BUCKEYE YARD AND GARDEN LINE 2015-24
09/17/15

From: Amy Stone (Lead editor and contributing author) and Curtis E. Young (Co-editor and contributing author).

Pam Bennett, Joe Boggs, Jim Chatfield, Julie Crook, Erik Draper, Denise Johnson, Jacqueline Kowalski, Ashley Kulhanek, Cindy Meyer, Amy Stone, Nancy Taylor, Marne Titchenell and Curtis E. Young (Contributing authors).

Buckeye Yard and Garden Line (BYGL) enhanced with photos and links is available online at: http://bygl.osu.edu. Become a fan of the BYGL on Facebook at http://www.facebook.com/OSUBYGL or follow the BYGL on Twitter at http://www.twitter.com/OSUBYGL.

This is the 24th 2015 edition of the Buckeye Yard and Garden Line (BYGL). BYGL is developed from a Tuesday morning conference call of Extension Educators, Specialists, and other contributors in Ohio.

******HOW TO: BUCKEYE YARD AND GARDEN LINE SUPPORT. The Ohio State University (OSU) Buckeye Yard and Garden Line (BYGL) writers need your support to continue this newsletter. OSU puts a great deal of resources into this project and we do not receive funding necessary for full support. We know you like BYGL, as in the 2014 Reader's Survey respondents indicated BYGL saved them $2.45 million dollars, 96% indicated BYGL was useful in their jobs, and 87% indicated BYGL helped with their diagnostic skills.

Funds will support on-going work of the Ohio State University Extension Nursery Landscape and Turf Team in matters regarding preparation, compilation and travel for the weekly April-October BYGL e-newsletter. Expenditures will include but not be limited to equipment such as cameras, upgrades of computers and related devices, management of the website, editing and webinar costs, and travel reimbursements.

Here's how you show your support:

This is the direct link to the OSU giving site: http://go.osu.edu/byglsupport.

Or:

Go to https://www.giveto.osu.edu/makeagift/OnlineGivingDonation.aspx?fund=315145 and click on "search," then enter the fund number into the box. The fund number is 315145 and the name is Buckeye Yard & Garden Support. The fund, its name and description will appear in a new, smaller box. Click "Select this fund."

Then, you can either leave the default $100 in or change it; and fill out the remaining form (name, address, etc.). The form will walk you through. You can either do a one-time gift or recurring (monthly, etc.).

Also, if you would like to make a larger gift, please contact Jennifer Heller (heller.4@osu.edu), the Director of Development for the OSU College of Food, Agricultural and Environmental Sciences with your name and contact information. Jennifer's cell phone number 614.975.1317 and she will be more than happy to speak with you.

In This Issue:
1. **PLANTS OF THE WEEK:** Annual (Persian Shield); Perennial (Turtlehead); Woody (Kousa Dogwood); Vegetable (Potato); and Weed (Jerusalem Artichoke).

2. **HORT SHORTS:** Walk on the Wildside: Skunks and Moles; and Lest We Forget (Spring Tree Issues Revisited).

3. **BUGBYTES:** White Masses on Redbuds (Two-Marked Tree Hopper); Potato Leaf Hopper on Wafer Ash; White Structures Sprouting From Hornworm Caterpillars; Red Humped Oakworm, and Bed Bugs.

4. **DISEASE DIGEST:** Maple Tar Spot.

5. **TURF TIPS:** TURF UPDATE VIA BUCKEYE TURF VIDEO (Dollar Spot, Fall Treatment of Snow Mold, Pythium, Gray Leaf Spot, Rust, and Black Saprophytic Fungus).

6. **WEATHERWATCH.**

7. **COMING ATTRACTIONS:** Farm Science Review; and The OSU Green Industry Short Course, The Ohio Turfgrass Foundation Conference and Show, and Trees on Tap Programs.

8. **BYGLÓSOPHY.**

---

**APPENDIX - Additional Website Resources.**

1. **PLANTS OF THE WEEK.**

*ANNUAL - PERSIAN SHIELD (*Strobilanthes dyerianus*). The go-to annual plants typically used for their foliage color tend to be one of the multitudes of coleus varieties. However, this particular plant is an excellent foliage plant to mix into the garden design with its high drama, purple iridescent leaves. The foliage is really a show-off when mixed in with other plants in a container or hanging basket. The plant does have flowers but they tend to be insignificant in terms of aesthetic quality.

Persian shield grows to around 3' tall and about as wide. The leaves are 3 - 6" long and silvery-purple on top with darker veins, and are purple on the underside. It grows best in full sun (better color) or light shade, but prefers moist soil. If in a container or hanging basket, don't let the plants dry out completely. If it gets a little leggy, a pinch of the growing tip will encourage branching. Some like to bring these plants indoors for the winter to be enjoyed as a houseplant. Since they are fast growing, you can take a cutting of an overwintered plant and root it, then plant it in your containers the next season.

*Author: Pamela J. Bennett; bennett.27@osu.edu*

*PERENNIAL - TURTLEHEAD (*Chelone lyonii*). *Chelone lyonii*, sometimes called pink turtlehead, is an upright, clump-forming plant which typically grows 2 - 4' tall on sturdy, square stems and is native to the southern Appalachians. Turtlehead leaves are shiny dark green, opposite, serrate, and about 4 - 6" long. The flowers are bright pink, long lasting in the garden, and also are good for cutting. Bloom time can last from July to September.

The genus name comes from the Greek word chelone meaning tortoise referring to the interesting flowers that resemble the head of a turtle.

Turtlehead is best grown in moderate to wet, rich soil and can be planted in full sun or partial shade. If planted in full sun, the plant will need a good organic mulch to thrive. Turtlehead spreads slowly by rhizomes but is not aggressive in its growth. The flowers attract butterflies and bumble bees. These plants can be used in shade or woodland gardens and can also be used as border plants, as long as the soil moisture requirements can be met.

*Author: Julie S. Crook, crook.46@osu.edu*

*WOODY - KOUSA DOGWOOD (*Cornus kousa*). BYGL featured Kousa dogwood earlier this year (BYGL Issue May 28, 2015, [http://bygl.osu.edu/content/woody-kousa-dogwood-cornus-kousa-var-chinensis](http://bygl.osu.edu/content/woody-kousa-dogwood-cornus-kousa-var-chinensis)) for its showy flower bracts in colors from white to pink. BYGLers decided to feature it once more this year.*
more to highlight the fall and winter season interest it offers from its colorful large fruit and exfoliating bark.

Kousa dogwoods are small deciduous trees (15 - 30'), oppositely branched with simple, ovate leaves 2 - 4" long. The bark starts out smooth but, according to Michael Dirr in his "Manual of Woody Landscape Plants" the bark becomes "exfoliating with age and forming a mottled mosaic of gray, tan, and rich brown." To the unknowing homeowner, the sudden exfoliation of bark can be alarming and create concern for the health of the plant. Fortunately for a Kousa owner, the exfoliating bark is normal and offers full season bark interest in the landscape! In addition to bark interest, the Kousa develops pinkish-red to red fruit hanging from a 2 - 2 1/2" stalk that are developing now in Northeast Ohio. In addition to an attractive color, the fruits' odd shape/texture, reminiscent of a raspberry, is also of ornamental interest. The fruit is edible, described as slimy and juicy to mealy. It develops reddish-purple fall color as well. These features make the Kousa dogwood a nice addition to the landscape.

Author: Ashley Kulhanek; Kulhanek.5@osu.edu

*VEGETABLE - POTATO (*Solanum tuberosum*). Ah the potato...along with wheat and rice, potatoes are listed as an important staple crop in the world. The potato itself is neither fruit nor root, but is a specialized storage stem known as a tuber. All that stored starch equals good eats for gardeners. Potatoes are a cool-season vegetable among the first to be planted in spring. While they are an early to be planted crop, planting too early can lead to rot of "seed pieces."

Potatoes can be planted in early spring in full sun. Instead of seeds, potato growers should use seed pieces which are actually cut up pieces of potato with at least 2 eyes. Seed pieces should be planted 1" apart, 3 - 4" deep in well-drained soil. Prolonged wetness can rot seed pieces and potato tubers. (Quite a few rotten potatoes have been brought into Medina County's Extension Office this season already thanks to the rainy weather). Potato plants will need to be "hilled-up", meaning gardeners should mound soil atop the plant stems as they grow, starting when they are about 1' tall to promote tuber formation and prevent sun exposure that causes potato tubers to turn green. This green color indicates the presence of a potentially toxic chemical that we want to avoid when growing and eating potatoes.

Harvest potatoes after the vines have died (unless harvesting "new" potatoes which can be harvested about 7 weeks after planting). Tubers develop 4 - 6" below the soil surface so a digging tool may be needed to harvest. Potatoes store well in dark, cool, humid areas. Potatoes have early to late season varieties. Late season potatoes are best for winter storage and are usually harvested August - September. With more than 100 varieties of potatoes, gardeners have endless varieties to try all season long. From fingerling to purple, russet to red skins, there are many to choose from!

It is recommended that gardeners buy certified, disease-free seed potatoes instead of re-using potato pieces as this can lead to a build-up of diseases over time. Store bought potatoes may be treated for storage or may carry plant diseases that could infect your garden potatoes, and therefore are not recommended for use as seed pieces.

Author: Ashley Kulhanek; Kulhanek.5@osu.edu

*WEED - JERUSALEM ARTICHOKE (*Helianthus tuberosus*). Jerusalem artichoke, also called sunroot, sunchoke or topinambur, is a plant generally found in pastures, hayfields, roadsides or home landscapes. This perennial plant is virtually indistinguishable from an annual sunflower at first glance. The flowers look like sunflowers with a course 5-10’ stem. The only way to tell if the plant is for sure a Jerusalem artichoke is to untrained eye is to dig up the plant and see if the roots resemble a "knotty potato."

These fleshy tubers can be eaten raw or cooked. The alcohol produced from the root is said to be better than that of a sugar beet. This plant is native to North America, and has been used for many centuries
as a food staple. While many can argue whether this plant is a friend or foe, the fact is that this plant will aggressively take over the area in which it is planted.

The Jerusalem artichoke spreads by a tuber system. Tubers are also the means by which plants survive the winter, since the foliage dies back after frost. The tubers then sprout in late spring with as many as 6 shoots emerging from one tuber. Tubers generally only survive in the soil a couple of years, therefore by applying control measures for 2 years will generally control Jerusalem artichoke. Application of selective herbicides at the pre-bloom stage typically results in good control. Another option for control is digging up this "free source" of food and adding it to stew, gravies, or even pickling them! Purdue University even has an Alternative Crops FactSheet on Jerusalem artichoke. Check it out at https://www.hort.purdue.edu/newcrop/afcm/jerusart.html.

Author: Amy Stone; stone.91@osu.edu

2. HORT SHORTS.

A. A WALK ON THE WILDSIDE: SKUNKS AND MOLES. There have been some reports of skunks and moles causing conflict in yards across Ohio. The culprits are the EASTERN MOLE (Scalopus aquaticus) and STRIPED SKUNK (Mephitis mephitis). Many times, mole and skunk foraging causes damage to homeowner's lawns. With moles, damage most often consists of raised tunnels just below the surface that meander, twist and turn across a yard. These are the feeding tunnels of moles and are most prevalent in the spring and fall when the ground is easiest to tunnel through. It is no coincidence then, that spring and fall are often the best times of the year to manage mole damage. Trapping remains one of the best management options for minimizing mole damage. There are several models of traps available and all work well if set correctly, used during the right time of year, and placed in an active feeding tunnel. How can one determine if a feeding tunnel is active? Step down on the tunnel to collapse it and wait until the next day. If the tunnel is no longer collapsed the next day, it means a mole is still using the tunnel and has repaired the damage. For more information on mole trapping, see http://icwdm.org/handbook/mammals/mam_d51.pdf.

Skunk foraging on the other hand, with a little patience, is easier to manage. Skunks typically leave behind 3 - 4” diameter cone-shaped holes in lawns, gardens and golf courses as they dig for insects and other invertebrates. (Note: RACCOONS will also dig in lawns but the damage is much more intense, resulting in large sections of damaged lawn). Skunk foraging damage to yards seems to peak in spring and fall, when putting on the pounds is the #1 goal of skunks. In the spring, the skunks have just emerged from their winter dens and need to regain weight. In the fall, winter is right around the corner, so packing on some extra winter weight is critical. Often, with a little patience, the problem typically resolves itself as the skunk moves on. Unfortunately, for those homeowners with pets, a skunk spending time around the home can be an issue when Fluffy or Lassie runs out to investigate the interesting black and white critter shuffling around in the yard. If a cat, dog, or even a house has been unfortunate enough to receive a dose of skunk spray, here is a good recipe to use: 1 quart of 3% hydrogen peroxide, 1/4 cup baking soda, and 1 teaspoon of liquid soap. Mix this solution together and use immediately - do not mix it in advance and place it in a closed container. The released oxygen may cause the container to explode. Scrub the pet or building with the solution, wait roughly 5 minutes, and then rinse. Avoid contact with the eyes and other sensitive areas on a pet. For more information on skunk conflict management, see http://icwdm.org/handbook/carnivor/ca_c113.pdf.

Author: Marne Titchenell; titchenell.4@osu.edu

B. LEST WE FORGET. What has happened with the trees for which we had concern this past spring? This spring BYGLers had made multiple observations on the condition of several tree species and their general poor appearance.
One tree that generated a number of questions from BYGLers as well as the public was the silver maple tree (*Acer saccharinum*). What generated the questions was the huge seed load on many of the maples. The heavy seed production initially made the trees look like they were leafing out, but as the seeds matured, turned brown and eventually fell off, the trees began to look like they might be dying. The leaves on these trees were under-sized and sparsely distributed throughout the canopy. Many thought that their trees were not going to survive. However, the leaves were small-sized and sparse because the seeds had been a greater sink for nutrients than the leaves resulting in a slow growth of the leaves.

So what do these trees look like now? Most of the silver maples have recovered to the point that it is difficult to tell that they had any delay in their canopy development.

Oak trees (*Quercus* spp.) also suffered from some factor that caused varying degrees of leaf malformations. On some trees the leaves were highly stunted, cupped, curled and twisted. The absolute cause of these malformations is not known even though the symptoms look like potential herbicide injury, no assay was performed to determine if it were true or not. What do these trees look like today?

Some of the oaks have only minor symptoms such as the northern red oaks (*Q. rubra*). Bur oaks (*Q. macrocarpa*) look a little worse than the red oaks, but still have fairly full canopies. White oaks (*Q. alba*) however have much greater numbers of distorted leaves. Some of these white oaks’ canopies are nearly completely curled still today. Apparently, even the curled distorted leaves of these oaks were adequate to supply the trees with the enough photosynthate to satisfy their needs for the year. One could reason that if the trees physiologically perceived that they were not getting the photosynthate that they needed, it would have stimulated them to break more buds to refoliate. There are examples on some branches that this does appear to be the case, but in other cases, whole trees have gone through the entire summer with totally distorted canopies.

Unfortunately, there does not appear to be an easy answer to explain why the oaks have these symptoms. If the trees were adjacent to an agricultural field, one could speculate that the distorted leaves where caused by drift from an application of a plant growth regulator type herbicide such as 2,4-D or dicamba. However, oak trees with the distorted leaf symptoms are found in numerous different environments from being next to agricultural fields to woodlots to parks to inner city landscapes. No apparent rhyme or reason to why or where these symptoms appear. Additionally, there are examples of locations where all three species of oaks are growing side by side with their canopies intertwining, and the red oaks have little symptoms, bur oaks have a little greater amount of symptoms and white oaks are nearly completely distorted. This one is still a mystery!

Author: Curtis E. Young; young.2@osu.edu

3. BUGBYTES.

A. WHITE MASSES ON REDBUD. BYGLers have commonly observed and have received reports over the years of white masses on redbud stems that look like some type of scale insect. These are not a scale insect, nor are they insect egg masses. They are the sticky, frothy “egg plugs” of a treehopper (family Membracidae). The exact treehopper in question depends on the host. Originally, the culprit was referred to as the TWO-MARKED TREEHOPPER and this treehopper continues to retain the scientific name, *Enchenopa binotata*. A web search using the common or scientific name will yield reports of this treehopper on redbud, walnut, viburnum and common hoptree or wafer ash (*Ptelea trifoliata*). Indeed, participants in this week’s S.W. Ohio BYGLive! Diagnostic Walk-About found two-marked treehopper egg plugs on a wafer ash.
However, it has been discovered in recent years that there are actually several species of treehoppers involved depending upon the host plant. The two-marked treehopper found on wafer ash does not infest redbud or any of the other hosts; the treehopper on redbud is specific to redbud, and so on. Regardless of the host, all of the treehoppers look the same. They also have the same life cycles and practice the same egg-laying behavior. This group of treehoppers is now referred to as either the two-marked treehopper species complex, or the *Enchenopa binotata* complex, or simply the *Enchenopa* complex. It is believed that they were all once a single interbreeding species existing over the same geographical area that have gradually evolved into new species. In biological circles, these are called "sympatric species."

Researchers have found that the treehopper's host plants were the driving force behind the speciation. The mechanism responsible for the divergence sounds simple because it's simply sound. Male treehoppers entice females by vibrating on plant stems to create a "come hither" sound that resonates through the stems to attract a mate. However, differences in the way sound is transmitted through the different host plant stems affects the sound frequencies traveling through the stems. A male treehopper vibrating on a redbud transmits a different sound compared to a male on a walnut. Eventually, females that would respond to the sound produced on redbud would not respond to the sound produced on walnut and vice-versa. Thus, the treehopper's host plants are responsible for the splits in species.

The adults of all members of the two-marked treehopper species complex are dark brown with two elongated yellowish-white marks positioned in tandem on the top of their backs. One of their most distinguishing features is an elongated pronotum (the thoracic segment behind the head) that extends knob-like over the head. There is one generation per season in Ohio. Eggs are laid in late summer with females using their saw-like ovipositors to cut slits in the bark of their host trees. After they insert their eggs, they cover the bark wound with a white, sticky substance that serves to protect the eggs. The "egg plugs" also contain a chemical attractant that draws other females to lay their eggs in close proximity to one another. The resulting collection of raised, circular to slightly elongated white material on plant stems is easily mistaken for scale insects. Although both the adults and nymphs suck juices from leaf veins and petioles, they appear to cause no appreciable harm to their plant hosts even when high populations occur. So, control of these treehoppers is not generally required.

**Author:** Joe Boggs; boggs.47@osu.edu

B. **POTATO LEAFHOPPER ON WAFER ASH.** Participants in this week's S.W. Ohio BYGLive! Diagnostic Walk-About observed heavy damage to the leaves of wafer ash caused by the adults and nymphs of the potato leafhopper (*Empoasca fabae*). Although this leafhopper is often most strongly associated with damage to field crops, it is capable of feeding on over 100 plant species including trees and shrubs; red maple, burning bush euonymus, and wafer ash appear to be particularly susceptible.

The leafhopper feeds on the underside of leaves where it uses its piercing-sucking mouthparts to suck juices. They also inject a toxin found in their saliva that destroys plant cells or interferes with the plants ability to produce photosynthates. The destruction of plant cells on red maples causes new leaves to become distorted and dark brown necrotic tissue to form along the leaf edges; a characteristic symptom called "hopper burn." However, the potato leafhopper damage on wafer ash was more subtle. Leaves were heavily stippled with small, chlorotic spots that sometimes coalesced to produce irregular yellow patches. The leaf stippling damage strongly resembled symptoms produce by other pests including spider mites.

Potato leafhoppers are not able to survive winters in the north. New infestations are spawned each spring by the arrival of adults and nymphs that were carried north on storm fronts originating in the Gulf States. Once deposited in the north, potato leaf hoppers begin feeding and reproducing with each new generation requiring about a month to develop. Early populations are often so low the leafhoppers remain undetected. However, populations build with each new generation; the heaviest damage usually
occurs on trees late in the season. Consequently, to avoid significant damage, it's important to monitor for potato leafhoppers early in the season.

Author: Joe Boggs; boggs.47@osu.edu

C. WHITE STRUCTURES SPROUTING FROM HORNWORM CATERPILLARS. What do catalpa hornworms (Ceratomia catalpae), tomato hornworms (Manduca quinquemaculata) and tobacco hornworms (M. sexta) all have in common? They are all sphinx moth (family Sphingidae) caterpillars. Indeed, all hornworms are the caterpillar stage of moths belonging to this family. What do the white, oblong structures sprouting from backs of these hornworms have in common? They are the cocoons (NOT eggs!) of an endoparasitoid wasp, but what's more interesting is that they are the cocoons of the same parasitoid wasp, Cotesia congregata (family Braconidae).

What is an endoparasitoid? Predators are defined as an organism that eats another organism (its prey). The big cats (lions, tigers, etc.) are good models of a predator. Parasites are generally described an organism that lives in or on another organism (its host) and benefits by deriving nutrients at the host's expense. However, the definition of a successful parasite often includes the caveat that the parasite does not kill its host. Mosquitoes are a good example. They may carry a disease causing pathogen that can kill their host, but the mosquitoes are just the carriers (vectors) of the pathogen, not the actual killers. What about a parasite that kills its host? That's a parasitoid. If it lives inside its host, it's an endoparasitoid; like a predator living inside the host. An ectoparasitoid does the same while attached to the outside.

Cotesia congregata is a perfect model of an endoparasitoid. The female wasp uses her sharp ovipositor (ovi = egg; positor = lay) to insert her eggs into a hapless caterpillar. Once the eggs hatch, the wasp larvae feed on structures that will not kill the caterpillar; if they ate everything, everyone would die! However, once the wasp larvae are just about finished with their development, they eat everything. Then they borer through the caterpillar's skin and spin the white cocoons in which they pupate. Their caterpillar host usually dies within several hours from the time the cocoons appear; it's common to see shrunken dead caterpillars covered in white cocoons.

However, the entire endoparasitic process is a bit more complicated than presented thus far. First, the wasp actually takes control of the caterpillar's development so the host does not complete its development before the wasp larvae are finished with their host. The wasp injects venom into the caterpillar when she inserts her eggs, then the wasp's eggs release special cells, called teratocytes, inside the caterpillar. The teratocytes release hormones that along with the venom suppress the caterpillar's development. Second, the wasp relies on a mutually symbiotic relationship (a relationship that's mutually beneficial to two different species) with a virus to suppress the caterpillar's immune system so the caterpillar doesn't reject the wasp larvae and teratocytes. The virus suppresses the caterpillar's immune system, but what does it get in return? The virus does not carry genes to replicate itself; the viral genes are carried in the wasp's genome! So, female wasps actually produce the virus which is injected into the caterpillar along with the wasp's eggs. Without the wasp, the virus can't exist. Without the virus, most of the wasp larvae would die (mutually symbiotic).

Finally, what about the relationship between Cotesia congregata and sphinx moth caterpillars? The parasitoid wasp targets several species of sphinx moths obviously taking full advantage of the effective tools provided through its evolution with hornworms. Indeed, participants at this week's Diagnostic Walk-About observed the white cocoons of Cotesia congregata sprouting from a catalpa hornworm as well as a LAUREL SPINX MOTH (Sphinx kalmiae) caterpillar; a hornworm that feeds on plants belonging to the genera Fraxinus (ash), Chionanthus (fringetree), Syringa (lilac) and Kalmia (mountain-laurel).

Author: Joe Boggs; boggs.47@osu.edu

D. REDHUMPED OAKWORM. Participants at this week's Diagnostic Walk-About also found a redhumped oakworm (Symmerista canicosta) on one of its namesake hosts. The caterpillar is the
immature stage of a native moth that belongs to the family Notodontidae (Prominents). The caterpillars have a garish coloration scheme with bright orange head capsules and bodies that are lined with black, white and orangish-yellow pinstripes. The feature that gives the caterpillar its common name is a bright orangish-red hump on top of the body near tail end.

The caterpillars are general defoliators often consuming entire leaves and only leaving behind the midvein and a few lateral veins. Early instar caterpillars feed in groups sometimes defoliating trees a few branches at a time. Later instars feed singly making them more difficult to find if populations are low. Caterpillars that are currently being found are nearing the completion of their development. They will soon drop to the ground to pupate which is the over-wintering stage. This is a late-season defoliator because adult moths will not emerge to lay eggs until late-June to early-July.

Outbreaks in Ohio have been rare and usually highly localized. The caterpillars may feed on all oaks found in Ohio; however, the most damaging outbreaks have occurred in forests dominated by oaks belonging to the white oak group. Records show that multi-year outbreaks seldom occur; most have only lasted a single season. The late-season damage caused no noticeable long-term injury to the overall health of affected trees. However, as with any general defoliator, newly planted trees may be more severely damaged.

Author: Joe Boggs; boggs.47@osu.edu

E. BED BUGS. BYGLers have received calls and samples from homeowners suspecting bed bugs (*Cimex lectularius*) in the home. While bed bugs are one insect that you will not likely find outside in your yard or garden, as are the typical features in our newsletter, we thought it warranted mention as they continue to be a problem across Ohio and often many other common insects, particularly our fall home invaders, are mistaken as bed bugs.

Bed bugs are true bugs in the Order Hemiptera. Bed bugs are small (3/16 - 1/4”) with flattened, oval, brownish-red bodies (redder and rounder and more elongated if recently fed) and typically nocturnal. They have piercing-sucking mouthparts that they use to suck blood from their hosts. They can feed off of animals and pets, but they do prefer people as the primary host. Bites may cause irritation ranging from slight discomfort and itching to allergic reactions, which may produce boils or rash. But remember that a bite does not necessarily mean bed bugs are present as many other things can cause bites or bite-like marks. See OSU's new factsheet on "Mystery Bugs and Bites" featured in the August 27, 2015 edition of BYGL (http://bygl.osu.edu/content/mystery-bugs-and-bites) for more information.

If you or a client suspects bed bugs, it is important to collect an insect sample and get proper identification first before taking action. Commonly mistaken insects include carpet beetles (especially the larvae and their shed skins), weevils, ticks, stink bugs such as home-invading brown marmorated stink bug, boxelder bug nymphs, cockroaches, and even dust bunnies. Bed bug samples can be collected in containers with rubbing alcohol and brought to health departments or Extension offices for identification.

Finding an insect sample can be tricky as bed bugs are excellent at hiding. Their flattened bodies allow them to fit in hard to reach places such as under mattresses, behind headboards, in cracks, sewn seams, behind pictures, outlet covers, and baseboards to name a few, and they are not restricted to the bedroom as their name implies. Bed bugs can be found in furniture, in vehicles, and public buildings where people frequent and turnover is high, such as hotels. They are often transported on items such as luggage and used furniture. Bed bugs are not a sign of poor hygiene or housekeeping of a home.

Once a proper ID is made, treatment options can be reviewed. It is important to know that over-the-counter sprays and foggers are not recommended. Research has shown that these products do not sufficiently kill bed bugs. Professional treatment is usually necessary and experienced professionals have a variety of treatments to choose from. Research has shown that bed bugs are developing resistance to some pyrethroid insecticides and therefore professional pest control companies should be using other insecticide classes or combination products to provide successful management. A single
insecticide treatment, even when properly done, is seldom sufficient to kill all of the bed bugs and several follow-up applications often are necessary for complete eradication of a bed bug infestation. Awareness is key to prevent bringing bed bugs into the home. Visit the Central Ohio Bed Bug Task Force webpage [ ], for more information and links to other resources.

Author: Ashley Kulhanek; Kulhanek.5@osu.edu

5. DISEASE DIGEST.

A. MAPLE TAR SPOT. Samples of maple leaves have been showing up in Extension offices covered in unsightly, raised black spots resembling "tar" on the leaf surface. TAR SPOT infection can be caused by two pathogenic organisms: Rhytisma acerinum or R. punctatum. R.acerinum causes dense, tarry spots, most often on silver maple and red maple, while R. punctatum causes tiny clusters of pinhead-sized spots that eventually merge to form larger spots, up to 1.5" in size, mostly on Norway maple. Though we most often notice this disease in late summer, infection actually occurs early, just as new leaves are unfolding. Spores land on new susceptible leaves and penetrate the leaf, beginning infection. The disease starts out as yellow-green spots and as summer progresses, the "tar" appears as the spore-covered stroma develops.

Generally, tar spot on maple is purely an aesthetic issue creating unsightly blemishes and does not cause adverse health effects to the tree overall. However, on Norway maple especially, it can lead to early leaf drop that can alarm some homeowners.

The Rhytisma fungus overwinters in fallen leaves. Concerned homeowners who wish to reduce the chance of recurring spots in the following year should rake up and bag the fallen leaves to remove potential inoculum. However this is no guarantee as fungal spores can blow in from anywhere nearby. If the spores are present during the ideal environmental conditions, disease can occur. Fungicides are generally not necessary and difficult to use as proper timing and full leaf coverage is essential.

Author: Ashley Kulhanek; Kulhanek.5@osu.edu

5. TURF TIPS.

A. TURF UPDATES VIA BUCKEYE TURF VIDEO. Last week, Eric Barrett with OSU Extension in Mahoning County sent out an email and made some calls about a situation he was seeing and receiving calls about in his county. After mowing lawns, people where noticing that something black was appearing on the mowers. It just so happened that this was addressed in the Buckeye Turf Tip recorded on August 29, 2015. Timing was perfect!

These videos are a great way to stay up to date on what is happening in lawns, athletic fields and golf courses. In this latest version you can learn the latest about dollar spot, fall treatment for snow mold, pythium, gray leaf spot, rust, and a black saprophytic fungus on mowers and people’s shoes. Be sure to tune-in to Buckeye Turf Tips videos produced by OSU and the Ohio Turfgrass Foundation (OTF). Check out this latest video at https://otf.site-ym.com/news/250396/Turf-Tips---September-12-2015.htm

Kudos to Todd Hicks and Joe Rimelspach on this most recent video and addressing timely tips, and the Ohio Turfgrass Foundation (OTF) for posting in on their organization’s website at [ https://otf.site-ym.com/ ]

6. WEATHERWATCH. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from
September 1 - 16, 2015, with the exception of the soil temperatures which are readings from Wednesday, September 17, 2015 at 5:20 a.m.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashtabula NE</td>
<td>80.3</td>
<td>62.3</td>
<td>2.67&quot;</td>
<td>2.5&quot;</td>
<td>56.78/62.75</td>
<td></td>
</tr>
<tr>
<td>Wooster NE</td>
<td>81.0</td>
<td>58.6</td>
<td>2.95&quot;</td>
<td>1.8&quot;</td>
<td>65.57/66.12</td>
<td></td>
</tr>
<tr>
<td>Hoytville NW</td>
<td>82.8</td>
<td>59.7</td>
<td>0.51&quot;</td>
<td>1.4&quot;</td>
<td>63.99/66.21</td>
<td></td>
</tr>
<tr>
<td>Columbus Central</td>
<td>90.3</td>
<td>66.2</td>
<td>1.28&quot;</td>
<td>1.6&quot;</td>
<td>75.46/75.41</td>
<td></td>
</tr>
<tr>
<td>Piketon South</td>
<td>83.9</td>
<td>57.5</td>
<td>1.3&quot;</td>
<td>1.1&quot;</td>
<td>64.13/65.98</td>
<td></td>
</tr>
</tbody>
</table>

For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/newweather/](http://www.oardc.ohio-state.edu/newweather/)

**Author:** Amy Stone; stone.91@osu.edu

7. COMING ATTRACTIONS.

A. FARM SCIENCE REVIEW. This year’s Farm Science Review takes place September 22 - 24, 2015 at The Ohio State University’s Molly Caren Agricultural Center outside London, OH. Participants can peruse 4,000 product lines from 600 commercial exhibitors, and capitalize on educational opportunities from Ohio State and Purdue University specialists. For in-depth information on natural resources, visit the Gwynne Conservation Area during the review by catching a shuttle on the west end of Friday Avenue or visit [www.gwynne.osu.edu](http://www.gwynne.osu.edu) for more information now. Farm Science Review pre-show tickets are $7.00 at all OSU Extension county offices, many local agribusinesses, and also online at [http://fsr.osu.edu](http://fsr.osu.edu). Tickets are $10.00 at the gate. Children 5 and younger are admitted free. Hours are 8:00 a.m. to 5:00 p.m. Sept. 22 - 24, 2015 and 8:00 a.m. to 4:00 p.m. Sept. 24, 2015.

B. SEPTIC SYSTEM PROGRAM FOR HOMEOWNERS. Free educational session on septic systems for homeowners. Learn how your system works and why things can go wrong. Dr. Karen Mancl will present on systems and preventative management to maintain a healthy system and help avoid costly repairs in the future. This program is appropriate for new or experienced septic owners or people interested in buying or building a home in the future that requires septic. Come with your questions. A local health department official will also be on hand to answer any questions.

Program Details:
Septic Ownership Program
October 8, 2015
6:30 pm - 8:30 pm
Location: A.I. Root Candle Community Room
623 West Liberty St.
Medina, OH 44256

The program is FREE but RSVP is requested, as space is limited. Call 330-725-4911. This will also allow us to contact you should information change regarding the program.

C. THE OSU GREEN INDUSTRY SHORT COURSE, THE OHIO TURFGRASS FOUNDATION CONFERENCE AND SHOW, AND TREES ON TAP PROGRAMS. Mark your calendars now, as these shows will be here sooner than you think. The event will be moving back to the Columbus Convention Center in 2015 and will be held on December 8 - 10, 2015, with the addition of a special tree program on Monday, December 7, 2015. Details on over 100 educational programs and a wide array of certification credits will be coming throughout the BYGL season. We are happy to acknowledge the robust support of the Ohio Turfgrass Foundation for their financial and other aid of the educational efforts of the OSU Extension Nursery Landscape and Turf (ENLT) Team, a group of Extension Educators and OSU
Specialists that brings to you a range of programs including field diagnostic walkabouts (such as BYGLive! in southwest Ohio) and diagnostic workshops as well as help with horticulture problem troubleshooting, numerous publications, and of course, the BYGL.

A key speaker for both the Trees on Tap program and the tree care track of the Green Industry Short Course will be Dr. Ed Gilman of the University of Florida Environmental Horticulture program. Ed is Professor of Urban Trees and Landscape Plants and his research and educational efforts focus on tree care practices such as the effect of tree pruning on tree biology, production practices and landscape establishment, root pruning, and irrigation and fertilization practices. He is reason enough alone to attend the conference.

9. BYGLOSOPHY. "Autumn carries more gold in its pocket than all the other seasons." - Jim Bishop

APPENDIX
ADDITIONAL WEBSITE RESOURCES:

Ask a Master Gardener Volunteer
http://mastergardener.osu.edu/ask

Buckeye Turf
http://buckeyeturf.osu.edu

Emerald Ash Borer Information
http://ashalert.osu.edu

National Plant Diagnostic Network and First Detector Program
https://www.npdn.org/first_detector

Growing Degree Days and Phenology for Ohio
http://www.oardc.ohio-state.edu/gdd/

Hungry Pests Website
http://www.HungryPests.com

Ohio Pesticide Safety Education Program
http://pested.osu.edu/

Ohio State University Department of Horticulture and Crop Science Plantfacts
http://plantfacts.osu.edu/web/

Ohio State University Extension Bee Lab
beelab.osu.edu

Ohio State University Extension Master Gardener Volunteer Program
http://mastergardener.osu.edu

Ohio Woodlands Stewards Program
http://woodlandstewards.osu.edu

The C. Wayne Ellett Plant and Pest Diagnostic Clinic (CWEPPDC)
http://ppdc.osu.edu/

USDA APHIS Beetle Buster Website (Asian Longhorned Beetle)
Following are the participants in the September 8th conference call: Joe Boggs (Hamilton); Julie Crook (Hamilton); Ashley Kulhanek (Medina); Amy Stone (Lucas); and Nancy Taylor (CWEPPCD).

BYGL is available via email, sent requests to subscribe at bygl@osu.edu. Additional fact sheet information on any of these articles may be found through the OSU FactSheet database http://plantfacts.osu.edu/web.

Any materials in this newsletter may be reproduced for educational purposes providing the source is credited.

BYGL is available online at: http://bygl.osu.edu, a website sponsored by the Ohio State University Department of Horticulture and Crop Sciences (HCS) as part of the "Horticulture in Virtual Perspective." The online version of BYGL has images associated with the articles and links to additional information.

Where trade names are used, no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

CFAES provides research and related educational programs to clientele on a nondiscriminatory basis. For more information: http://go.osu.edu/cfaesdiversity.