UNIVERSITY OF MARYLAND EXTENSION

TPM/IPM Weekly Report
for Arborists, Landscape Managers & Nursery Managers

Commercial Horticulture **May 10, 2019**

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IPMnet
Integrated Pest Management for Commercial Horticulture

extension.umd.edu/ipm

If you work for a commercial horticultural business in the area, you can report insect, disease, weed or cultural plant problems **(include location and insect stage)** found in the landscape or nursery to sklick@umd.edu

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Regular Contributors:
Pest and Beneficial Insect Information: Stanton Gill and Paula Shrewsbury (Extension Specialists) and Nancy Harding, Faculty Research Assistant
Disease Information: Karen Rane (Plant Pathologist), David Clement (Extension Specialist), and Joe Roberts (Plant Pathologist for Turf)
Weed of the Week: Chuck Schuster (Extension Educator, Montgomery County)
Cultural Information: Ginny Rosenkranz (Extension Educator, Wicomico/Worcester/Somerset Counties)
Fertility Management: Andrew Ristvey (Extension Specialist, Wye Research & Education Center)
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Mining Bees in Turf

Mark Schlossberg, Pro Lawn Plus, Inc., reports that one of his customers had over half of a 20,000 ft^2 turf area loaded with mining bees this week. You can see from the photo all of the holes in the lawn. Mark sent a video and I could hear the bees buzzing. The mining bees will be active through May. These solitary bees will often nest together when soil conditions are good. We do not want people to kill these useful pollinators.

Mining bee burrows are often found where there is exposed soil
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Armored Scale on Liriope

By: Stanton Gill

Here is one I have not seen for several years – fern scale, *Pinnaspis aspidistrae*, on liriope. About 6 to 7 years ago, we had a rash of this armored scale showing up on liriope being shipped in from southern nurseries and being planted by Maryland landscapers. The polar vortex and the extended cold front in 2016 knocked out this scale on liriope pretty well. It is a southern species of armored scale and does not do well in extreme cold. This last winter was much more reasonable, and this scale is back.

Fern scale females overwinter in the crown of the plant; crawlers will move to the new growth on this liriope plant
Photo: Stanton Gill, UME

I received this liriope from a local nursery and it was loaded with fern scale. The females overwinter down in the crown of the plant. As new growth is emerging (see picture) this spring, the females start to produce crawlers that migrate up onto the newly emerged foliage. As they feed, they leave a yellow area around the scale cover. There is a second generation in August.

Check your liriope plants for this armored scale in May. We are just moving into the crawler period in mid-May. Talus, Distance, Mainspring, or Altus could be applied to control this scale.

Fern scale feeding causes yellow areas on leaves

Winged Termites - Active This Week

By: Stanton Gill

Your clients may notice black bodied flying insects that look like a large ant without a thread-like waist. In May, the winged matures of subterranean termites are flying around. The winged stage is called an alate form of the termite. We had a swarm at our CMREC lab this week and dragonflies, which are excellent predators, were picking off the alates as they took flight. We also had tiger beetles show up and they were feasting on the alate termites as well. It's biological control at its glory.

The winged (alate) form of subterranean termites will be active for a brief period at this time of year

Lecanium Scale

Reports are coming in of lecanium scale. Marie Rojas, IPM Scout, found lecanium scale on *Cornus stolonifera* 'Pucker Up'on May 9 in a Laytonsville landscape. Marie noted that there were eggs under covers. John Ford, Chapel Valley Landscape, also found lecanium scale females full of eggs and almost ready for crawlers on oak. Steven Nagy, The Care of Trees, found lecanium scale on willow oak in McLean, VA. last week. Laura Deadon, Greener Visions, found this scale on *Clethra* 'Ruby Spice'. Oak lecanium and European fruit lecanium scales are two common species in this area. The life cycles of these lecanium scales are very similar, but plant hosts vary (include oak, elm, hawthorn, pyracantha etc.).

Control: Apply pyriproxyfen (Distance) or buprofezin (Talus) mixed with 0.5 - 1% horticultural oil for control when the majority of eggs have hatched and/or settled first instars are present.

Eggs of oak lecanium scale are present at this time under female covers
Photo: John Ford, Chapel Valley Landscape

Wait until crawlers of lecanium scale are active to treat
Photo: Marie Rojas, IPM Scout

Aphids on Crape Myrtle

By: Stanton Gill

Heather Zindash, IPM Scout, found nymphs of crape myrtle aphids this week. Crape myrtles have been leafing out over the last 2 weeks and already the crape myrtle aphid is active. Monitor plants closely because populations of this aphid can build up quickly. Endeavor works well on these aphids. Altus should also provide a good level of control.

Crapemyrtle aphids produce mutliple generations per season
Photo: Heather Zindash, IPM Scout

Fireblight Update

By: Stanton Gill

Well, it looks like we generally got lucky this spring with regards to fireblight on crabapples, pears, apples, and serviceberry. When the plants were in full bloom and most susceptible, the weather was cool enough that fireblight was not a big factor in 2019. I contacted Kari Peter, plant pathologist with Penn State Extension, and here is her comment "The temps have been more down than up – not ideal for fire blight. According to the models, we haven't had any significant infection periods."

That said, if anyone sees tips of these aforementioned species of plants with flagging tip growth that looks like someone hit it with a blow torch, let me know at Sgill@umd.edu.

Cicada Damage on Branch

By: Stanton Gill

Heather Zindash, IPM Scout, noticed damage on several *Osmanthus* branches at a customer's location. The damage is from when female cicadas were oviposting into a branch. The tissue around the areas in which eggs are inserted dies, but the plant rapidly produces wood cells that try to heal over the wound. The eggs have hatched already, and the nymphs dropped to the ground to feed on tree roots. We have annual cicada active in Maryland besides the periodical cicada. This damage was likely from the annual cicada active in August.

Damage on *Osmanthus* is from ovipositing by cicadas
Photo: Heather Zindash, IPM Scout

Spotted Lanternfly

By: Stanton Gill

I sent an email to the nursery in Leesport, PA where we are conducting spotted lanternfly control trials. They reached 355 degree days this Tuesday. This level is supposed to be the approximate degree day for hatch of spotted lanternfly. They examined several egg masses but found no hatch out yet.

I sent an email to Emelie Swackhamer with Penn State Extension, and here is her response about activity of spotted lantern fly in her area of PA: "I have been watching for hatch at my house and have not seen it yet. I live on the south mountain near Bear Creek Ski area at almost 1000 ft elevation, so hatch there has been later than other sites every year. I'm not surprised if they haven't hatched in Leesport yet, but it will be soon!"

So, we're still waiting for hatch out at this point, but it should occur soon in Pennsylvania.

Euonymus Leaf-notcher Caterpillar

By: Stanton Gill

Kevin Nickle, Plant Scientific Service, brought in *Euonymus japonica* this week from a customer's landscape in Baltimore County. Euonymus leaf-notcher caterpillar (*Pryeria sinica*) was damaging this shrub's foliage. Dick Bean, retired from MDA, reported activity of this imported caterpillar in Anne Arundel County back in the early 2000s. Since then we have had reports of activity in Howard, Baltimore, Montgomery, Frederick, and Anne Arundel counties. The euonymus leaf-notcher caterpillar feeding activity is for a couple of weeks in spring and causes a fair amount of defoliation. The good news is euonymus is one fast recouping plant, and the new foliage covers the old damage rapidly. This pest is one that could be tolerated by many people. If you need to control it, Spinosad will give good results with minimal impact on beneficials.

Euonymus leaf-notcher caterpillar is finishing up its feeding activity at this time of year

Euonumus Caterpillar

Another caterpillar that feeds on euonymus is called the euonymus caterpillar (*Yponomeuta cagnagella*) which is active later than the the euonymus leaf-notcher caterpillar. It produces webbing on the tips of foliage where it feeds. Michael Schneider, Brightview Landscaping, found this caterpillar active this week. There is only one generation per year early in the season so plants are able to recoup from the damage.

Control: If necessary, Conserve will control the larvae. Pruning out infested branch tips is another option.

Euonymus caterpillar is active now, but there is only one generation per year Photo: Michael Schneider, Brightview Landscaping

Euonymus caterpillars feeding within the webbing on the tips of branches

Maryland is Number 5

By: Stanton Gill

As nursery managers, greenhouse owners, landscapers, and arborists operating in Maryland, you can be proud to know Maryland is Number 5, according to the Bloomberg Report. We still need to beat out 4 other states. Being number 5 means more money in the area which is often spent on plant material and improvements to landscapes. California in Number 1.

Red Thread Showing in Perennial Ryegrass

By: Joseph Roberts, University of Maryland Turfgrass Pathologist

Red thread was recently observed on multiple cool season grasses over the past week. Red thread is named for its characteristic appearance given a reddish or pink color to the turfgrass. In fact, red thread-like extensions of the fungal pathogen, called sclerotia, emerge from the tips of infected turfgrass plants. When heavy dew patterns are apparent in the morning, you may also observe pinkish flocks of mycelium emerging from infected leaf blades. If you believe this turfgrass disease is present in your lawn, be sure to look for the reddish sclerotia as they are a key diagnostic feature. Other diseases like pink patch and snow mold can cause similar sized areas of blighted turf, but the fungal pathogens that cause these other diseases do not produce the red thread-like sclerotia.

When considering management options for red thread disease, it is often important to examine recent fertilization practices as the disease is known to thrive in low N-fertility areas. Supplying N-fertility during infection periods may help to alleviate some of the symptoms, but keep in mind that red thread is very persistent in the spring months and it may take time to heal. A research trial performed at the University of Maryland in 2018 found that N-fertility (0.7 lb N 1000 ft-2) applications applied as soluble urea had no effect on symptoms compared to the non-treated control. With that being said, N-fertilization practices in the autumn months may have a greater effect on the development of this spring disease, especially over subsequent years. The pathogen also thrives under moist conditions so be sure to monitor irrigation timing if that is a factor, Irrigation to supply water in the early morning hours is best to knock down dew from the overnight hours. Of the turfgrass species commonly observed in our region, perennial ryegrass is known to be highly susceptible along with tall fescue, fine fescue, and Kentucky bluegrass. The pathogen is not an issue on warm season turfgrass species. Collection of clippings from mowing events may help to reduce the spread of the disease. Under low-budget management situations, it is best to implement sound cultural practices over multiple years to reduce the overall activity of red thread disease.

Brown patches in this turf are caused by red thread disease
Photo: Mark Schlossberg, ProLawn Plus, Inc.

Close-up of red thread in turf showing the red coloring of this disease
Photo: Kevin Nickle, Scientific Plant Service

Four-lined Plant Bug

By: Stanton Gill

Christa Carignan, UME-HGIC, found four-lined plant bug nymphs feeding this week in Rockville on native pussytoes (*Antennaria* sp.) and on lyreleaf sage. Marie Rojas, IPM Scout, found them feeding on catmint in Laytonsville. As they feed, the insects inject a toxin into the plant tissue that causes the tissue to collapse and go necrotic. You end up with a series of small roundish dead spots on the foliage. Once the damage is present, there is not a lot to do about it. There is one generation per year early in the season.

Some other host plants include: Herbaceous perennials - chrysanthemum, Chinese lantern, liatris, and shasta daisy; Herbs - mint and basil; Woody ornamentals - azalea, dogwood, forsythia, viburnum; and Flowering annuals - zinnia and marigold

Four-lined plant feeding causes necrotic spots on leaves of pussytoes
Photo: Christa Carignan, UME-HGIC

This four-lined plant bug nymph is causing damage to catmint
Photo: Marie Rojas, IPM Scout

Insect Control on Apple Trees

By: Grezegorz (Greg) Krawczyk, PH.D., Penn State Extension, Tree Fruit Entomologist

Petal fall control of insect pests on apples: An insecticide application after the petal fall stage on apples continues to be one of the most important insect management activities in fruit orchards. Although the actual necessity for the control of individual pests differs from orchard to orchard, the petal fall timing is usually well synchronized with the optimal time for the control of European apple sawfly, rosy apple aphid, plum curculio, and this season, also Oriental fruit moth. If other pests such as European red mites (ERM), scale insects, and other aphids were not controlled before the bloom, the same timing also adds the opportunity to manage this group of pests. The choice of used insecticide should be determined by the pest(s) needed to be controlled.

Biological Control Working in the Landscape

Over a five day period, Marie Rojas, IPM Scout, observed syrphid flies significantly reduce an aphid population on *Nepeta subsessilis* 'Blue Dreams' in a landscape. If aphids are feeding on plants, look for predators and monitor over time to determine they are working to reduce the pest population.

From May 4th to May 9th, syrphid fly larvae signficantly reduced an aphid population on catmint in a landscape Photos: Marie Rojas, IPM Scout

Dogwood Powdery Mildew

By: Karen Rane and David Clement

The first signs of powdery mildew on dogwood are appearing now. This disease is more common than dogwood anthracnose, and can be a bit tricky to diagnose. Right now, leaves are showing patches of white fungal growth typical of powdery mildew on other hosts (see figure 1). But as the season progresses, the powdery growth becomes more difficult to see, and infected dogwood leaves develop a patchy, reddish discoloration that can mimic symptoms of environmental stress (figure 2). Management options for powdery mildew on flowering dogwood include resistant dogwood cultivars, or protectant fungicide applications. For more information on this disease, refer to these links: http://extension.udel.edu/blog/powdery-mildew-on-dogwood/ and https://extension.umd.edu/resource/powdery-mildew-disease-trees-and-shrubs.

Figure 1. White powdery growth (circled) of powdery mildew fungus on flowering dogwood. Photo: D. Clement, UME

Figure 2. Reddish discoloration of dogwood leaves infected with powdery mildew. Photo: David Clement, UME

Spirea Aphids

By: Stanton Gill

On Thursday this week, Steve Clancy brought into CMREC lab some great samples of spirea aphid, *Aphis spiraecola* (Hemiptera: Aphididae). Elaine Menegon, Good's Tree and Lawn Care, also found spirea aphids in Lancaster, PA. We usually see this aphid on spirea in May, then predators and parasites often collapse the populations as we move into June. In years of heavy populations, they can excrete a fair amount of honeydew on which sooty mold grows. This aphid is also reported on crabapple, apple, hawthorn, quince, and pear. So, monitor the susceptible plants this week.

Spirea aphids are active early in the season
Photo: Elaine Menegon, Good's Tree and Lawn Care

Galls on Oak

Steven Nagy, The Care of Trees, found galls on willow oak caused by cynipid wasps. These galls do not affect the overall health of the tree so control is not necessary.

This gall on willow oak is caused by a cynipid wasp
Photo: Steven Nagy, The Care of Trees

Corrections from May 3, 2019 IPM Report

Gaye Williams, MDA, sent an email noting that "according to the 24 April, 2019 CDC report as well as all other accounts I have read, the Delaware triatomine mentioned in the May 3rd report was identified as *Triatoma sanguisuga*, which we also have in Maryland- not *Rhodnius prolixus*." Also, the geuus of plants in the the section on leaf curl should have been *Prunus* and not *Pyrus*. The report posted online has been corrected.

Eriophyid Mite (*Eriophyes dinus*)

By Nancy Harding and Paula Shrewsbury, UMD

Why do the leaves on my black gum (*Nyssa sylvatica*) look like it just received a wave perm (see image)? Because an eriophyid mite is feeding on the leaves. An eriophyid mite (*Eriophyes dinus*), also known as the black tupelo leaf roll gall-maker, is responsible for the leaf margin deformity. Their leaf tissue feeding causes a thick leaf roll gall. These galls start off having the same color as the rest of the leaf, but then turns a reddish color and finally brown.

Mites are not insects; they are arachnids. The difference between most adult spider mites and eriophyid mites is that they only have 2 pairs of legs, not four. Eriophyid mites are slow moving, extremely small (hard to see with

the naked eye at ~1/100th of an inch in length), translucent, usually white or yellow in color, and cigar-shaped.

Eriophyid mite, E*riophyes dinus*, feeding damage (leaf roll gall) on black gum
Photo by Nancy Harding, UMD

Many species of eriophyid mites cause gall damage to plants, however each species has a relatively unique gall associated with it. Eriophyid mites also tend to be host specific. For example, Eriophyes dinus only attacks black gum and only causes the leaf roll gall symptom. The adult eriophyid mite females overwinter in cracks and crevices of twigs and in bud scales. Females lay eggs in the spring. The young mites that hatch from the eggs resemble the adult. The mites begin feeding on the leaf which initiates the leaf roll gall which it then uses as its home. Numerous generations are produced each year. They are primarily spread by wind.

Control is rarely needed as most plants can tolerate a large number of mites. There are also predatory mites that make a tasty meal of eriophyid mites that help prevent mites from outbreaking. However, if your black gum had unacceptable levels of leaf roll gall damage last year you want to apply a control this year to prevent new damage. The optimal time to control this mite and prevent damage is at bud break when leaves are just starting to emerge to newly expanded, before you start to see leaf roll galls. At this time an application of horticultural oil (summer rate) should provide suppression. Once galls are formed control is difficult because the eriophyid mites are protected within the gall. Check the growth stage of your black gum. In College Park there is a black gum with galls already forming (likely too late to treat) where as in Columbia there is a black gum where its leaves are newly expanded and no sign of leaf roll galls yet. So still time to treat. As always read the horticultural oil label carefully for instructions and safety.

Close-up magnification of eriophyid mites
Photo by: J. A. Davidson, UMD

Vole Damage

By: Stanton Gill

Jonathan Friend, Blake Landscapes, Inc., sent in some beautiful pictures of junipers with voles feeding on the stems. During the winter months, voles will often feed on the stems and girdle the plants. The dieback shows up in the warmer weather. More information is available on the University of Maryland's Extension Forest Threats - Wildlife page.

Extensive vole damage on junipers
Photos: Jonathan Friend, Blake Landscapes, Inc.

Redheaded Flea Beetle Damage

Monitor herbaceous and woody nursery container plants for redheaded flea beetles and damage. We have received reports of damage from the Eastern Shore and Delaware.

Redheaded flea beetles can cause significant damage so monitor container plants closely
Photos: Brian Kunkel, University of Delaware Extension

Beneficial of the Week

By: Paula Shrewsbury

Predatory mites eat plant feeding mites.

A predatory mite (right) in the family Phytoseiidae feeding on a two-spotted spider mite (left)
Photo: Jack Kelly Clark, UC Statewide IPM Program, University of California)

This is the time of year that cool season mites like spruce spider mite (on needled evergreens) and southern red mite (on broad leafed evergreens) are active. Two-spotted spider mites (on deciduous woody and herbaceous plants) will start up as soon as we have a few hot days above the low 80's, in addition to activity of other spider and eriophyid mite species. Fortunately, there are numerous predators that like to feed on spider and eriophyid mites such as predatory mites, lady beetles, dusty wings, and lacewings. Predatory mites are one of the most common predators and can significantly impact spider mite populations. Many of the predatory mites attacking spider mites are in the family Phytoseiidae but there are several other families of mites, and ultimately there are numerous species of predatory mites. The feeding habits of these different species vary. For example, some are specialized mite predators feeding only on mites; others are selective and only feed on spider mites in the Tetranychidae family; others are generalist predators and may feed on mites and other insects; and others are omnivorous and feed on pollen in addition to prey.

Predatory mites have needle-like chelicerae (mouthparts) that they insert into spider mites or spider mite eggs to remove the fluids of their prey. Phytoseiid mites are about the same size as spider mites but their bodies are tear-drop or pear shaped, relative to the more boxy shape of many plant feeding mites. They tend to be a clear yellow to orange color (depending on species and sometimes prey item). Relative to plant feeding mites, phytoseiids have longer legs and run faster. Remember they must forage or hunt for their food. Predatory mites have a high reproductive rate, they develop faster than their prey, and there are more females than males in the population. All of which allow them to respond numerically to increasing prey densities which means more spider mites leads to more predatory mites which then leads to fewer spider mites, and so on.

Predatory mites occur in nature and they can be purchased commercially and released (known as augmentation biological control). Most documented success with augmentative release of predatory mites has been in indoor environments such as green houses or conservatories. However, in outdoor environments naturally occurring predatory mites are believed to be very effective biological control agents in ornamental landscapes and nurseries. Although some plant and landscape management practices are detrimental to predatory mite populations.

Most important to the success of naturally occurring predatory mites is the selection and use of pesticides that have minimal impact on these predators to help in their conservation and to build-up their densities. Many pesticides in the Pyrethroid class are known to have long term detrimental impacts on predatory mite populations and should be avoided, especially on mite prone plants. Other miticides such as those on the "EPA reduced risk" list (ex. acequinocyl (Shuttle), bifenazate (Floramite), and others) or horticultural oil (follow label instructions) have been shown to have reduced or little impact on predatory mites. There are also very selective miticides such as hexythiazox (Hexygon) which only targets spider mites in Tetranychidae family and do not harm the Phytoseiid predatory mites. It may take a season or two of "wise" pesticide use to build up effective pest suppressing predatory mite populations but it will happen!

The other important part of conserving predatory mites is to provide optimal habitat and alternative food options. Adding plant species diversity increases the availability of prey and floral resources for predatory mites which helps increase their populations and keep them in the landscape or nursery.

Wise pesticide use and habitat diversification practices will also help to conserve other natural enemies of spider mites, and natural enemies of other pests too. Select and implement IPM practices that will give these good guys a chance to increase their populations and decrease spider mite densities and damage.

Weed of the Week

By: Chuck Schuster, UME

What happened to our weather? We have fallen back into a damp period. Soils are maintaining a mid-60's degree temperature currently in spite of the cloudy conditions. It is a challenge to keep up with turf mowing in some areas and general landscape and turf weed control.

Several calls during the last two weeks have involved the identification of and control options for roughstalk bluegrass, *Poa trivialis*. This perennial grass has been showing up in some of our well managed turf this spring. It is classified as a fine textured, cool season grass with a prostrate spreading growth habit. Roughstalk bluegrass will spread quickly by way of stolons

***Poa trivialis*, roughstalk bluegrass is showing up in turf areas**
Photo: M. Schlossberg- Pro Lawn Plus

which can be a problem for the desirable turf species. It will appear at times to be a clumping growing habit, but that is not the reality of it once one starts to manually remove it from a turf site. Reaching a total height of up to three feet, it produces a panicle seedhead which is typical of other bluegrass species. As weather gets hotter, it will go into a dormant stage, returning to active growth when the temperature moderates and will grow through the cooler months.

The stems have bands of purple at each node and have small hairs. Leaves have the boat-shaped tip found in most bluegrass species, have a shiny light green color, and may discolor to a bronze when stressed by heat or drought. Each leaf blade can be up to seven inches in length and one quarter inch wide. Leaf blades are covered with small hairs. The presence of very small, scabrous hairs give the leaf margins and leaf surface a rough texture which gives its the common name 'roughstalk bluegrass'. It will also has a large ligule that is membranous and occurs with a hook near the top. This weed will be affected by dollar spot and brown patch disease.

One of the most common perennial grass weeds in turf is roughstalk bluegrass. In most cases, the only control is to hand weed the turf or spot treat with a nonselective herbicide that contains glyphosate or glufosnate. Control of this weed is difficult in established turf. Bispyribac-sodium (Velocity)- for sod and golf course only and amicarbazone (Xonerate) – for residential turf are herbicides labeled for roughstalk bluegrass and annual bluegrass. Warmer temperatures are really needed for these chemicals to be effective. Post emergent, non selective products can be used for small areas in a lawn, they would include glyphosate and glufosinate.

Plant of the Week

By: Ginny Rosenkranz, UME

Robinia pseudoacacia, black locust, is a native tree that is very susceptible to growing suckers that should be pruned out to prevent a grove of black locust. When it is in full bloom, it is a phenological indicator for the start of emerald ash borer adult activity. Black locust self-seeds to the point that it can be considered an invasive plant. It is a deciduous tree that can grow as a tall narrow tree, 30-50 feet tall and 20-35 feet wide. It can grow in average to dry soils in full sun, but really prefers moist organic loamy soils. Black locust protects itself well with short spines up to an inch or more long. The leaves are pinnate with up to 32 lance-shaped leaflets that are dark blue green which mature to yellow in the autumn.

Black locust is in bloom throughout the area at this time
Photo: Ginny Rosenkranz, UME

This tree is not recommended as a lawn tree, however the bee keepers often plant this tree for the bees. The fragrant flowers are pure white, growing in a long 8-inch cascade look a lot like wisteria. The flowers mature into purple brown pods about 4-5 inches long that are filled with seeds. Like other locusts, black locust roots can fix nitrogen, and that plus the thorns and the suckering have insured that the tree is a survivor. There are a few varieties like 'Purple Robe' and Twisty Baby™. A number of pests can pose a problem, but the worst is the locust borer that can be fatal to the tree. Other pests include locust leafminer, caterpillars, weevils, and scale. Some possible diseases problems include canker, powdery mildew, leaf spots, wood rot and verticillium wilt.

Degree Days (as of May 8)

Aberdeen, MD (KAPG)	429
Annapolis Naval Academy (KNAK)	557
Baltimore, MD (KBWI)	488
College Park (KCGS)	461
Dulles Airport (KIAD)	481
Frederick (KFDK)	453
Ft. Belvoir, VA (KDA)	527
Gaithersburg (KGAI)	448
Greater Cumberland Reg (KCBE)	374
Martinsburg, WV (KMRB)	410
Natl Arboretum.Reagan Natl (KDCA)	619
Salisbury/Ocean City (KSBY)	519
St. Mary's City (Patuxent NRB KNHK)	550
Westminster (KDMW)	508

Important Note: We are using the Online Phenology and Degree-Day Models site. Use the following information to calculate GDD for your site: Select your location from the mapModel Category: All models Select Degree-day calculatorThresholds in: Fahrenheit °F Lower: 50 Upper: 95Calculation type: simple average/growing dds Start: Jan 1

CONFERENCES

MAA Pest Diagnostic Clinic for Arborists
May 22, 2019
Location: Woodmont Country Club in Rockville
Schedule and registration information is available at
https://maapestwalk.eventbrite.com/

Eastern Shore IPM Pest Walk
May 15, 2018
Location: Salisbury University, Salisbury, MD
https://2019esipmpestwalk.eventbrite.com

Eastern Shore Pesticide Conference
June 7, 2019
Location: Wye Research and Education Center, Queenstown, MD
https://2019esprocrastinators.eventbrite.com

Procrastinators' Pesticide Recertification Conference
June 14, 2019
Registration and schedule are available at
https://24th-procrastinatorsconference.eventbrite.com/

Maryland Christmas Tree Association Summer Meeting
Saturday, June 22, 2019
Location: Taylor Sines Woodlake Tree Farm, Oakland, MD
For more info contact:
Joncie Underwood@410.398.1882

All Day Session on Herbaceous Perennials
July 25, 2019
Location: The Perennial Farm in Glen Arm, MD

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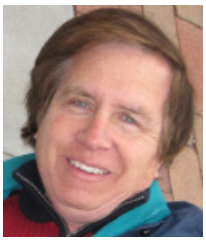

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