to be infected trees should be removed as soon as possible. Debris from the infested tree should be removed and burned or buried.

### ***Verticillium wilt***

Symptoms of *Verticillium* wilt are more pronounced in drought, in part because drought inhibits the trees ability to wall off the fungus. Symptoms include wilt, branch death, and quick decline of plants. Hundreds of plant species, including trees, shrubs, groundcovers, vines, vegetables, fruits, herbaceous ornamentals, and flowers may become infected. Some trees that are frequently infected by this disease are maple, ash, and elm. We see symptoms throughout the growing season. Peel off some of the bark on a symptomatic branch and look for staining of the wood in distinct streaks of brown, dark green, or yellow-green wood. *Verticillium*-infected ash trees do not always show staining. There is no cure for *Verticillium* wilt. Still, there

are many cultural and preventive strategies to manage the disease and help infected trees live with the fungus. Always start with healthy plants and avoid susceptible species. Supply balanced fertilization and provide adequate irrigation to improve the health of stressed plants.

The U of I Plant Clinic can test for diseases such as Dutch elm disease, pinewood nematodes, and *Verticillium* wilt. For Dutch elm disease and *Verticillium*, samples should be alive, showing vascular streaking, thumb-thick, and 8 to 10 in. long. If you want to test ash for *Verticillium* wilt in ash, you will need to be sure to submit branch petioles for testing. The cost for DED and *Verticillium* testing is \$15.

Branch samples submitted to the U of I Plant Clinic for Pine wilt should be 1 to 2 inches in diameter and long enough to put into a vise so that wood discs can be cut from both ends of the branch. This nematode is not uniformly distributed within a tree. We find that the most reliable samples are from branches that have brown needles still attached. The cost for Pine wilt testing is \$20.

For additional information, please refer to the U of I Plant Clinic website: <http://web.extension.illinois.edu/plantclinic/index.cfm>  
(Stephanie Porter and Travis Cleveland)

### **Do You Recommend a One-Time Fungicide Injection Treatment for Apple Scab?**

Apple scab is a well-known and easy disease to identify; however if you need some help, refer to the

following report on plant disease: [http://web.aces.uiuc.edu/vista/pdf\\_publics/803.pdf](http://web.aces.uiuc.edu/vista/pdf_publics/803.pdf)

The apple scab fungus infects under a wide range of temperatures but requires a wetting period to become established on a tree. Usually, Midwestern weather in the spring provides just what the scab fungus needs. The minimum wetting period on the leaves is only about 6 hours if temperatures stay near the optimal 60 degrees F. If temperatures are cooler, the wetting period must be longer for infection to occur. In a normal spring, scab symptoms might start to show on the leaves from 8 to 18 days after infection. Under cool, dry conditions, this incubation period might be longer.

The first step is to promote basic IPM (Integrated Pest Management) and we do this by recommending that you plant resistant crabapple varieties. Here is a link to "Recommended Crabapples for Illinois Landscapes": [http://extension.illinois.edu/IPLANT/plant\\_select/trees/Selecting\\_Crabapples.pdf](http://extension.illinois.edu/IPLANT/plant_select/trees/Selecting_Crabapples.pdf)

If your ornamental crabapple is considered to be highly susceptible to apple scab, you may even consider replacing the tree.

Raking up the diseased leaves that have fallen below the tree will help a bit, but most of the time, if the tree is susceptible, it may not be able to escape apple scab infection.

When we give apple scab recommendations, we always give recommendations from the University of Illinois Home, Yard, and Garden Pest Guide as well as the University of Illinois

Commercial Landscape and Turfgrass Pest Management Handbook. Various protectant fungicides are listed and applications should begin when leaves to emerge from buds (1/4 inches green) and continue at labeled intervals until 2 weeks after petal fall.

In the recent research paper, "Evaluation of microcapsule trunk injections for the control of apple scab and powdery mildew, by G.C. Percival & S. Boyle," they had good results with fungicides injected into crabapple for control of apple scab; however, none of these fungicides are registered in Illinois. With injections, we worry about repeated injury to the tree and the possibility of other plant pathogens being able to enter through these wounds. In this research, they found that the trees healed or callused fairly quickly, which is good to avoid problems. But, this may not always be the case. Also, what are the long term effects to trees from injections?

At this time, the only injectable fungicide registered in Illinois for ornamental crabapple for leaf diseases is Alamo (propiconazole) and it is applied by macro injection. This is not an option for apple tree or food crops. The University may recommend this type of systemic fungicide application for crabapples infected with apple scab in "sensitive areas" or areas where fungicide drift could be an issue in the environment. For example, a sensitive area may be crabapple trees near a pond with fish. But, most of the time, if basic pesticide safety is practiced or fungicide applications are made during reduced wind speeds, drift should not be an issue.

Therefore, in most instances, injections to prevent apple scab or other leaf disease are not recommended.  
*(Stephanie Porter and Travis Cleveland)*