

OSU Extension - Auglaize County Weekly Horticulture Newsletter – 7-17-20

What is That Large Worm on my Tomatoes?



Tomato hornworm



Tobacco hornworm



Hornworm with braconid wasps (beneficial)

It is time to start looking for large green colored worms eating tomato plants. I have not seen any in my garden yet. Are these green worms a tomato hornworm or a tobacco hornworm? If this very large larva is about three inches long, green with seven diagonal white lines on the sides and a red curved horn on the last segment then it is the tobacco hornworm. If the large green larva has seven V-shaped white markings on its

side and a black straight horn on the last segment, then it is the tomato hornworm. The tomato hornworm can also be a dark or black colored larva. There is no real need to identify them separately because they both eat tomatoes (preferentially) and the control is the same, but it is nice to know there are two different species.

A person usually observes the round brown to black-colored droppings (frass) that are about the size of a miniature M & M and young leaves missing at the top of a tomato plant before observing the larvae. The mostly green color of the larvae matches the color of the tomato and camouflages them very effectively. Look for the larvae near dawn and dusk because they can be found feeding on the outside of the plant. The larvae usually move into the interior of the plant to feed during the day.

Hornworms may also feed on potato, pepper and eggplant.

The adult stage of the hornworm is a moth called a hawk or sphinx moth. They are large, gray-brown moths with a wingspan of four to five inches. The front wings are much longer than the hind wings having dark and white uneven bands. The abdomen of the adult tomato hornworm has five orange spots on the sides of its abdomen and the tobacco hornworm has six orange spots. The moths can travel long distances.

The moths emerge in May laying individual smooth round (pearls) yellow to light green eggs on the underside of a tomato leaf or closely related species. Moths can continue to emerge until early August. The moths are active at sunset and before dawn feeding on flowers. The larva hatches from the egg and begins voraciously feeding on leaves, stems and sometimes the green fruits. They have four to five instars (growth stages). The larvae mature over a one-month period reaching up to 4 inches in length. The mature larva falls to the ground and burrow up to 6 inches deep into the soil to form a pupal case. The adult may emerge this season or stay in the soil over winter in the pupal stage.

If you see a hornworm larva with white cocoons like a rice kernel, then do not kill these larvae. The larvae have stopped eating and will die because it has been parasitized by a braconid wasp. Allow the wasps to complete their life cycle to help control additional larvae.

For small numbers of tomato plants hand picking the larvae and killing them is the most cost-effective and environmentally friendly way to manage hornworms. A biological method of control is to spray *Bacillus thuringiensis* or BT (Dipel, Thuricide) starting in June as a preventative application because it is most effective on small larvae. Rototilling the soil to a depth of six inches at the end of the season will destroy the pupae. For large patches of tomatoes carbaryl (Sevin), permethrin, or spinosad insecticides effectively control hornworms. Read the label for application rates and for preharvest or withdrawal intervals.

Local Observations



Last patch of purple green beans



Wilted zucchini with soaker hose



Sweet potato



Green pepper



Muskmelon



Red beet



Hens and Chicks



Castor bean



Geraniums



Petunia



Fuchsia



Tricolor sweet potato



Peach



Guelder-rose or Snowball tree



Early blight of tomato



Early blight of tomato (notice concentric rings)

Good evening! I pray you are well! I will not have a newsletter next week as I will be on vacation. Sorry.

It is very dry in much of the county, especially near Waynesfield and east of New Knoxville! We received rainfall only 2 days this past week somewhere in the county! Rainfall for Friday, July 17th ranged from

0.06" near Santa Fe-New Knoxville and Kettlersville roads to 0.6" near Mercer Line and St. Rt. 197 roads and near Lowe's. Rainfall for Sunday ranged from 0" at 8 locations, mostly east and north to 1.0" near Sommers and Minster-Ft. Recovery roads. Rainfall for the week ranged from 0.09" near Kettlersville and Santa Fe-New Knoxville roads to 1.4" near Sommers and Minster-Ft. Recovery roads. The average rainfall for the week was 0.47, 0.14" less than last week. There is at least a 55% chance of rain Sunday, Tuesday, and Wednesday, otherwise a very low chance of rain for the next week.

A cooler week! The average high temperature now is 84 degrees F, the same as last week. Therefore we have reached the summer high temperature. Temperatures were above normal for **3** days and below normal for **3** days this past week. Temperatures ranged from 81 degrees F to 88 degrees F for the week. The average high temperature for the week was 83.9 degrees F which is 6.8 degrees F cooler than last week and only 0.1 degree F cooler than the historical average high. Temperatures will be above normal for the week with a high of 94 on Sunday!

The soil continues to get very dry in parts of the county while others have plenty of moisture!! I have continued to water the garden this week. With the added water and normal temperatures all species in the garden grew very well, especially the vine crops, last green beans, and sweet potatoes. I harvested green beans twice this week. I harvested my first red beet and turnip this week. The peppers are nearly ready. I treated the squash for squash vine borer. I found early blight on the lowest leaves of my tomato plants, so I removed them. I will talk about early blight next week, but start scouting!

Flowers are dwindling a bit.

Issues brought to my attention this week included Buckeye trees with yellow leaves that I believe was due to moisture stress, identification of hedge bindweed and mugwort and how to manage, identified a pond weed, identification of verticillium on maple, and Bradford pear with yellow and browning leaves due to moisture stress.

Weekly Weed Photos



Purple robust foxtail



Common purslane (friend of foe?)



Smooth groundcherry



Common cocklebur

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

Wayne County IPM Notes from July 5 – July 11

July 14, 2020

[Tweet](#)

Vegetable Pests

In sweet corn, the European corn borer (ECB) larvae are still doing damage. This week I started seeing some [corn earworm](#) (CEW) damage as well. The ECB trap counts dropped and showed little activity but the CEW traps started to increase in numbers. Even if the ECB activity seems to be slowing down, you need to be scouting your sweet corn for the CEW as well.



Squash bug egg mass on a zucchini leaf. F. Becker photo.

Squash Bugs have started to make their presence known. I have started seeing squash bug adults, primarily in summer squash plantings. I have also started to find squash bug egg masses. Large numbers of squash bugs feeding can cause leaves to yellow and eventually die which can significantly reduce yield.

Flea beetles are still very active and on a wide range of plants. Damage can be seen primarily on cole crops and potatoes.

Potato Leaf Hoppers (PLH) have high populations in several crops this year. PLH cause “hopper burn” on the leaves on which they are feeding. I have seen this damage to potatoes and green beans. Some of the PLH populations within green bean plantings have been incredibly high, in some cases, over 40 PLH per single leaf.



Potato leaf hoppers feeding on a green bean leaf. F. Becker photo.



Hopper burn from potato leaf hopper feeding on green beans. F. Becker photo

Vegetable Diseases

Downy Mildew has been confirmed in Medina County. Cucumber growers should have started a spray program for the cucurbit downy mildew.

Powdery mildew is starting to show up on cucurbit crops around the state. I have not yet had any cases in Wayne County, but this disease should be watched for closely.



Cucurbit downy mildew on cucumber leaves. F. Becker photo.

Some field tomatoes are showing symptoms of early blight. [Early blight](#) is a common tomato disease which gets its start typically on the older, lower leaves. If not treated, early blight can cause significant defoliation of a plant.

In some melon patches, specifically in cantaloupe, there is some [Alternaria leaf blight](#) showing up. This disease primarily affects the foliage but if the infection is severe enough, it may also infect the fruit.

Fruit Pests

Spotted Wing Drosophila numbers are still increasing. The trap counts were up again this week, with all the traps being in blueberry patches.

Codling Moth and Oriental Fruit Moth trap counts were low again this week and showed very little activity.

I started to find red mites in apple orchards throughout the county. Feeding by large populations of red mites can cause leaves to “bronze” and when left uncontrolled, this heavy feeding could result in leaf drop and a reduced size and quality of the crop. This hot and dry weather has been ideal for the red mite populations to get established in orchards. [Read more on Red Mite Management.](#)



Mites feeding on an apple leaf. F. Becker photo.

Fruit Diseases

Alternaria leaf blotch can be found on some apple trees right now. This can be made worse by red mite infestations. With high populations of mites and the leaf blotch, severe defoliation can occur.

Apple and peach growers should continue their spray programs to manage fruit rots and diseases such as flyspeck and sooty blotch. [Managing Apple and Peach Summer Diseases](#)
Grapes should be starting to get some color to them. At this point, most varieties of grapes should be resistant to black rot. Growers with varieties of grapes that are not resistant to downy mildew should consider a spray program.

Ready to manage spider mites?

July 11, 2020

With the current hot and dry weather conditions in Ohio, we expect to hear reports of spider mite outbreaks on specialty crops. Because mites are tiny, they are often overlooked or misdiagnosed as a disease. Infested leaves have fine webbing on the leaf undersides. Tomato leaves damaged by spider mites usually have yellow blotches, while bean leaves show white stipples or pin-prick markings from mite feeding. Pumpkins can tolerate moderate levels of mites, but watermelons are more sensitive to injury from mite feeding. A simple method of diagnosing spider mites is to shake leaves over a piece of paper and look for moving specks that are visible to the naked eye. A closer look with a magnifier can show the tiny mites that are white, marked with two large dark spots on the middle of the body.

Mites have many natural enemies that kill them, such as specialized predatory mites or generalist lacewings, ladybugs, and pirate bugs, but these helpful predators are often killed by pesticides. Mites can be suppressed by periodic overhead irrigation.

Chemical intervention can be needed to keep the crop alive if spider mites are abundant. In some fields, the mite infestation is worst on a field edge by a dusty road. When a mite infestation is limited to field edges, infested fields should be scouted, and a miticide applied as a spot treatment to isolated infestations. Mite control is better when higher volumes of water are used; 30 to 50 gallons of water per acre is better than 10 gal/A.

Several pesticides are registered for spider mite control; some are restricted use, and most are for general use. Some of these products kill only the motile mites (immatures and adults), while some kill eggs. Most do not have systemic activity but some do. These details are summarized in three attached tables. One table shows details about target life stages and mite species affected, as well as any insect target pests. Another table shows details about which products are registered for use on key vegetable crops, and another table for show similar registrations for hops and fruit crops.

At some locations, the old organophosphate **Dimethoate** is still effective for mite control. Dimethoate is an option for melons but is not allowed on squash or cucumbers; it has been a preferred product for mite control on soybeans. Dimethoate is prohibited from use on ornamental crops in high tunnels and greenhouses but is not prohibited from vegetable crops in high tunnels and greenhouses. Where Dimethoate is not effective, **Agri-Mek** (abamectin) is generally the most effective product for mite control but it is a restricted-use product, while **Acramite** (bifenazate) and **Oberon** (spiromesifen) are nearly as good but are not restricted-use products. Other options for some crops are **Portal**, **Envidor**, **Zeal**, **Nealta**, **Onager**, **Savey**, **Apollo**, and **Kanemite**, as well as a new product called **Magister**.

Although **Brigade** (bifenthrin) and **Danitol** (fenpropathrin) are labeled for spider mite control when used at the high end of the rate range, they are generally not as effective as the true miticides. **Vydate** (oxamyl) is a Restricted Use product that is registered for use on eggplant for mite control. Several broad-spectrum products are available for use on organic farms to control mites as well as various insect pests: **Grandevo**, **PFR-97**, **Sil-Matrix**, **SucraShield**, as well as **sulfur**, **oils**, and **insecticidal soap** (such as **M-Pede** or **Des-X**). Soaps and oils can be used for mite control, but thorough coverage of the undersides of leaves is needed for good control because the action is by smothering of the mites. Soap can cause phytotoxicity if applied under sunny hot conditions. Soap is a good alternative in conventional fields that are too close to harvest to use a true miticide; insecticidal soap has a 12-hour re-entry interval and a 0-day pre-harvest interval.

-Celeste Welty, Extension Entomologist

[Table 1: Details about miticide choices](#)

[Table 2: Miticides for key vegetable crops](#)

[Table 3: Miticides for key fruit crops and hops](#)

Grafting, In-row Spacing, and Total Seasonal Nitrogen Effects on Watermelon Yield and Quality

July 11, 2020

Growers, seed, grafted plant, and fertilizer suppliers, extension-research personnel, and others are interested in identifying if, where, and how grafted plants may fit in vegetable production toolboxes. Those questions can be answered reliably only after the performance of grafted plants is documented under a range of management schemes because it is possible that standard production practices may need to be altered to account for the influence of rootstocks. Plant spacing (i.e., population density per acre) and fertilizer application rates (e.g., total seasonal nitrogen applied) are two variables likely to influence (grafted) plant performance; therefore, they have many peoples' attention, including ours.

With USDA-SCRI program support, we began studying these variables at a preliminary level in 2018 and more thoroughly in 2019. Experiments started in 2019 are being repeated in 2020.

Experimental site on 6/6/20 (transplanted on 6/8/20).



Experimental site on 7/11/20 (approx. 130 ft x 600 ft). 'Fascination' and 'Jade Star' scions grafted to 'Carniver' rootstock and SP-6 used as pollinizer. Ungrafted plants included as control. Two experiments (dashed line) - a) foreground, plant density (in-row spacing) and b) background, fertility (total seasonal N application rate).







Data collection begins with tracking crop development and concludes with laboratory analyses of fruit quality. The experiments provide an opportunity to analyze fruit yield and quality as influenced by grafting, scion, spacing, and N level. In 2019, soilborne disease did not appear to be a factor and grand mean total cumulative fruit yield (ton/acre) values were: a) 32.5 (ungrafted 'Fascination'), b) 25.0 (ungrafted 'Jade Star'), c) 42.6 (grafted 'Fascination'), and d) 47.7 (grafted 'Jade Star'); these values include data for all density and N rate treatments. Analyzing data collected in both study years more thoroughly will provide a more reliable assessment of the influence of grafting, in-row spacing (4 or 5 ft), and total seasonal N application (100, 120, or 142 lb/acre) on watermelon fruit yield and quality.

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/>

Dog-Day Cicadas, Cicada Killers, and Other Big Stingers

Authors

Joe Boggs

Published on

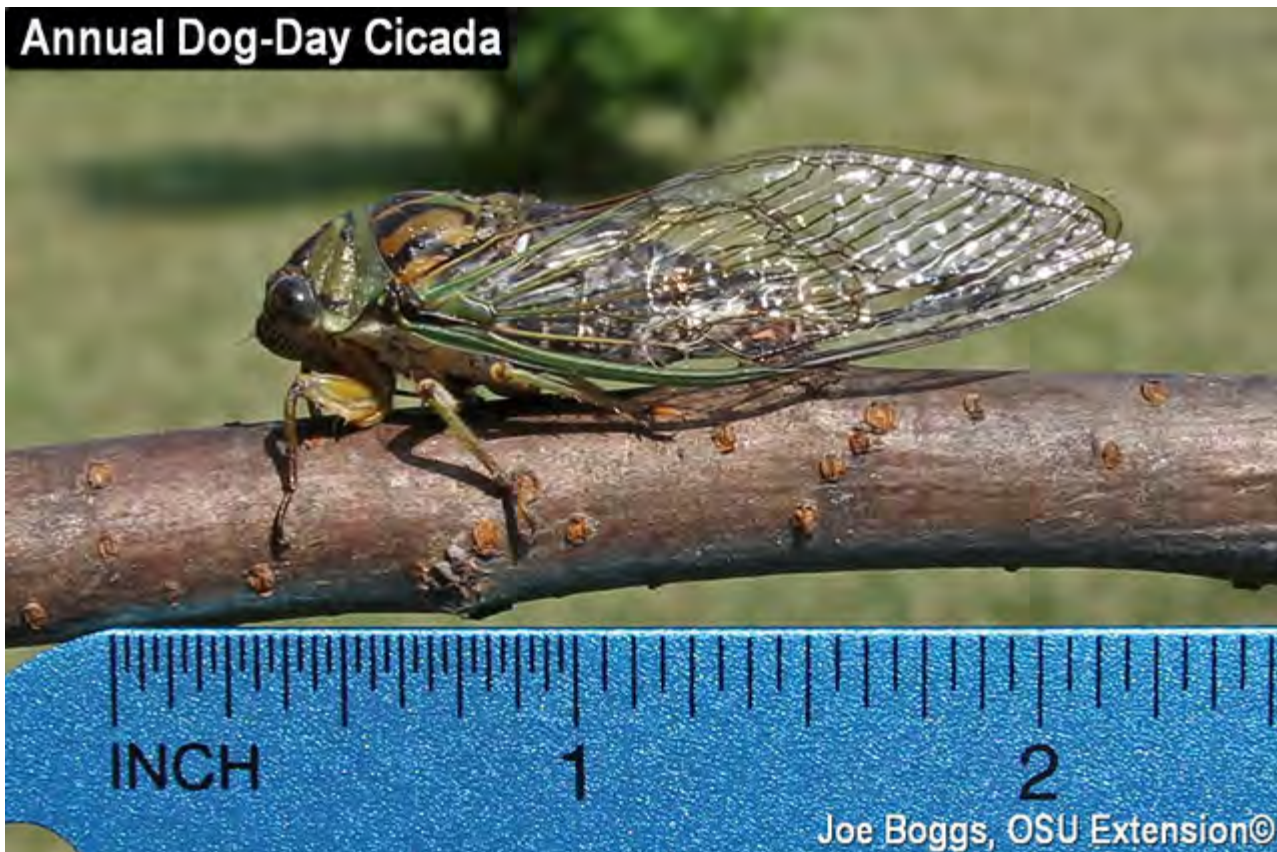
July 16, 2020

Annual Dog-Day Cicada



Annual Dog-Day Cicadas (*Neotibicen canicularis*; family Cicadidae) are singing in Ohio. Curtis Young (OSU Extension, Van Wirt County) heard his first cicada on July 3. Dave Shetlar (Professor Emeritus, OSU Entomology) reported hearing his first cicada in central Ohio last Friday and I heard my first cicada song late last week in the southwest part of the state.

These so-called annual cicadas have undergone some taxonomic tweaking in recent years. I placed them in the genus, *Tibicen*, in my past BYGL Alerts. However, that genus now includes only a few European species. Annual cicadas found in the eastern U.S. including Ohio are now placed in the genus, *Neotibicen*. Those in the western U.S. and Mexico are now grouped in the genus, *Hadoa*.



Our annual cicadas share several behavioral traits with periodical cicadas (*Magicicada* spp.; family Cicadidae). The nymphs of both types of cicadas develop underground sustained by juices sucked from tree roots and it takes multiple years for them to complete their development from eggs to new adults.

Periodical cicadas are so-named because it takes 17 or 13 years for new adults to emerge *en masse* in spring. Brood X (10) will emerge in Ohio next spring; however, we saw and heard a few "early-birds" from this brood back in May and early June. Periodical cicadas are spring insects; annual cicadas are summer insects.

I posted a BYGL Alert about the early appearance of this brood and you can read the Alert by clicking on this hotlink:

<https://bygl.osu.edu/index.php/node/1603>



Dog-day cicadas develop more quickly compared to periodical cicadas. It takes 2-3 years for the nymphs to complete their development; however, some adults emerge every year due to overlapping generations. The adults appear sporadically throughout the “dog days” of summer usually beginning in July. Indeed, the specific epithet, *canicularis*, is derived from the Latin word, *canicula*, which references the Dog Star, Sirius.

**Annual Dog-Day Cicada
Cast Nymph "Skin"**



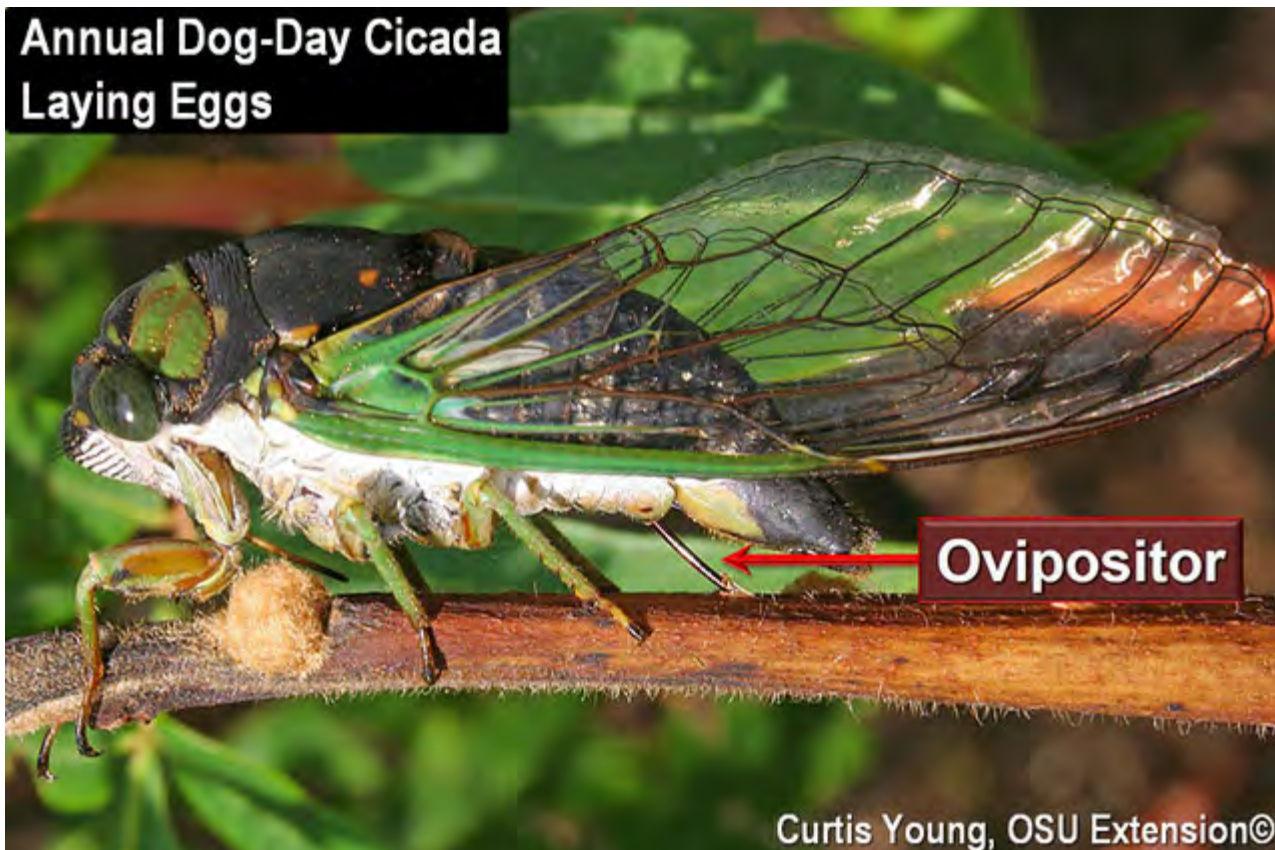
Joe Boggs, OSU Extension©



Like their periodical familial cousins, dog-day cicada males also "sing" to attract females. However, they do not "chorus" with large numbers synchronizing their song. An occasional dog-day cicada buzzing to entice a female doesn't compare to the cacophony created by a multitude of periodical cicadas. It's like comparing a barbershop quartet to a million man chorus!



As with periodical cicadas, dog-day cicada females use their long, spade-like ovipositors to insert eggs through the bark of twigs and into the white wood. The resulting damage splits the bark and white wood leaving deep longitudinal furrows of ruptured tissue. The injury often causes the twig to die, the leaves to turn brown ("flag"), and the twig to detach and drop. However, owing to the smaller numbers of dog-day cicadas, their egg-laying damage usually goes unnoticed.



Dog-Day Cicada Nemesis

The appearance of our annual dog-day cicadas means their nemesis, the cicada killer wasp (*Sphecius speciosus*), should soon be seen cruising woodlands and landscapes in search of their exclusive prey. Cicada killers feed exclusively on annual dog-day cicadas; they do not prey upon periodical cicadas. The synchrony with annual cicadas makes sense if you consider that the wasps would starve to death waiting 13 or 17 years for a periodical cicada meal.



The wasps measure 1 1/8 to 1 5/8" in length and are one of the largest wasps found in Ohio. As with all hymenoptera (wasps, bees, etc.), only the females possess stingers (ovipositors); however, they are not aggressive. The males are aggressive, but they lack stingers.

Cicada Killer Wasp Female Showing the Stinger



The females spend their time digging and provisioning burrows with paralyzed cicada-prey. They prefer to dig their brood burrows in bare, well-drained soil that is exposed to full sunlight. Although the wasps are considered solitary, all of the females have the same nesting requirements. So it is not unusual for there to be numerous burrows, and wasps, in relatively small areas.



The males spend their time establishing and defending territories that encompass multiple females. They are notoriously defensive and will aggressively buzz any transgressor who dares to enter their territory including other males as well as picnickers, golfers, volleyball enthusiasts, and gardeners. Fortunately, it's all a rouse since they lack the necessary equipment to deliver a sting.

Cicada Killer Wasp Male



Joe Boggs, OSU Extension©

Although the males can't sting, their large size coupled with low-level flights over sand volleyball courts, sparse lawns, and bare areas in landscapes can be disconcerting generating demands for control options. However, insecticide applications to kill the killers is not recommended.

Cicada killers are considered beneficial insects and the females are not aggressive; stinging encounters are very rare. If the killers take-up residence in a public location, one option is to educate the public. This approach was very successful a few years in a park in Hamilton County. Complaints dropped to zero after the sign was posted.



The best way to manage cicada killers if they appear where they're not wanted is to modify their habitat. Renovating lawns late this summer to thicken the turfgrass will keep the killers out of lawns. Applying mulch to cover bare soil or raking mulch to disturb and redistribute possible burrowing sites will convince females to nest elsewhere. The same is true for golf course sand traps and sand volleyball courts: periodical raking will prevent the wasps from becoming established.

A Word About Big Wasps

The appearance of cicada killer wasps commonly triggers e-mails and phone calls to Extensioners in Ohio and elsewhere in the eastern U.S. about Asian giant hornets (AGH) (*Vespa mandarinia*). European hornets (*V. crabro*) which are now found in Ohio and much of the eastern U.S. may also be mistaken for AGH.







AGH has not been found in Ohio. However, it was found late last season in the northwest corner of Washington State and just across the U.S. - Canadian border on Vancouver Island, B.C. It's the first time this non-native honey bee killer had been confirmed in North America.

Given that AGH somehow found its way to western North America, we must remain vigilant. There could be other inadvertent introductions elsewhere in North America including Ohio. If you have any doubts regarding the identity of a big wasp, report it!

The Ohio Department of Agriculture (ODA) has created an AGH Reporting Tool so Ohioans can provide photographs and locations of suspicious insects. Although photographs can't serve as official confirmation, they are helpful in making an initial identification before opening an investigation.

Here is the hotlink to the ODA's Asian Giant Hornet Online Reporting Portal:
<https://agri.ohio.gov/wps/portal/gov/oda/divisions/plant-health/invasive-pests/agh>

Rust Never Sleeps I: Cedar Quince Rust on Hawthorn Stem

Authors

Jim Chatfield

Published on

July 15, 2020



Earlier this week I received an e-mail from Fred Bess of Meehan's Lawn Service, Inc. in Brook Park with the following:

Q. – *"I have 2 customers with severe stem cankers from rust disease. I have attached photos. I am used to leaf and fruit infections, but I am not certain how to deal with these stem cankers caused by the disease. Do you have recommendations or can you point me in the right direction?"*



Cedar quince rust on hawthorn stem: northeast Ohio, July 2020



Cedar quince rust on hawthorn

A. – These stem cankers are something we do see with cedar quince rust on hawthorn, caused by the fungus *Gymnosporangium clavipes* that alternates between Eastern red cedar (juniper) and rose family hosts such as hawthorn. Fred's pictures were excellent, though I was not able to return the favor with a sunny response. My answer:



Here is what cedar quince rust looks like in spring on juniper, unlike the galls on juniper from the cedar apple rust fungus and the cedar hawthorn rust fungus.



Cedar quince rust most commonly is noted on hawthorn fruit, shown here just starting in mid-June. Photo from 2018.



Jim Chatfield, OSUE

Fruit infections can be quite spectacular, shown here in late July, 2014. Note also cedar hawthorn rust on hawthorn leaves in this image. Ain't nature wonderful?

“The bad news is that it can be bad enough to make hawthorns seriously unsightly. The good news is that though the cankered tissue remains on the hawthorn the fungus in these infections will not re-infect hawthorns this year or future years, except to the extent that it will now spread back to junipers in coming months and then spread back to hawthorns next year. No controls are effective or useful on hawthorn this year, but for the future, removal of adjacent junipers to the extent possible is helpful. Could also use protective sprays on hawthorns next spring.”

This disease reminds me of my ignorance years ago when I told Chad and Kim Kellogg of Grasshopper Group in Holmes County that this stem cankering on hawthorn only resulted in minor unsightliness. The following pictures illustrate how bad it can be if there is enough inoculum for junipers nearby. Rust never sleeps!



Severe cedar quince rust on stems in a previous season



And I do mean severe



Someone does, anyway.

Turfgrass Times, 07.10.2020

Authors

Amy Stone

Published on

July 13, 2020

Here is the link to last week's Turfgrass Times: https://youtu.be/i1c_PH1yQ50

Presenters in this edition includes: Dr. Pamela Sherratt; Dr. David Gardner; Dr. Dave Shetlar (aka the Bug Doc); Dr. Ed Nangle; Joe Rimelspach; and Dr. Zane Raudenbush.

This week's recording includes various pest updates from the specialists. FYI - Gray leaf spot has been confirmed in central Ohio recently.

More Turf News: This year's summer turf field day typically held in August will be held virtually in 2020. Additionally, the July 31st edition of the Turfgrass Times will be held online and participation is encouraged. More information to come!

An Abundance of Eriophyid Mite Galls

Authors

Joe Boggs

Published on

July 13, 2020



This is the time of the season when a range of plant growths produced under the influence of eriophyid mites (family Eriophyidae) become obvious on a wide range of trees and shrubs in Ohio. They appear in widely varying forms from bladder-like to spindle-like to felt-like to crinkled leaf edges and other unusual leaf deformities.

If you closely examine these plant structures, don't expect to see spider-like mites. If you're using a 10x hand lens, don't expect to see eriophyid mites. Eriophyid mites are unique among the mites both in their size and anatomy.

While most mites can be clearly seen with a 10x hand-lens, you need to use 40x magnification to see eriophyid mites. Most mites are round to oblong in their body shape and they have four pairs of legs that extend laterally from the sides of their body. Eriophyid mites are cigar-shaped and they only have two pairs of legs that extend from the front of their body. No other mite only has two pairs of legs at any stage in their development.

I've already posted two Alerts this season on eriophyids: *Aceria triplacis* that produces raise leaf-blisters on the upper leaf surface of oaks (*Quercus* spp.) and hair-filled pockets on the lower leaf surface and *Acalitus fagerinea* that produces felt-like erineum patches on American beech (*Fagus grandifolia*) leaves.





Eriophyid Mite Erineum Patches on Beech



You can read more about these mites and see more pictures of their handiwork by clicking on these hotlinks:

<https://bygl.osu.edu/node/1613>

<https://bygl.osu.edu/node/1585>

One of the most obvious erineum patches found on any tree is the garish neon pink patches produced on the upper leaf surface of sugar maples (*Acer saccharum*) by the mite *Eriophyes elongates*. The more subtle silvery-green erineum patches produced by *E. modestus* may be found on the lower leaf surface of sugar maples. The patches become more evident later in the season when they turn rusty-red. I've occasionally found the handiwork of both mites on the same leaves.

**Erineum Patches on Sugar Maple
(*Eriophyes elongates*)**



**Erineum Patches on Sugar Maple
(*Eriophyes modestus*)**



Joe Boggs, OSU Extension©

Late Season Eriineum Patches on Sugar Maple (*Eriophyes modestus*)



Joe Boggs, OSU Extension©

One of the most notorious eriophyid plant galls is the wart-like galls that rise on the upper leaf surfaces of silver maple (*A. saccharinum*) and red maple (*A. rubrum*). The galls are produced by the maple bladdergall mite, *Vasates quadripedes*. These galls are currently "maturing" meaning they are changing from green to deep red with a few turning black.



The equally common maple spindle (or nail) galls are produced by a different eriophyid mite, *V. aceriscrumena*, and may be found on the upper leaf surfaces of silver, sugar, and red maples as well as Norway maple (*A. platanoides*). Flipping gall-festooned leaves over will reveal the mite's exit strategy in the form of puckered pits on the lower leaf surface.





Spindle galls on linden (*Tilia* spp.) are sometimes called "nail galls." They are produced by the mite, *E. tiliae*.



Black tupelo (*Nyssa sylvatica*) (a.k.a. black gum, sour gum) sometimes provides a gall-gratifying twofor with the eriophyid *E. nyssae* producing bladdergalls and *E. dinus* producing crinkled leaf edges. The odd-looking crinkling is sometimes referred to as black tupelo leaf roll galls.





The bead-like bladdergalls produced by *Aculops tetanothrix* on black willow (*Salix nigra*) seem to be on the rise over the past few years in southwest Ohio. I once considered them to be an oddity but now frequently find heavily galled willows used for streambank erosion control.

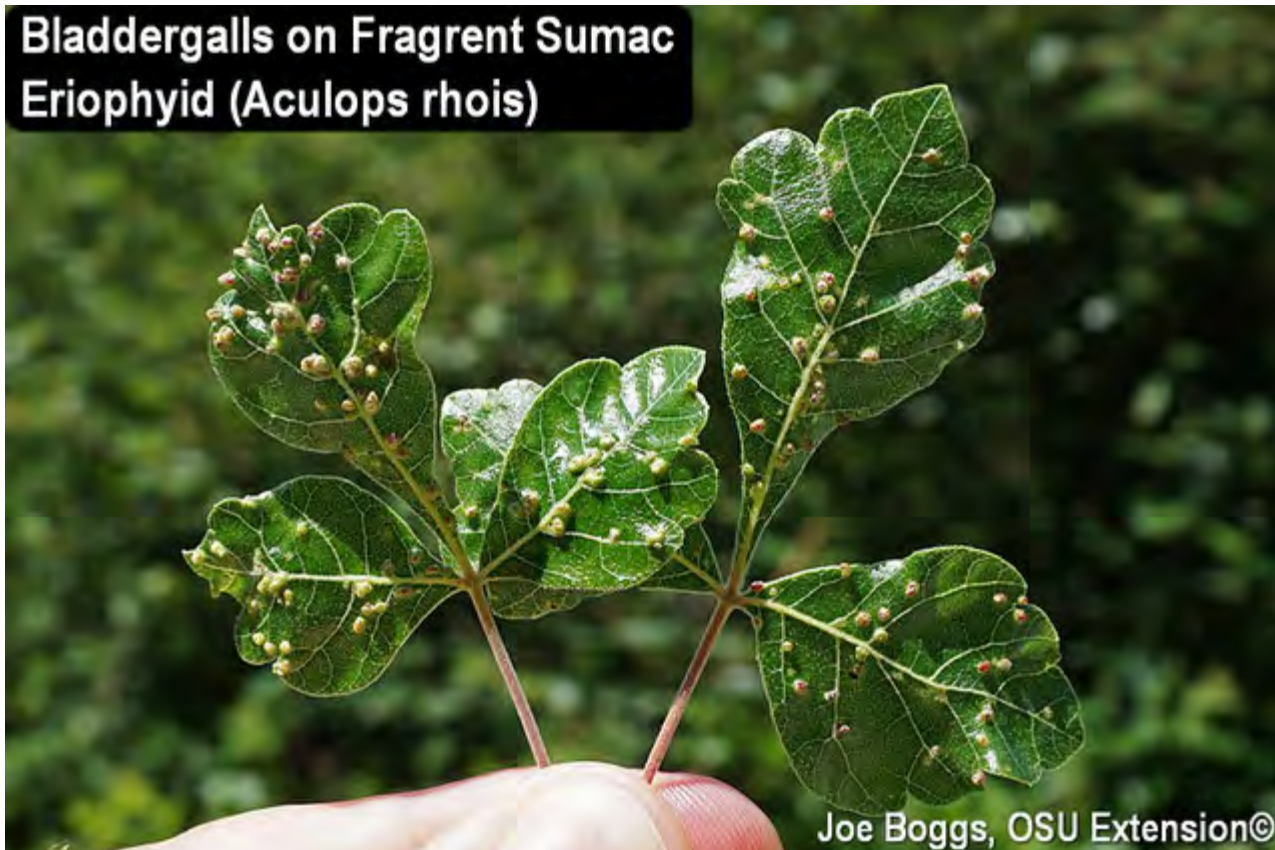


One of my favorite plant galls is produced on poison ivy (*Toxicodendron radicans*) by the eriophyid mite *Aculops rhois* (= *A. toxicophagus*). The bladdergalls vaguely resemble the itchy skin blisters we suffer when we contact urushiol exuded by the plant. I like to imagine that gall-infested poison ivy plants suffer the same agonizing itch, but they have no fingers!



Interestingly, the same eriophyid gall-maker also produces bladder galls on fragrant sumac (*Rhus aromatic*) which makes sense given that sumacs and poison ivy belong to the cashew family, Anacardiaceae. Of course, it made even more sense when poison ivy was included in the *Rhus* genus. Perhaps plant taxonomists should pay heed to the mite.

Bladdergalls on Fragrant Sumac Eriophyid (*Aculops rhois*)



Boxelder (*A. negundo*) challenges the poison ivy maxim, "leaves of three, let it be," and the handiwork of the mite *E. negundi* further complicates the issue. The eriophyid produces bladdergalls and early in their development, they resemble those on the three leaflets of poison ivy.



The boxelder bladdergalls undergo a distinctive change in appearance as they "mature." They transform from small, green bladdergalls to large wart-like protrusions with velvet-like patches on the corresponding lower leaf surface. They are sometimes referred to by the name of "boxelder velvet galls." I originally thought bladder and velvet galls were the work of two different gall-makers, but the literature attributes both types of galls to the same eriophyid mite.

Boxelder Bladdergalls





Galls produced by the eriophyid *E. brachytarsus* are another type of bladdergall that changes form as they mature. At first, the galls look like typical bladdergalls and are called "walnut bladdergalls" in some online references. However, as they mature, the galls become distinctively pouch-like and are referred to as "walnut pouch galls." Eventually, the galls break open like popcorn to reveal tufts of silvery-white hairs.



Walnut Bladdergalls "Pouch Gall" Stage



So-called walnut petiole galls are produced by the eriophyid *Aceria caulis* are reaching their maximum size and becoming very evident on their namesake host. The galls are specific to black walnut (*Juglans nigra*) and may occur on the petiole, rachis, and petiolules of the compound leaf.



Although the galls may cause the compound leaves to become twisted and malformed, they do not disrupt the vascular flow. The affected food-producing leaflets remain functional even though they may be pointed in an array of directions. Thus, the eriophyid galls do not appear to cause significant harm to the overall health of their walnut hosts.



The fuzzy, cauliflower-like galls produced by the eriophyid *Aceria cephalanthi* on common buttonbush (*Cephalanthus occidentalis*) has gained more notoriety in recent years owing to the popularity of buttonbush in pollinator gardens. They certainly stand out on the dark green foliage of their host plant.



Buttonbush Eriophyid Galls



As with the vast majority of plant galls produced by arthropods (e.g. wasps, midges, etc.), those that are induced by eriophyids cause little to no harm to the overall health of their plant hosts. Populations tend to rise and fall dramatically from year-to-year. I often re-visit the same trees year after year and have found that while a tree may reward me with a huge gall display one year, it frequently disappoints the next. My photos below demonstrate this; the same tree, different years.





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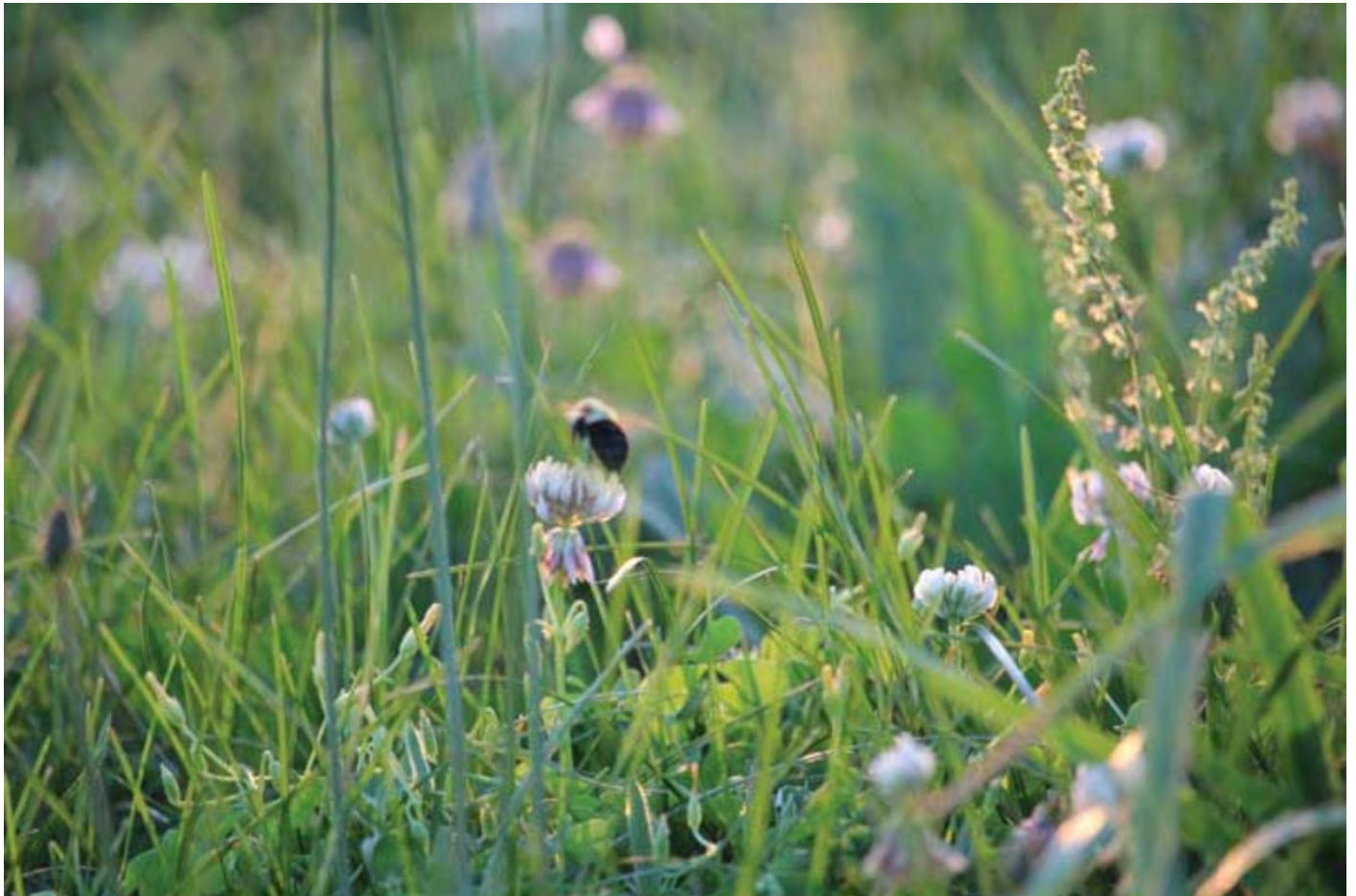
The Decision to Switch to Organic Lawn Care

KARIN ROBISON

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Source: <https://www.hortmag.com/smart-gardening/organic-lawn-care>

At the landscaping company where I work, our clients sometimes ask about changing to an organic lawn-care program. I can spot two assumptions by the way they phrase the question: They think it's simply a matter of swapping out traditional (synthetically derived) products for natural ones to yield a similar result, and that letting the lawn "go organic" means less work.



Making the switch is more complex than that. For the most part, you won't find exact one-for-one product swaps. And it's not so much less work as it is different work. Perhaps the trickiest part is managing your own expectations of what your lawn should be. But don't be deterred. Just be ready, by asking yourself these questions:

WHAT'S YOUR MOTIVATION?

Do you want to keep potentially harmful chemicals away from pets? Do the kids still play on the grass? Are you concerned about the environmental impacts related to fossil fuel, water and fertilizer usage? Understanding your “why” will help you determine an acceptable course of action when you encounter a problem.

WILL YOU LIKE THE NEW LOOK?

Good-bye monoculture, hello mix of short plants! When you put away the chemicals, your lawn will become a wide range of textures and shades of green in no time. If you're used to a consistent sweep of Kentucky bluegrass (the gold standard where I live), you'll want to get comfy with a lawn composed of many different plants, some of which you've called weeds. But really, if your goal is to simply have a soft stretch of covered ground, then this should be easy to get used to.

WHAT'S YOUR TOLERANCE FOR IMPERFECTION?

If you go cold turkey on synthetic lawn-care products, brace yourself for what nature delivers straight into the void you just created. Your newly organic lawn has yet to build its defenses against the issues that your traditional program kept in check. There will be weeds (and other organisms) multiplying unchecked, and here you are without your glyphosate.

What to do? Apply the principles of integrated pest management (IPM), a concept originally used in large-scale agriculture to help farmers control pests that affected crops beyond an acceptable level.

For DIY lawn care, the essence of IPM is to try the least harmful solution first and see if it works before using something stronger. Imagine a spectrum of choices with 100-percent traditional treatments on one end and 100-percent organic options on the other. The solution to your problem lies somewhere along this line. The fully organic solution is always available, but it's usually not a quick fix.

If you notice a plant is creeping in, first consider whether it can stay. If not, can you dig it out by hand? If it's too widespread, you may decide to make a surgical strike with an herbicide just strong enough to get the job done. As an interesting side note, the plants that show up in a lawn say a lot about the state of the soil. Do a web search on "reading your weeds." It's a thing, and it's very cool.

IPM will help you manage lawn issues until you've built up a soil-based ecosystem that is robust enough to stand on its own without much, if any, synthetic assistance.

CAN YOU FLIP YOUR POINT OF VIEW?

Traditional lawn-care programs are all about the grass. Products are applied to the top of the lawn with a spreader or sprayer. Each product is designed to chemically perform a certain otherwise natural function, either to prevent or treat a problem or to supply nutrition. Pre-emergents and other herbicides are used for weed control, fertilizers for growth and greening and insecticides to keep lawn-destroying insects in check. Due to these regular inputs, a traditionally managed lawn has few natural defenses and it is unable to nurture or heal itself.

A successful organic system is centered on the soil. A periodontist once told me that I can't have great teeth if I don't have healthy gums. Same thing: Your organic lawn program will focus on building a strong foundation of healthy soil. Your work will build the soil structure, balance the pH so that nutrients are available to roots and reduce soil compaction. The amendments of organic compost that you incorporate will introduce essential life forms—from the visible to micro-organisms—that were missing. Additionally, you'll increase the population of desirable plants through regular seeding, and last, but definitely not least, you'll adjust your watering methods so the plants are watered deeply and infrequently. This will enable roots to withstand drought.

IS PATIENCE ONE OF YOUR VIRTUES?

It's a multi-year investment to nurture your lawn's sub-surface ecosystem into something approaching balance. In the first few seasons after you've turned off the steady drip of synthetic inputs, your remedial decisions may fall toward the middle of the synthetic-organic spectrum. But with your continuing efforts and learning, the lawn's ability to self-correct improves.

Late summer through early autumn is considered the best time to improve your lawn. I guess that means midsummer is high time to read up on current methods. I recommend [*The Organic Lawn Care Manual*](#) by Paul Tukey for the specific steps involved in an organic lawn-care program. It was published in 2007, and to my knowledge there is still none better. For up-to-date guidance on pesticides and their alternatives, I follow Beyondpesticides.org. A lot of information is not zone specific, so make sure to cross-reference the recommendations from your local extension office.

Making a complete switch in your lawn program can seem daunting, but you can start small. It's likely you'll find one or two new strategies that are easy for you to incorporate. I encourage you to adopt these simpler methods while you learn more about organic lawn-care techniques. Incremental changes will move you toward a healthier lawn while avoiding a lawn disaster.

Prepared by Jeff Stachler
Ohio State University
Agriculture and Natural Resources Extension Educator, Auglaize County