

Commercial Horticulture

May 24, 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

Coordinator Weekly IPM Report:

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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)

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A Week Off

By: Stanton Gill

I will be around, but since Memorial Day occurs next week, and many of our authors will be traveling, we will not put out an IPM Alert on Friday, May 31. We will be back Friday, June 7. Go ahead and keep sending in samples to CMREC and we will summarize what we are finding for the June 7 report.

Pest Predictive Calendar "Predictions"

By: Nancy Harding and Paula Shrewsbury

In the Maryland area, the accumulated growing degree days (DD) this week range from about 545 DD (Cumberland) to 865 DD (Reagan National Airport). The Pest Predictive Calendar tells us when susceptible stages of pest insects are active based on their DD. Therefore, this week you should be monitoring for the following pests:

- White prunicola scale (1st generation crawlers)
- Bagworm egg hatch / early instars
- Potato leafhopper adults
- Juniper scale crawlers
- Oak lecanium scale crawlers
- Japanese maple scale (1st generation crawlers)
- Cottony camellia/taxus scale crawlers
- Calico scale crawlers

See the Pest Predictive Calendar for more information on DD and plant phenological indicators (PPI) to help you better monitor and manage these pests.

Rose Diseases

By: Karen Rane and David Clement

Ginny Rosenkranz reported both black spot and powdery mildew are occurring now on roses. Hybrid tea roses are particularly susceptible to these diseases, and management takes an integrated approach. The names of these diseases accurately describe their symptoms and signs (see Fig 1 and Fig 2). Black spot symptoms develop as dark lesions with feathery margins. Infected leaves can turn yellow and drop, even with only a few lesions present. White, powdery growth of mycelium and spores on leaves and stems is typical of powdery mildew. Chlorosis and leaf distortion can occur when young leaves are infected with powdery mildew early in the season.



Fig. 1 Black spot on rose
Photo: G. Rosenkranz

Management of these diseases involves using resistant cultivars, practices that minimize leaf wetness such as increased spacing between plants and using drip irrigation rather than sprinklers, and sanitation (good fall cleanup, removing occasional diseased leaves). Resistant cultivars are often featured in rose supplier catalogues and websites. For those growing highly susceptible cultivars, fungicide sprays beginning when foliage first develops are often necessary to protect the plants from infection. Many fungicides are labeled for rose disease management. Fungicides effective for black spot control include captan, and chlorothalonil. For powdery mildew, fungicides such as bicarbonate products and propiconazole are effective. Fungicides effective against both diseases include myclobutanil, azoxystrobin and thiophanate methyl. It is important to rotate products with different modes of action (Group or FRAC codes) to avoid resistance development.



Fig. 2 Powdery mildew on rose foliage and flower buds
Photos: Alan Windham, University of Tennessee



Figure 3. Line patterns (left) and chlorotic spots (right) symptoms of rose mosaic disease.

Photos: Karen Rane

Symptoms of rose mosaic disease, are also visible now (figure 3). Rose mosaic is caused by a number of viruses, including Prunus Necrotic Ringspot Virus (PNRSV) and Apple Mosaic Virus (AMV). Symptoms can vary widely, and include line patterns, mottle, vein banding and ring spots. There is no known insect vector for rose mosaic, and the disease does not appear to spread naturally in the landscape. Rose mosaic can be spread through grafting, however. Virus diseases are systemic, meaning that removing symptomatic leaves will not rid

the plant of virus. Symptom expression appears to be related to environmental conditions, and may diminish in leaves that develop during the heat of summer. Infected plants may also show diminished flowering and more winter injury than uninfected plants. There is no control for rose mosaic disease in the landscape other than removing infected plants. Rose producers are focused on screening protocols and tissue culture production to eliminate viruses, including rose mosaic and rose rosette in rose production. More information on these efforts can be found at the National Clean Plant Network for Roses website.

Cottony Camellia/Taxus Scale

Cottony camellia/taxus scale is now in the crawler stage on hollies. Treat crawlers with pyriproxyfen (Distance) or buprofezin (Talus) mixed with 0.5 - 1% horticultural oil.



Check cottony camellia/taxus scale infestations for crawlers

Tea Scale on Camellia

By: Stanton Gill

Landscapers are starting to install more camellias that have better winter hardiness. I have been growing *Camellia japonica* 'Jerry Hill' and 'Ashton Delight' for over 15 years which have survived the polar vortex and polar express winters. Of course, as these plants become more popular, we see problems cropping up. An armored scale called tea scale, *Fiorinia theae* Green, shows up on the foliage of camellia. In southern states, it is a major problem on camellias. We only occasionally saw this scale as a problem here in Maryland. With hardier varieties of camellias moving into the market and more being moved into the landscape, the number of infestation cases is increasing. Many of the camellias used in landscapes are supplied from southern nurseries where camellias are propagated and grown for market. Unfortunately, this armored scale is coming along for the ride.

Heather Zindash, IPM Scout, brought in samples last week to our diagnostic session for IPM Scouts. Since this scale is a southern species, the life cycle has not been well documented here in Maryland. If you find a population and have it on container plants, please contact me at sgill@umd.edu. I will buy a couple of infested plants so we can study and evaluate control materials at our CMREC facility. The scale insects on the sample we received last week were not in the crawler stage yet. Third instar females were present.



Monitor camellias for tea scale
Photo: Stanton Gill

Arborvitae and Fletcher Scale

By: Stanton Gill

Arborvitae, especially *Thuja* 'Green Giant' and 'Emerald Green' have become the darlings of the nursery and landscape trade. Yes, I have them lining my neighbor's property line like everyone else. It is a great plant that looks good, grows fast, and works to screen out neighbors. You know that I am almost always leading back to an insect. This insect is Fletcher scale, *Parthenolecanium fletcheri* (Cockerell). This soft scale is showing up more and more in samples we are receiving from landscapers and arborists. The problem is that the overwintering form of this scale is oval-shaped, somewhat flattened, and tends to blend in well on the stems. This pest overwinters as second instar nymphs. Plant propagators are taking vegetative cuttings and rooting them with small populations of scale present. It goes into the nursery where the scale population continues to increase. ALERT nursery managers might catch this scale, but often it slips by undetected. Having a professional IPM Scout really helps in catching things like scale insects on plants which often go unnoticed.

Heather Zindash, IPM Scout, found fletcher scale on arborvitae this week. The females are in the 3rd instar stage and are full of eggs. Crawlers should be out very shortly. If you apply Talus or Distance in the next week or so, you can bring this scale under control. Dinotefuran or Altus could be applied as foliar spray at this point in the season.

If you are a nursery manager, please examine arborvitae and taxus yews in your nursery and bring this pest under control before it moves out into the landscape. Large plants in the landscape are going to take a lot more material to obtain control as these plants size up in the landscape.



Fletcher scale is all along this bald cypress stem
Photo: Stanton Gill



A fletcher scale cover was flipped over to reveal the eggs underneath

Photos (bottom three): Heather Zindash, IPM Scout

Calico Scale

Bob Saylor, Carroll Tree Service, found newly hatched calico scale crawlers emerging on sweet gum in south Baltimore on May 21. Newly hatched crawlers (1st instar) are oval-shaped that start off white to pink then turn yellow. They will move from the trunk and twigs to the leaves of the host plant where they will settle and feed near the leaf vein for the summer. In late summer, they move back to woody tissue where they molt and create a hard waxy coating; overwintering as 2nd instars. There is one generation per year.

Control: When crawlers emerge, the insect growth regulators, Distance or Talus, can be applied.



Calico scale crawlers start out pinkish and then turn yellow

Photos: Bob Saylor, Carroll Tree Service

Spotted Lanternfly

Rick Yates, Griffin Greenhouse Supplies, found spotted lanternflies hatching this week in Morgantown, PA on May 16. Steve Sullivan, LandCare, found spotted lanternfly nymphs on spirea in Allentown, PA on May 22.



Spotted lanternfly nymphs are active in Pennsylvania this week

Photos: Rick Yates, Griffin Greenhouse Supplies and Steve Sullivan, LandCare (right)

Missing Branch Tips

While scouting *Ulmus parvifolia* 'Allee' last week, Heather Zindash, IPM Scout, found that on one out of 40 trees, and on one large branch of that tree, there were several branchlets with missing tips. Heather noted that they looked like they had been chewed off. She did not see signs of a caterpillar, beetles, etc. They are above her head, and not to where a deer might eat them. We have had a couple of other emails on this odd damage. If anyone else is seeing similar damage, we would like to know.

We asked Jonathan Kays, UME, for comment and he replied with the following:

“At 8-9 feet it would not be deer and it is unlikely that it is other mammals like squirrels since you would likely see some broken branches. The buds and growing tips are very nutritious and we have had a late spring so many birds are hard up for nutrition. I suspect it is birds like cardinals, mockingbirds, etc. looking for nutrition (see link below). One suggestion is to set up a trail cam and see if you can catch the culprit.”



Go to this website for more information:

<https://www.gardeningknowhow.com/plant-problems/pests/animals/birds-eating-flowers.htm>

Anthracnose on Strawberry Fruit

Over the last few years, anthracnose on strawberries has become increasingly problematic in the Mid-Atlantic region. Kathy Demchak, Penn State Extension, Timothy Elkner, Penn State Extension, and Dr. Mengjun Hu, University of Maryland published [an article](#) recently on this problem. <https://extension.psu.edu/anthracnose-on-strawberry-fruit>

Lady Bird Beetle and Spider Activity

Heather Zindash, IPM Scout, found woolly aphids feeding on *Ulmus parvifolia* 'Allee'. There were also lady bird beetles and spiders nearby taking full advantage of this food source. Monitor aphid populations to determine if beneficials are keeping the numbers in check. Endeavor can be used if the aphids start to get out of control.



This *Ulmus parvifolia* 'Allee' has both lady bird beetles and spiders present to feed on the woolly aphids
Photo: Heather Zindash, IPM Scout

LIFE CYCLE INFORMATION NEEDED for the PEST PREDICTIVE CALENDAR - PLEASE HELP!

We need information on the timing of activity of the susceptible life stages for key pest insects (ex. first crawler activity of gloomy scale, obscure scale, and magnolia scale; egg hatch of caterpillars; or first activity of two-spotted spider mite). With this information, we can increase the usefulness of our UME [Pest Predictive Calendar](#)

When reporting insects for the IPM report, please be sure to also include the following: Date, Location (city, state), insect stage (if known), and plant host. If you are unsure of the stage or species identification, please get a sample to us. You can mail it to: Stanton Gill, CMREC, 11975 Homewood Road, Ellicott City, MD, 21042 OR Nancy Harding, 4291 Fieldhouse Drive, 4112 Plant Sciences Building, Dept. of Entomology, University of Maryland, College Park, MD, 20742.

Beneficial of the Week

By: Rebecca Waterworth and Paula Shrewsbury

Don't be mournful! The appearance of mourning cloak butterflies is a sign of warmer days ahead!

One of the surest signs of spring is the appearance of butterflies fluttering around in the landscape. For a little while now, cabbage white butterflies (Order Lepidoptera, Family Pieridae) have passed through campus long enough pauses to suck nectar through their proboscis (coiled mouthparts). However, this is not the earliest appearance by an adult butterfly in our area. That honor is given to the mourning cloak, *Nymphalis antiopa* (Family Nymphalidae), a brush-footed butterfly (Fig. 1). Another well-known brush-footed butterfly is the monarch.

I examined historical records on [iNaturalist](#) of when people reported adult mourning cloaks in Maryland and was astonished to see a report on 28 February 2018 in Rockville, Maryland! Normally, we humans are still bundled up in winter clothes in late February. How could a butterfly be spotted at this time of the year? (Remember, insects are dependent on temperature to regulate the rate at which they develop and/or when they are active. Cold temperatures usually means that an insect is not developing or doing so very slowly.) When I looked at the historical temperatures on that day in nearby Damascus, NOAA reported a high temperature of 64°F. A week prior, the high temperature was 78°F. This warm-for-February weather certainly explains why this Rockville butterfly was flying around. A truly spectacular thing about mourning cloaks is that they overwinter in our area as adults. This is why there was an adult visible in the first place in late February. There are not many butterflies that do this. Aside from mourning cloaks, some tortoiseshells, commas, and question marks (all brush-footed species) are spotted on warm days early in the season, too. This article was inspired because a mourning cloak was spotted in nearby Beltsville, MD in mid-April, long before the cabbage whites showed up.

As the temperatures warm through mid-spring, mourning cloaks will be visible most days. However, as all of you know, mid-April is not a floral bonanza in the mid-Atlantic. What do these early season mourning cloaks eat? Tree sap! With warmer weather, trees are relocating their stored sugars from the roots back to the shoots. Butterflies take advantage of this flowing sugar and use their proboscis to [probe and suck sap](#) from between segments of bark, storm-damaged trees, and broken branches, especially of oak species. Other, less glamorous food sources are rotting fruits and mammal feces, from which the adult butterflies absorb important nitrogen-based nutrition. (View this [video](#) of California tortoiseshell butterflies feeding on



Fig. 1. An adult mourning cloak butterfly. These are large butterflies with wing-spans that range from 2 7/8" to 3 3/8". Photo used with permission. By David Stephens, bugwood.org



Fig. 2. A late instar (stage) caterpillar of a mourning cloak butterfly. Caterpillars can grow to 2" in length. Photo used with permission from Harvey Schmidt ([bugguide.net](#))

feces.) After reading this, you may have asked yourself why this butterfly is featured as a beneficial of the week. After sap, rotting fruit, and poo, it does occasionally visit knapweed and pincushion flowers among others when they are available, thus making it a pollinator, too.

After emerging from their overwintering space (cracks in bark, a wood pile, or rock crevices) in early spring, adults become sexually mature. Male butterflies establish territories and perch to wait for females that fly by. After mating, females seek out elms, willows, hackberry, poplar, or birch trees to lay eggs (oviposit) on twigs. Young caterpillars hatch after about 10 days to feed on young tender leaves of their host tree. These caterpillars will feed communally in large messy silken webs. They are known to [twitch in unison](#), which some scientists think is a response to deter predators. Larvae are very striking with a black body covered with small white dots and white hairs. Stout branched spines are found on each body segment, which, by the way, gives the mourning cloak another name, the spiny elm caterpillar. Eight reddish-orange patches are found along the midline of the body (Fig. 2). Individual larvae crawl away from their siblings once they are fully grown (~ 2 in) to pupate (Fig. 3).

In our area, the new generation of adults emerges in June, after which, adults are not seen again until September. Scientists actually do not know what happens to mourning cloaks after June. There is some thought that the adult butterflies aestivate (summer dormancy) and wait out the hot summer months. There might also be another entire generation of butterflies (egg to adults) between June and September. No one really knows ([Clark 2013](#)). The butterflies that are active in September will overwinter as sexually immature individuals. In the event that the individuals seen in September are the same as the newly emerged butterflies from June, it would give mourning cloaks another important distinction as one of the longest lived butterflies (10-11 months).

The common name, mourning cloak, refers to the dark brown maroon coloration on the upper side of the wings which is reminiscent of a dark-colored cloak worn during a period of mourning. The dark color actually has a practical purpose for the butterflies. Since they are active relatively early in the season when it is still cold, resting butterflies will angle their open wings toward the sun to absorb heat in order to fly. When wings are folded up (Fig. 4), mourning cloaks are well camouflaged, blending in with the bark of the tree where they are resting. You can find adults in sunny open habitats, especially in gardens and along wooded edges, streams, and rivers.

It is nice to know that our butterfly friends are always here to remind us of warmer days ahead just when we need it!

We would like to thank Dr. Jason Mottern of USDA APHIS for keeping his “eyes peeled” and telling us of his mourning cloak sighting.



Fig. 3. The pupal stage (chrysalis) of a mourning cloak. Up to 7/8" in length.

Photo used with permission from MJ Hatfield ([bugguide.net](#))



Fig. 4 An adult mourning cloak butterfly with wings closed. Note the darker coloration that helps this butterfly camouflage.

Photo used with permission from MJ Hatfield ([bugguide.net](#))

Weed of the Week

By: Chuck Schuster, UME

Many weeds can have a similar appearance which makes weed identification challenging. Proper identification is very important for proper weed control and to prevent damage to other desired nearby plants. Plants found in the landscape may appear to be something you read about in recent newspapers or reports like this one, and /or talked about over coffee where the plant is not nearby to compare which may lead to mis identification. Today's sample looks like other weeds found in Maryland, but is not really a problem weed.



Photo 1: Prickly lettuce

This weed was selected as it was found in a local landscape. Prickly lettuce, *Lactuca scariola*, is an annual, sometimes biennial, and often winter annual in this region of the United States. Prickly lettuce can be found throughout the United States except in southern Florida, Maine, and the higher mountain elevations. Introduced from Europe, it is a broadleaf plant with prickly leaves, found in nurseries, landscapes, and occasionally lower management turf sites. Prickly lettuce has been used as a food source, both fresh and cooked. Often called compass plant, as its leaves will develop on the north-south direction, perpendicular to the sun. The leaves are alternate, from two to fourteen inches in length, lobed, and clasp the stem at the base. The leaves are deeply lobed or in some cases unlobed, presenting with prickly edges and will twist on the stem. A distinguishing characteristic is the row of prickly bristles on the lower midrib and on the leaf margin (Photo 2). The young plant will present as a basal rosette until approaching maturity when the flowering stem develops. The leaves that formed the original rosette may have declined and not be visible at the time that the flowers emerge. The leaves emit a milky substance when cut and will become progressively smaller the farther up the stem they emerge. The stem of prickly lettuce can reach sixty inches in height, is hollow(photo 6), and white to light green in color. One single stem will emerge from the rosette and then will branch into several different stems. It has a deep taproot (Photo 3). The plant produces numerous flower heads. The flower is pale yellow in color and small with 5 or more petals, ranging from one quarter to one half inch in width. Flowers will produce a seed that move easily in the wind.



Photo 2: Prickly bristles on leaf rib



Photo 3: Tap root



Photo 4: Leaves clasp stem at base

Control of this weed can be obtained using most systemic weed control products. In open areas 2,4-D containing products work very well. In landscape and nursery settings, Dicamba (Banvel D), and Bentazon (Prompt) are labeled to control this weed as post emergent herbicides. Ornamental Herbicide 2 (pendimethalin plus oxyfluorfen) and Rout (oryzalin plus oxyfluorfen) are noted to be useful as pre-emergent products. Note that some herbicide resistance has been noted in the agronomic sector. Use caution with the use of post emergent products as some have the ability to volatilize and move from the intended site.



Prickly lettuce growing in the landscape
Photo 5 – Courtesy Dianne Fasolina

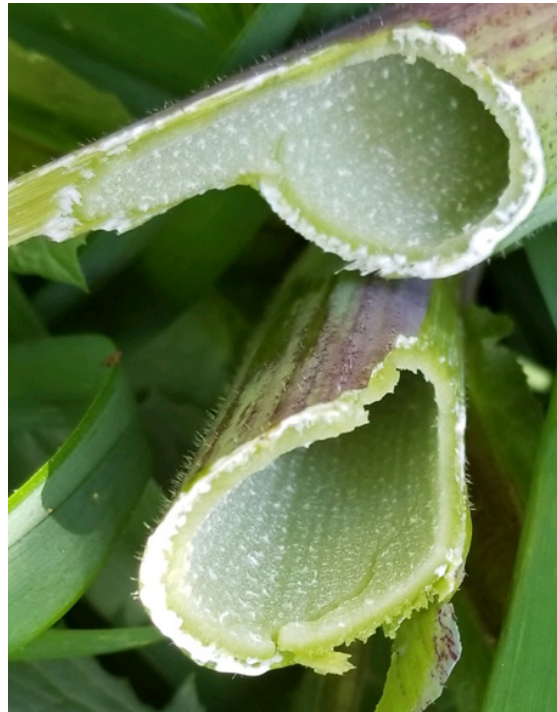


Photo 6: Leaf emits a milky substance

Photos: 1-4,6 Chuck Schuster

Plant of the Week

By: Ginny Rosenkranz, UME

Baptisia australis, false indigo, is a native herbaceous perennial that can flower in various shades of blue or blue/purple, pure white, pinks, yellow, and bi-colors. The plants die back in the fall and the new growth emerges in April, growing to 3-4 feet tall and wide by May. They bloom with lupine-like flowers in mid to late May and into June and are excellent pollinator plants. They grow best in full sun and rich moist, but well drained soils in USDA zone 3-9. Once established, they are very drought tolerant due to their deep tap roots, but those deep roots also prevent them from being transplanted after a few years. If grown in partial shade, the plants may need to be staked and will never produce the abundance of flowers they are capable of in full sun. They are very long-lived perennials with flower spikes 12 – 24 inches tall that extend above the foliage. Young plants will give a beautiful show of flowers, while mature plants will give a spectacular display of flowers! Plants could be trimmed after blooming to create a more rounded shape, but by trimming off the spent flowers you are also eliminating the seed pods which can add color, texture and sound to the garden. As the seeds dry in the black seed pods, they become loose and rattle with each breeze, giving the plant another common name of Indian rattle. The dried stems of the seed pods are also useful for dried flower arrangements. The bright green leaves are composed of 3 leaflets and are arranged alternately along the stem. Some varieties can have blue green leaves, yellow green leaves, and some like *B. alba* have gray green leaves. Some of the newer varieties do not come

true from seeds, but that should not stop gardeners from planting and enjoying the newer colors. ‘Purple Smoke’ is a hybrid of *B. australis* and *B. alba*, with smoky purple violet flowers and gray green foliage. ‘Royal Candles’ has purple stems and bright blue flowers that rise 18 inches above the foliage. An interesting bi-colored cultivar from PrairieBlues™ includes Lunar Eclipse® which has flowers that start creamy yellow, then turn to shades of pale lilac and later blue and blue purple. Another of the ParirieBlues™ is ‘Twilite’ with violet purple flowers and yellow highlights, while ‘Starlite’ has soft blue flowers. There is also the Decadence® series, bred for more compact plants that grow only 2 ½ to 3 feet tall and wide, with excellent color. There are a number of excellent varieties including ‘Blueberry Sunday’ with bright deep indigo blue flowers and blue green foliage and ‘Sparkling Sapphire’ which has violet blue flowers. The same series includes ‘Dark Chocolate’ with dark smoky charcoal purple flowers, and ‘Dutch Chocolate’ has chocolate purple flowers. Baptisias can be used in herbaceous borders, cottage gardens, meadow gardens, native plant gardens or xeroscapes. They attract butterflies to visit the flowers in the garden and are also the host plant for the caterpillars of several butterfly

species including wild indigo duskywing, eastern tailed blue, orange sulphur, clouded sulphur and frosted elfin. Plants are listed as both deer and rabbit resistant. There are no serious pests.



Baptisia in bloom
Photos: Ginny Rosenkranz

Degree Days (as of May 22)

Abingdon (C1620)	606
Annapolis Naval Academy (KNAK)	807
Baltimore, MD (KBWI)	698
College Park (KCGS)	653
Dulles Airport (KIAD)	682
Frederick (KFDK)	670
Ft. Belvoir, VA (KDA)	739
Gaithersburg (KGAI)	636
Greater Cumberland Reg (KCBE)	545
Martinsburg, WV (KMRB)	595
Natl Arboretum.Reagan Natl (KDCA)	865
Salisbury/Ocean City (KSBY)	726
St. Mary’s City (Patuxent NRB KNHK)	797
Westminster (KDMW)	728

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 map Model Category: All models Select Degree-day calculatorThresholds in: Fahrenheit °F Lower: 50 Upper: 95Calculation type: simple average/growing dds Start: Jan 1

CONFERENCES

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

Location: Montgomery County Extension Office, Derwood, MD

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

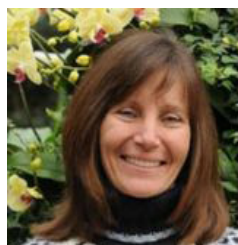
Location: The Perennial Farm in Glen Arm, MD

Registration info will be posted at the [MNLGA calendar](#) site when available

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