

OSU Extension - Auglaize County Weekly Horticulture Newsletter – 6-12-20

What are Bagworms and When to Control Bagworms?



Bagworms were really bad last year and the winter was not very harsh, so I'm expecting another bad bagworm season. I have not seen any bagworms yet, but they should be hatching very soon. The scientific name for the common bagworm is *Thyridopteryx ephemeraeformis*.

The common bagworm is most easily identified by the spindle-shaped silk bag camouflaged with bits of foliage, bark, and other debris. They are very hard to see when they are small which is when they need to be identified. Full-sized bags range from 1.5 to 3 inches in length, which is too late to control with insecticides. The larva within the bag is brown or tan, mottled with black and the bee-like adult males have clear wings and fur-covered bodies. The female never leaves the bag, regardless of stage of development. Larva will move around the tree eating foliage and branches until pupation, when they attach themselves to a branch. Bagworms are most prevalent in the eastern United States although they go west and south to Texas. Larva will feed most often on arborvitae, eastern red cedar, and other junipers, but may feed on pines, spruce and bald cypress. They may also feed on deciduous trees such as maple, boxelder, sycamore, willow, black locust, oaks, apples, elm, poplar, birch and roses.

Bagworms have only a single generation during the year. A female can lay between 300 to 1,000 eggs in a bag which overwinters. The eggs hatch the end of May to early June. After the egg hatches the small blackish

larvae crawl out of the bag and spin a strand of silk. The wind blows the silk thread and larvae to other nearby plants allowing them to spread. When they find a suitable host plant the larvae immediately start to form the bag over its body. At this stage the bag is only about 1/8 inch long and is covered with sawdust-like fecal pellets.

As the larvae grow so does the bag. The larvae incorporate bits and pieces of plant material in the bag as it enlarges. The larvae become mature by mid-August and they will move to a sturdy branch where they will attach themselves with a strong band of silk to the branch. Before they pupate the larvae orient itself so the head is at the bottom of the bag. The female pupa looks much like the larva, but the male forms typical wing pads and other adult-like structures. After four weeks the male adults will hatch and fly in search of females. The adult female releases a sex attracting pheromone to lure the male. After mating, the female lays eggs and mummifies around the egg mass until hatching the next spring.

Since females do not fly and they lay many eggs, populations can increase rapidly in a small area. Larvae feed on the buds of branches causing branch dieback resulting in open dead areas of conifer trees. Excessive defoliation on conifers can cause entire plant death the following season. Moderated damage is more cosmetic, but is evidence to be concerned. Additional damage to the tree can come from girdling of the stem from the sturdy band of silk used to attach the bag.

If the population is observed soon enough, just remove the bags by hand from the tree during the fall until just before the eggs hatch at the end of May. Be sure to cut the band of silk holding the bag to the stem as it will girdle the stem.

If there are too many bags to remove by hand then insecticides need to be applied after the last larvae have flown (ballooned) away from the bag. This usually occurs by the END of June, although weather will have an impact on development. The time to spray is five to seven days after the growing degree days reach 900 at a base temperature of 50 degrees F. Visit the Ohio State Phenology Calendar (<http://www.oardc.ohio-state.edu/gdd/CalendarView.asp>) to know the accumulation of growing degree days and therefore the developmental stage of the larvae. Currently we have accumulated 801 growing degree days in Wapakoneta, so it will not be long before needing to spray. The larvae could have hatched already based upon growing degree days.

For safer insecticides apply Bt or Spinosad. Be sure to apply these as close to the 900 growing degree days as possible and at maximum rate because they will not control large larvae. Acephate, carbaryl, bifenthrin, cyfluthrin, and lambda-cyhalothrin are synthetic insecticides that will control larvae quickly, especially larger larvae and give you a wider window for application.

So get out and start scouting!

Local Observations



Current stage of neighbor's potatoes



Current stage of my red beets



My peas starting to flower



Current stage of my neighbors' zucchini



Impatiens



Day lilly



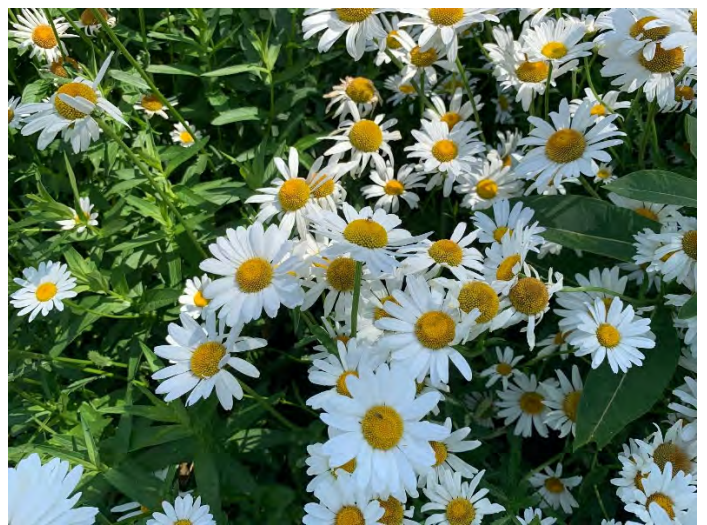
Geranium



Clematis



Milkweed in bud stage (friend or foe)



Oxeye daisy (friend or foe)



Salvia



Current size of peaches

Good morning! I pray you are well.

A dryer week for most! We received rainfall **2** days this past week! Rainfall on Tuesday, June 9th ranged from a trace near St. Rt. 117 and St. Rt. 67 and Buckland-Holden and St. Rt. 501 roads to 0.3" near Uniopolis. Rainfall Wednesday ranged from a trace near Mercer Line and St. Rt. 197 roads to 0.58" near Santa Fe-New Knoxville and Shelby-Fryburg roads. Rainfall for the week ranged from 0.09" near St. Rt. 117 and St. Rt. 67 roads to 0.8" near Santa Fe-New Knoxville and Shelby-Fryburg roads. The average rainfall for the week was 0.43", 0.31" less than last week. It will be dry most of the week with the best chance of rain at 25% on Monday.

A hot week again. The average high temperature now is 80 degrees F, 2 degrees higher than last week. Temperatures were above normal for **5** days and below normal for **1** day this past week. Temperatures ranged from 77 degrees F to 90 degrees F. The average high temperature for the week was 84.3 degrees F which is 8.4 degrees F warmer than last week and 4.3 degrees F warmer than the historical average high. Temperatures will be below normal through Monday, then warm the rest of the week.

The vegetables really took off this week! The tomatoes are huge and they have started flowering. The peppers have been flowering and one plant has a fruit on it. I planted cucumbers, zucchini, and watermelon on Tuesday. I have acorn squash, green beans, and my poorly rooted sweet potatoes to plant yet. My late

lettuce and spinach have come up pretty good. All early planted species are good, except for green beans and peas.

New species of plants begin to flower about every day. The flowers are looking good for many people. Calls this week have been about rhizosphaera on spruce, Zimmerman pine moth on white pine, gummosis on cherry, peach leaf curl, and apple-cedar rust on apples.

Weekly Weed Photos



Blackseed plantain



giant ragweed



Honeyvine milkweed

Special OSU Horticulture Meetings

Horticulture Lunch and Learn and Horticulture Happy Hour

During this period of COVID-19 OSU Extension is offering a Horticulture Lunch and Learn Program and a Horticulture Happy Hour Program. If you are interested, visit the following web address: <http://go.osu.edu/MGVlearn> The Lunch and Learn occurs every Tuesday and Thursday from noon to 1:00 PM and the Happy Hour is Wednesdays from 4:00 to 5:00 PM.

VegNet

Managing Phytophthora Blight and Pythium Root Rot in Peppers – Fungicide Update

June 13, 2020

Heavy rains early in the planting season favor both Pythium root rot and Phytophthora blight. While Pythium root rot is caused by several different species of Pythium with different temperature optima – cool to hot, Phytophthora blight is only favored by hot weather. Periods of hot, rainy weather following a cool wet spring can be a predictor of future problems with these diseases.



Young pepper plants killed by Phytophthora blight



Pepper plants (background) stunted by Pythium root rot

Phytophthora and *Pythium* are soilborne oomycete pathogens, also called water molds, that thrive in rainy weather. They produce motile spores (zoospores) that are attracted to plants, then form a structure that allows them to infect, and aggressively attack any type of plant tissue. Zoospores can be splashed onto leaves, stems and fruits during rain events and overhead irrigation. *Phytophthora* blight and *Pythium* root rot are often seen first in low spots or other poorly drained areas of production fields, but also occur on well-drained, even sandy soils if the environmental conditions are right. While *Pythium* root rot is not as explosive as *Phytophthora* blight, both must be managed preventatively. Pepper varieties partially resistant to *Phytophthora* blight are available and should be used in fields with a history of this disease. There are no varieties with identified resistance to *Pythium* root rot. Cultural practices including crop rotation, good drainage, raised beds, avoiding surface water for irrigation, and sanitation should be used – see details [here](#). During the growing season, fungicide application is the main option for management of *Phytophthora* blight. Andy Wyenandt (Rutgers University) published a really nice piece on *Phytophthora* and *Pythium* control in peppers in April (<https://plant-pest-advisory.rutgers.edu/phytophthora-control-during-wet-weather-3/>). Fungicides must be applied preventatively for maximum benefit. Keep in mind that:

1. Orondis Gold premix contains oxathiapiprolin, which is very effective against *Phytophthora* blight (but not *Pythium*) and mefenoxam, which is effective against both *Phytophthora* and *Pythium*. However, if mefenoxam (Ridomil Gold) or metalaxyl products have been used for a number of years in the same field, the *Phytophthora* population may be resistant. We have found mefenoxam/metalaxyl-resistant *Phytophthora capsici* in Ohio in recent years. Orondis Gold can be applied through drip and in transplant water.
2. Ridomil Gold can be applied to peppers as a soil spray or via drip, but **not in transplant water**. Under some conditions peppers can be severely damaged and unlikely to recover.
3. The active ingredient in Orondis, oxathiapiprolin, does not move well through the soil profile. Our research has not shown a benefit of using Orondis as a soil application vs. foliar sprays. I recommend “saving” Orondis Ultra for foliar application when the weather is continuously conducive for *Phytophthora* blight.
4. Elumin is a newer product for *Phytophthora* blight and application through drip or soil spray at transplanting is labeled, as well as foliar sprays during the season. *Pythium* root rot is not on the label for peppers but is labeled for *Pythium* in potatoes and related crops.
5. Like Elumin, Ranman and Presidio are labeled for *Phytophthora* blight management in pepper, and not *Pythium* root rot; however, they are labeled for *Pythium* management in other crops.
6. For Previcur Flex, *Pythium* root rot is on the label for peppers, but *Phytophthora* blight is not.
7. The phosphites like ProPhyt and others are labeled for both *Phytophthora* and *Pythium* and are systemic. The ProPhyt label allows drench application at transplanting although not in the transplant water per se. However, it can be drenched onto seedlings prior to transplanting. The phosphites are

good supplemental products but will not control Phytophthora blight alone. They should be used in tank mixes or rotated with products listed below.

Growers have a lot of choices, but **if wet conditions continue and both Pythium root rot and Phytophthora blight are a concern:**

1. If Ridomil or related products have been used routinely on the farm or Phytophthora is known to be resistant to mefenoxam/metalaxyl, peppers should be treated with a soil application at or near transplanting with Ranman, Elumin or Presidio, followed by foliar applications in a rotation that includes Orondis Ultra, Presidio, Elumin or Ranman. These may be tank-mixed with a phosphite product.
2. Keep in mind that a number of products such as Orondis Gold, Orondis Ultra and Elumin have strict use limitations – e.g. two applications per season. Check the label.
3. Always rotate fungicides with different modes of action (FRAC codes):

Ridomil Gold: 4

Orondis Gold: U15+4

Orondis Ultra: U15+40

Elumin: 22

Presidio: 43

Ranman: 21

Previcur Flex: 28

Phosphite products: 33

Wayne County IPM Notes (Week of June 1- June 5)

June 13, 2020

These observations are from Frank Becker, Dept. of Extension Wayne County.

Vegetable Pests

The Colorado Potato Beetle is being seen feeding in both potato and eggplant. When approaching plants to look for them, be cautious. When the beetle is startled, they drop to the ground and may be difficult to see. They do significant damage to the foliage and can cause significant reduction in yield. The Colorado Potato Beetle also has a history of developing resistance to insecticides being used as control measures. This has limited our choices for treatment options. The best way to prevent further resistance is to avoid using the same insecticide repeatedly. At the current plant stage for potato, the threshold is approximately 1 beetle per plant. For eggplant, it is 25 beetles per 50 plants.

Another pesky insect this time of year is the flea beetle. Their damage may seem insignificant at first, however, their populations can rapidly increase and can quickly overwhelm young plants. Flea beetle damage is occurring primarily on potato, eggplant, cole crops and sweet corn. Sweet corn is of particular concern due to Stewart's Wilt disease which is vectored by the flea beetle. Susceptible sweet corn varieties have a threshold of 6 beetles per 100 plants, while tolerant varieties have a threshold of 2 beetles per plant. On cole crops, the threshold is 5 or more beetles per plant. For potato, you will need to count the "shot holes" in the leaves caused by the beetle. The threshold is 15 shot holes per leaflet. Eggplants have a threshold of 8 beetles per plant.

In sweet corn, there is light slug damage occurring as well as some light damage being done by the European corn borer larva. Young sweet corn is also a target of black cutworm. The cutworm will cut plants at the soil line. If you find a cut plant, dig up some soil around the plant to see if you can find the cutworm.

Vegetable Diseases

In high humidity this time of year, greenhouse tomato crops become especially susceptible to infection from Botrytis. This can initially present itself on the fruit as "ghost spot" which appear as pale or white rings on the fruit. It can then progress into Botrytis gray mold and the fruit will begin to rot. It is important to increase airflow in the tunnel as well as between plants. It would also be beneficial to reduce the humidity within the tunnel.

Blossom end rot is also prevalent this time of year in crops such as squash and tomatoes. Although this is not necessarily a pathogen, secondary infections commonly compound the issue. To manage blossom end rot, it is important to limit moisture stress on a plant, from either too much or not enough moisture. Being consistent in watering and monitoring soil moisture conditions will help to prevent exposing the plant to moisture stress. Proper moisture will also provide conducive conditions for adequate nutrient uptake, given that the nutrients are present at appropriate levels in the soil.

Fruit Pests

Strawberry producers typically are facing several insect pests this time of year. One of these pests is the eastern flower thrips. This small insect feeds on and damages the strawberry blossom. As the berry begins to develop, this damage results in cat-facing on the berry or a russetting/bronzed appearance. When you notice these symptoms on the developing berry, the damage has already been done and there are no treatment options. To look for thrips in the blossoms, take a white piece of paper or a plate and shake the blossoms onto the plate and watch for any small, slender yellow thrips to be moving around. Once you have reached 2 or more thrips per blossom, you should move forward with a treatment. Consider the pollinators before applying an insecticide, considering the target of your application is primarily associated with the blossoms. Preventative sprays can also be used in successive plantings.

Another pest of strawberries and small fruits is the spotted wing Drosophila. The SWD is a small fruit fly that can lay its eggs in ripening fruit while it is still on the plant. As you are picking, do not discard unwanted fruit on the ground right next to the plant. The rotting fruit on the ground will attract SWD. Instead bring a bucket to discard unwanted fruit in and either bury it a foot or so deep in soil or seal the fruit in a clear plastic bag exposed to the sun for about a week to kill any larvae. If culls are discarded in the trash or compost pile, they might attract SWD flies and allow for more generations to be produced. This is also the time to put traps out in your bramble and blueberry patch but if you have June bearing strawberries, they likely won't be affected by this pest. More details about how to set up traps can be in the OSU IPM YouTube page under the SWD playlist at <https://www.youtube.com/channel/UCzcWaLH3mx7HUKh4OF7bYPA> and on Celeste Welty's <https://u.osu.edu/pestmanagement/> page.

Orchard traps are now out in Wayne County and we will be monitoring Codling Moth and Oriental Fruit Moth numbers closely.

Fruit Diseases

Now is the time to be managing early season diseases in apples. Scab, rust and powdery mildew are the three main diseases of concern at this point in the season.

Strawberry leaf diseases may appear unsightly right now, however, now is not the time to be managing these leaf diseases. Once harvest is done and during patch renovation it is recommended that you address these concerns, either with a fungicide or with resistant plant varieties. This is also a critical time to be watching for fruit rots such as Botrytis.

Grapes are currently around the pre-bloom stage. This stage is the most critical stage of development for controlling diseases. Fungicide applications for black rot, powdery mildew and downy mildew are highly recommended during this time.

Grafted Plants, Suppliers, and Experiments

June 6, 2020



Growers typically convert to using grafted plants (e.g., tomato, watermelon) primarily because they can be much more productive when specific soilborne diseases are present (and the correct rootstock is used). In addition, however, grafted plants are often more vigorous than ungrafted ones of the same scion (fruiting variety). Grafted plants may also use water, fertilizer, and other inputs more efficiently. Therefore, it is necessary to optimize cultural and fertility practices for grafted plant-based production. Two experiments will be completed in this 1+ acre parcel in 2020. One experiment tests alternative fertilizer rates and the second experiment tests in-row spacings (plant populations/acre). All grafted plants are supplied by Tri-Hishtil in Mills River, NC.



Tri-Hishtil (<http://www.trihishtil.com/>) is one among a constantly-lengthening list of commercial grafted plant suppliers. Others include Banner Greenhouses (<https://www.bannergreenhouses.com/>), Grafted Growers (<https://graftedgrowers.com/>), and Re-Divined (<https://redivined.weebly.com/>) in the eastern U.S. and others based in the west. Local suppliers are also operating in Ohio and some farmers are preparing their own grafted plants. Commercial suppliers continue to ramp-up their capacity to meet the needs of vegetable growers, regardless of the size, location, or type of their operation (field and/or high tunnel; conventional and/or organic). Also, grafted plant costs are increasingly competitive. Overall, access to grafted plants is strong and increasing and no longer a reason for being unable to test the performance of grafted plants on your farm. The Vegetable Production Systems Lab at OARDC can also assist, if needed; we teach people how to graft and, in 2021, we hope to resume preparing small numbers of plants by request.



One empty and three filled cells of a 128-cell tray holding grafted watermelon plants prepared by Tri-Hishtil. Note roots are visible on the surface as healthy white 'threads' with smaller root hairs near the tip, creating a bottle-brush appearance. Slotted cells (as shown at the bottom-left) contribute to this root condition and morphology.



Hand-grafted watermelon plants from Tri-Hishtil in Mills River, NC.

Plant at left is Jade Star and plant at right is Fascination, both grafted to Carnivor rootstock.

Clear and green clips show the location of the graft union and supports (white sticks) will be removed at planting (scheduled for 6/8/20).

Root systems are well-developed, stems are sturdy, and the plants pull easily. Roots are not spiraling, partly due to the larger size and special shape of the cells.

Clips can be removed at planting or allowed to be forced off naturally by stem growth.

Contact Matt Kleinhenz (330.263.3810; kleinhenz.1@osu.edu) and see updates at this blog for more information.

BYGL

I did not include all of this week's articles in this newsletter. To see all of them go here:
<https://bygl.osu.edu/>

Calico Scale Crawls

Authors

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Calico scale (*Eulecanium cerasorum*) eggs located beneath helmet-shaped females are just about finished hatching in southwest Ohio. As soon as the 1st instar nymphs (crawlers) appear, they make their way to the undersides of leaves where they settle along leaf veins and use their piercing-sucking mouthparts to tap into the phloem vessels.



**Calico Scale Crawlers
Migrating to Leaflets**



Joe Boggs, OSU Extension©

**Calico Scale Crawlers
on Hawthorn**



Joe Boggs, OSU Extension©



This life cycle event happens quickly. The majority of the 1st instar nymphs that I spotted yesterday had already settled on leaf veins where they will remain until late-summer when the reverse course and travel back to tree stems. Unlike armored scales, all nymphal stages of this soft scale are mobile, so nymphs can be called "crawlers" throughout their development.

Calico scale females have the potential to produce more than 1,000 eggs meaning that populations can build rapidly. The tiny, tannish-brown, oblong-shaped 1st instar crawlers measure around 1/16" in length. They are easily visible with the unaided eye particularly against bark that's darkened by black sooty mold or against the green background on undersides of leaves.

**Calico Scale Crawlers
with Dead Females**



Calico scale females die, turn reddish-brown, and appear to deflate after producing their eggs. Dead females remain evident throughout the remainder of the season and may give the false impression that control efforts such as an insecticide application were effective. In fact, I've received pictures in the past of calico scale females that died of natural causes being perceived as proof that an insecticide application was effective.



Like the maturing females earlier this season, the crawlers extract amino acids dissolved in the sugary plant sap flowing through the leaf phloem vessels. They discharge excess sap from their anus in the form of sticky, sugary "honeydew."

Honeydew produced by the crawlers is usually not as dramatic as that which was produced by the maturing female scales. However, high crawler populations can emit enough honeydew to produce a sticky sheen on the leaves, stems, and branches of scale infested trees as well as understory plants. The resulting colonization of the honeydew by black sooty molds further adds to an unsightly appearance.

Calico scale has a wide host range. In fact, few landscape trees in Ohio other than conifers are beyond the reach of this Asian native. Here is a partial A-to-Z list of possible hosts: buckeye, crabapple, dogwood, elm, hackberry, hawthorn, honeylocust, magnolia, maple, oak, pear, redbud, serviceberry, sweetgum, tuliptree, poplar, witchhazel, yellowwood, and Zelkova.



This is one of the most difficult soft scales to control. Dormant or horticultural (summer) oil as well as insecticidal soaps are ineffective. It does not respond to many insecticides that are effective against other soft scales including most neonicotinoid systemics. In fact, for reasons not entirely understood, insecticide efficacy trial results have been highly variable.

Fortunately, as with most soft scales, calico scale is seldom a direct killer of established landscape trees. But heavily infested trees may suffer branch dieback and the accumulated stress caused by substantial sap loss coupled with other stress-producing conditions may kill trees. So, the best first step in scale management is to resolve other issues that may affect overall tree health. I've frequently observed large, heavily infested honeylocusts that are planted in good sites showing no obvious symptoms. I just don't park my car beneath them!



Bagworm "Season" Begins

Authors

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June 11, 2020



Overwintered common bagworm (*Thyridopteryx ephemeraeformis*) eggs are hatching in southwest Ohio. Look closely when inspecting plants. The 1st instar caterpillars are very small with their bags measuring around 1/8" in length.



The tiny 1st instar bags are constructed with pieces of tan to reddish-brown sawdust-like frass (excrement) stuck to the outside of silk and look like "dunce caps." As the caterpillars mature, they begin weaving host plant debris into the silk which provides structural stability and helps to camouflage the caterpillar bag-abodes.



The overwintered eggs hatch within the female bags from last season. A percentage of the 1st instar caterpillars will crawl from the old bags and produce a strand of silk to catch the wind and "balloon" to new locations. This behavior is one of the reasons bagworms often appear on hosts that were not infested last season.

**1st Instar Caterpillar
"Ballooning" Silk**



I've often used the presence of silk strands hanging from the tips of overwintered bags or covering needles on heavily infested spruce trees as an indicator that eggs were hatching. However, heavy rain and high winds quickly destroy the delicate silk strands.



Old bags can cling to twigs and branches for a number of seasons. Look closely on plants that are festooned with bags from past seasons. A single female can produce 500 - 1000 eggs meaning that populations can climb rapidly. Just a few females from last season can spawn damaging numbers of caterpillars this season.

**Concentrated Damage and
Bags From Past Seasons**



Joe Boggs, OSU Extension©

**Bagworm Female in Fall
Full of Eggs**



Joe Boggs, OSU Extension©

Pay close attention to deciduous trees and shrubs as well as evergreens. It is a common misconception that bagworms only eat evergreens. In fact, they are called "evergreen bagworms" in many southern states.



However, the caterpillars may be found feeding on over 130 different species of deciduous trees and shrubs. Overlooking deciduous trees and shrubs during bagworm inspections allow infested plants to become reservoirs for infestations to spread to neighboring host plants.





Bagworm eggs may hatch over an extended period of time and eggs on the south side of an infested plant usually hatch earlier than those that are shaded on the north side. Consequently, it's common for 1st, 2nd, and sometimes 3rd instars to be present at the same time; bagworm caterpillars develop through 7 instar stages. This needs to be taken into account in planning management strategies.



For example, early instar bagworms are highly susceptible to the naturally occurring biological insecticide *Bacillus thuringiensis* var. *kurstaki* (Btk) (e.g. Dipel, Thuricide, etc.). Caterpillars are much less susceptible once bags surpass 2/3" in length. It's appealing to use Btk products because they do not kill bio-allies such as predators and parasitoids that help provide natural control of bagworm populations.

However, Btk products have two limitations. The active ingredient must be consumed to kill caterpillars and products have relatively short residual activity. Thus, timing is critical; products should not be applied prior to egg hatch. Even with proper timing, two applications may be required to cover the extended egg hatch. Of course, once bags exceed 2/3" in length, standard insecticides will need to be used to suppress heavy infestations.

Johnsongrass in Turfgrass

Authors

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David Gardner

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**Johnsongrass
in Turfgrass**



Joe Boggs, OSU Extension©

During today's BYGL Zoom Inservice, Dave Gardner (Turfgrass Science, OSU Horticulture and Crop Science) showed pictures of Johnsongrass (*Sorghum halepense*, family Poaceae) springing up in turfgrass. The coarse bladed warm-season grass strongly resembles young corn plants and may present a weed identification challenge in turf.



Johnsongrass is a perennial grassy weed native to the Mediterranean region. It was exported worldwide primarily for erosion control and can now be found growing on every continent except Antarctica. Its common name references Alabama plantation owner William Johnson who sowed seeds on his river-bottom land sometime in the 1840s to control water erosion.

This non-native grassy weed may reach a mature height of 5 – 8'. It's a prolific seed producer with seed viability lasting more than 20 years. Plants also spread by underground stems called rhizomes making it a stubborn recurring weed. Dense colonies will outcompete preferred plants including landscape annuals and perennials as well as field crops.



**Johnsongrass
Seed Heads**



Joe Boggs, OSU Extension©



Johnsongrass was long considered a problem confined to southeastern states. However, it has been gradually creeping north to present a serious weed management challenge in Ohio's agricultural fields, nurseries, and landscapes.



Seed may occasionally drift into turfgrass from surrounding infestations. The newly established Johnsongrass plants become very apparent in the spring as they grow much faster than the turfgrass plants. However, even though this weed is a heavyweight in other locations, it's a wimp in turfgrass. Dave noted that Johnsongrass will not survive continuous mowing at turfgrass cutting heights.

**Johnsongrass
in Turfgrass**



Joe Boggs, OSU Extension©

**Johnsongrass in Turfgrass
Mowed**



Joe Boggs, OSU Extension©

Control in landscapes and nurseries is more difficult owing to long-term seed viability, underground rhizomes, and the development of herbicide-resistant biotypes. Johnsongrass biotypes have been identified that are resistant to glyphosate (e.g. Roundup), fluazifop-p-butyl (e.g. Fusilade, Ornamec, Grass B Gon), sethoxydim (e.g. Poast, Vantage), and quizalofop (e.g. Fusilade II).

There are no effective pre-emergent herbicide options for nurseries or landscapes. Post-emergent herbicides including glyphosate are effective on young plants as long as you're not dealing with a resistant biotype. Mowing, cultivation, and physical removal are also viable options. Of course, mowing must be maintained to eventually eliminate plants, and hand-rouging and destroying plants may still leave behind rhizomes allowing plants to spring forth another day.

Early-Bird Periodical Cicadas

Authors

Joe Boggs

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Periodical Cicada



Periodical Cicadas (*Magicicada* spp.) take either 17 or 13 years to complete their development and emerge from the soil en masse as different "broods" in the spring. The only periodical cicada brood that's emerging this spring is Brood IX (Nine) in North Carolina, Virginia, and West Virginia.

Brood X (10) will emerge in Ohio next spring. This is one of the largest broods with a geographical range that includes parts or all of DE, GA, IL, IN, KY, MD, MI, NC, NJ, NY, OH, PA, TN, VA, WV, Washington DC.

However, why are we getting reports of periodical cicadas emerging this spring in parts of Ohio? Indeed, I heard two members of the lonely hearts club "singing" yesterday in a park near my home in Butler County.

It's common for a few early-birds to emerge the year prior to the big show. In fact, there are also some that will emerge the year after. The prologue and epilogue numbers are always much lower than the main event with little to no apparent oviposition injury; however, the appearance of these off-year periodical cicadas can create some confusion.



Possible Explanations for an Early Appearance

If we could spin the clock back tens of thousands of years, we would most likely see a single huge emergence of periodical cicadas across the entire geographical range of this unusual eastern North American insect. It would be the stuff of dreams for entomologists ... and nightmares for everyone else!



Groups of periodical cicadas gradually evolved over time to emerge during different calendar years producing the distinct broods that we see today. However, there is no reason to believe the environmental inducements that influenced the divergence of periodical cicadas into different broods have ceased to exist.

One possible explanation for the early-birds is that these represent a diverging group that may eventually become a distinct brood. In a personal communication with noted cicada expert, Gene Kritsky (Mount St. Joseph University, Cincinnati) a few years ago, I learned that he and others observed an emergence of a number of periodical cicadas 4 years before the last Brood X emergence in 2004. Based on the number of adults that emerged, mated, and laid eggs, as well as the number of eggs that hatched (85%) in 2000, it would be reasonable to assume an early emergence this spring originated with these early-bird stragglers. Whether this splinter group maintains its cohesion to attain new brood status will be up to our descendants to decide.

There are also the effects of climate change to consider. No one knows exactly how this new environmental incentive for evolutionary change will affect the biology of many insect species. However, it's certainly a new force to contend with; even if you're a cicada.

Know Your Cicadas: Prepping for the 2021 Cicada Parties

Periodical cicadas are not locusts. Locusts are grasshoppers. It's speculated the mistaken identity originated with early European colonists who had never seen cicadas before or the Biblical locust plagues for that matter. However, the mass emergence of a periodical cicada brood may have appeared like something straight out of the pages of Exodus (10:1–20).

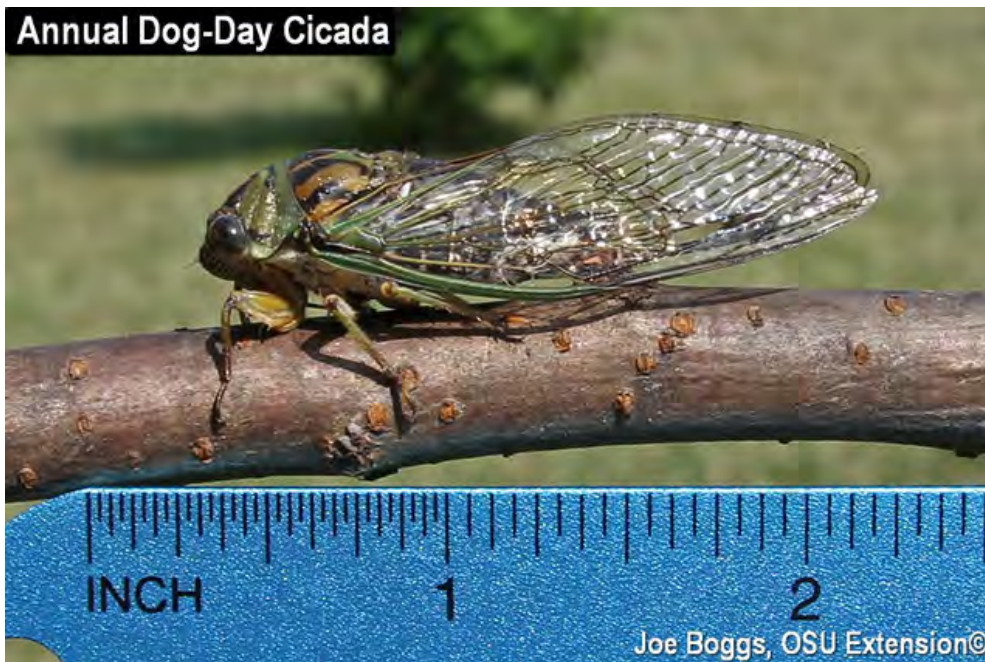


Cicadas (family Cicadidae) are sucking insects and resemble huge aphids (they are related). All cicadas develop through their immature stages (nymphs) deep within the soil where they use their piercing-sucking mouthparts to tap into tree roots. However, this feeding activity has never been shown to cause significant harm to overall tree health.

**Periodical Cicada New Adult
Cast Nymph Skin**



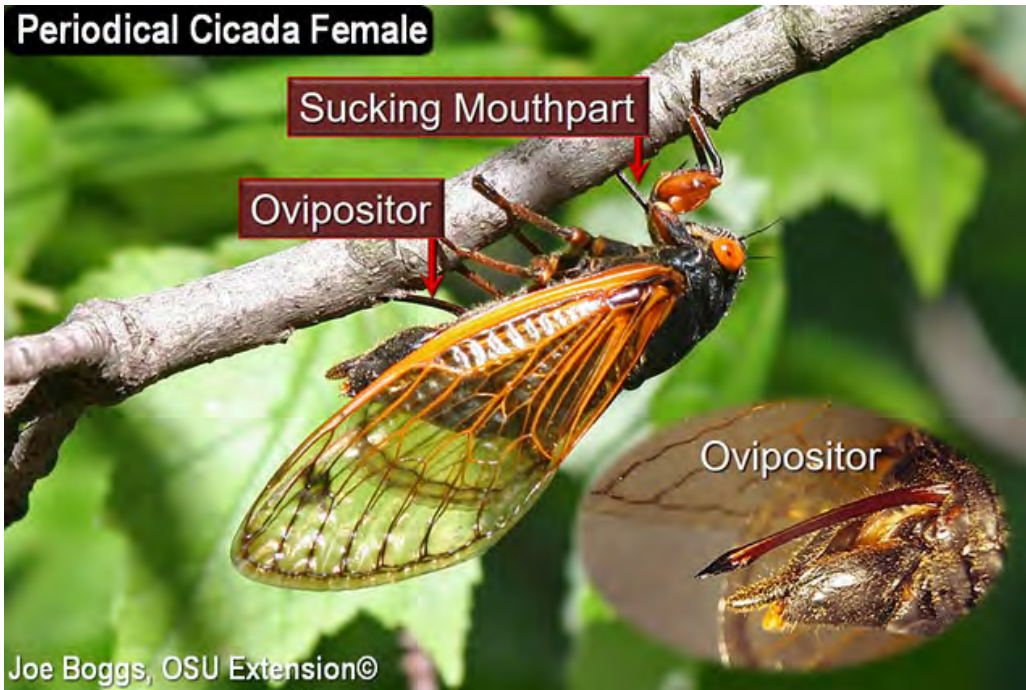
So-called Annual dog-day cicadas (*Tibicen* spp.) appear sporadically throughout the "dog days" of summer usually beginning sometime in July. Although it takes 2-3 years for dog-day cicadas to complete their development, some adults emerge every year due to overlapping generations.



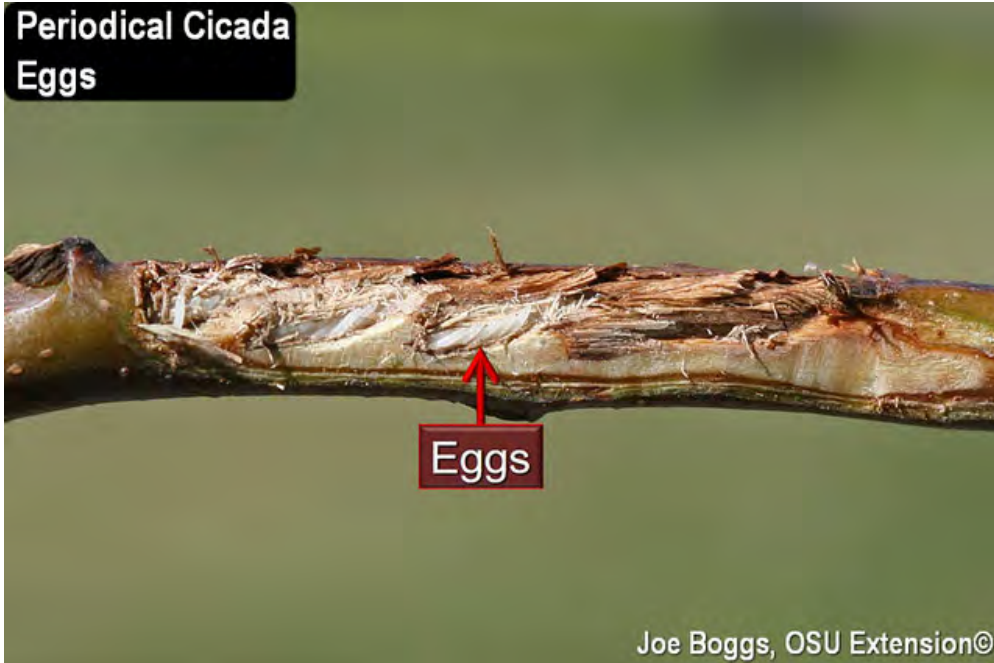
The name "periodical" applies to cicadas that belong to the genus *Magicicada* spp. These cicadas require 13 or 17 years to complete their development. Adults emerge en masse in the spring, usually beginning sometime in May and ending sometime in June. Adults climb the trees beneath which they developed or fly to new trees where males serenade females with cacophonous songs only appreciated by another cicada.



Mated females use their sharp ovipositors (ovi = egg, positor = deposit) to create slits in tree stems into which they insert eggs much like inserting letters into an envelope. Their damage to the vascular system commonly causes the stem beyond the slits to turn brown and die producing the symptom called "flagging" because it now looks like small flags tied to the ends of branches. In short, a full-blown periodical cicada brood emergence is not subtle.



**Periodical Cicada
Eggs**



Eggs

Joe Boggs, OSU Extension©

**Flagging on Oak
Mid-July**



Joe Boggs, OSU Extension©

Rhododendron Heaven

Authors

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I had a chance last week to view the glories of the David G. Leach Rhododendron Research Station of Holden Forests and Gardens near Madison, Ohio. This is an appointment-only aspect of Holden and even that was curtailed this year as their traditional Memorial Day open houses had to be put on hold.



The Leach Rhododendron Research Station at Holden Forests and Gardens



This rhododendron has flare



Rhododendron 'Burma' at the Leach Gardens



Trees tower overhead at the Leach Station. Here is *Stewartia pseudocamellia* 'Ballet'

Stephen Krebs is the director of the station and I met with the Collections Manager Conner Ryan for a wonderful walk through the over 2000 rhododendrons on this woodland garden site. Fabulous foliage, beautiful blossoms including elaborate “flares” on the petals, oranges to deep reds to whites and pinks and different colors on the various flower parts. Not to mention huge trees overhead casting shade, magnolias, Japanese maples, the coarse bark of black locust. Quite the scene. Put on your calendar to get a spot for the open houses next Memorial Day timeframe, coronavirus-willing.



Rhododendron at the Leach Station last week



A Rhododendron with flare



Rhododendron about to pop out at the Leach Station. What colors.



Lovely blossoms with a nice circlet of stamens and strawberry-like flare



Glorious Rhododendron

This visit was the icing on the cake for me as I think about a *Rhododendron* talk I was supposed to give this April and which is now postponed until next April (hopefully). The genus *Rhododendron*, a member of the Ericaceae family, includes what we call azaleas and rhododendrons and is a favorite for many, with over 1000 species around the world (with countless more cultivars) of typically acid-loving, good drainage-loving plants.



Cucumbertree magnolia at Leach Rhododendron Research Station



Conner Ryan illustrates the size of that cucumbertree magnolia

My wife and I saw incredible Himalayan and Mediterranean rhododendrons in botanic gardens in Scotland last fall and I have an incredible *Rhododendron* 'English Roseum' specimen right outside my office window in Wooster at the OSU-Wooster campus, though in this year of campus distancing hardly anyone sees its typical late-May to early-June floral display. OSU's Secret Arboretum is open in Wooster, and now is the time to enjoy rhododendrons and azaleas and many other lovely late spring-blooming plants.



The size of *Rhododendron sinogrande* at the Crarae Botanic Garden in the Scottish Highlands



Hands over feet those *Rhododendron sinogrande* leaves are grand



Rhododendron falconeri from the Himalayas at Crarae in Scotland



Rhododendron luteum, a Mediterranean species at Crarae. A loch in the distance.



The Mad Honey Story of *Rhododendron luteum*



Rhododendron 'English Roseum' outside my 2nd story window at OSU-Wooster



If you thought the last rhododendron was big, check out this one from Logan Botanic Garden at the southwest corner of the Rhinns of Galloway in Scotland. Laura Chatfield is diminutive, but not that diminutive: this rhododendron is huge!

Other Articles

Five Plants for a Garden That Supports Bees

MEGHAN SHINN

JUN 9, 2020

- Source: <https://www.hortmag.com/smart-gardening/five-plants-for-bees>

As an Amazon affiliate, we earn from qualifying purchases made through affiliate links.

In *Horticulture's* May/June 2020 issue, the staff at the [Coastal Maine Botanical Garden](#) shared planting ideas for a garden that will feed bees from the very start of spring. These easy-to-grow, deer-resistant plants happen to provide other benefits, too, like summer shade, ingredients for cooking or making tea and, of course, visual appeal in the landscape.



Above: Chives are one example of *Allium*, a genus that includes many purple-flowering plants that attract bees while performing other roles for the gardener.

Early spring:

PUSSY-WILLOW

Salix discolor. Native to North America, this *Salix* is most often found as a multi-stemmed shrub growing to 15 feet high and 12 feet wide, though it has been known to reach 30 feet. The light gray, silky male catkins are showier than the female catkins. They emerge in late winter to early spring, a perfect timing for hungry foraging bees. The leaves are medium green and elliptic to lance shaped. This is a plant that thrives in wet soil. It makes a good hedge and it's easy (and cheap) to grow from bare root. USDA Zones 4–8.

SIBERIAN SQUILL

Scilla siberica, synonym *Othocallis siberica*. Originally from southern Russia, this bulb naturalizes beautifully. Deep blue, nodding, bell-shaped flowers with blue anthers bloom in early spring to feed bees when little else is available. Strappy, medium green leaves follow. Full sun to part shade. Zones 2–8.

Late spring:

AMERICAN LINDEN

Tilia americana. Native to central and eastern North America, this deciduous tree can be used as a shade tree or flowering tree. A fast grower, it can reach 50 to 80 feet high and up to 50 feet across. The fragrant yellow flowers appear in late spring and just may attract every bee from a mile in any direction. Small nutlets provide extra food for smaller animals. The dark green leaves are large, with serrated margins. This tree provides the resources for making tea and syrup, as well as honey. Full sun to part shade. Zones 2–8.

Spring to autumn:

ALLIUM, LEEK, ONION, GARLIC

Allium spp. and cvs. From wild chives, garlic, leek, shallot, scallion, and onion to all the wildly sculptural ornamental onion cultivars, there is likely an allium for every garden and every bee. Flowering umbels in shades from white to pink and purple. (Note: Bees are naturally drawn to purples, blues and yellows. They cannot see red.) Many alliums are edible, as well as being rodent- and deer-tolerant. Grow best in full sun, but some species can make it in part sun or part shade. Hardiness varies by species, but typically Zones 3–8.

MOUNTAIN-MINT

Pycnanthemum muticum. Native to the eastern United States, this herbaceous perennial hums with bees when it blooms from July through September, with light pink clusters of two-lipped, tubular flowers held up by silvery bracts at the base. The fragrant leaves are

dark green with toothed margins and they can be used to make a mint-flavored tea. Will reach 1 to 3 feet in height and width. Full sun to part shade. Zone 4–8.

Related recommended reading:

[The Pollinator Victory Garden](#) by Kim Eierman

[100 Plants to Feed the Bees](#) by The Xerces Society

[The Bee-friendly Garden](#) by Kate Frey and Gretchen LeBuhn

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