BUCKEYE YARD AND GARDEN LINE 2015-12
06/25/15

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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 12th 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.

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1. **PLANTS OF THE WEEK.**

   **ANNUAL - COLEUS** (*Solenostemon scutellarioides*). These versatile foliage plants are prized for their brightly colored, boldly patterned leaves in shades of red, orange, yellow, green, pink, purple, and white. Adding coleus to your landscape makes an excellent color accent in garden beds and borders. It can also be planted in containers, window boxes, and hanging baskets. Most coleus grow best in part shade however new cultivars of this annual have been selected for increased sun and heat tolerance. The shape and color of the leaves and the plant size also vary depending on the cultivar. The majority of the varieties grow around 1 - 3' tall and as wide.

   Coleus has no serious insect or disease problems. Plants grown in too much shade may become leggy and plants grown in too much sun may wilt. Coleus prefers moist and well-drained soil, high in organic material. The flowers are inconspicuous and it is best to pinch them off as soon as they appear to keep the plant compact and bushy.

   Expect coleus to be one of the first annuals killed by fall frost so you may want to take cuttings of especially valued cultivars. They root easily from stem cuttings and can overwinter inside. The plants will require a warm, bright location with consistent moisture.

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   **PERENNIAL - MILKWEED** (*Asclepias* spp.). Plants in the milkweed family (*Asclepiadaceae*) have become popular and highly desirable thanks to efforts to increase the population of Monarch butterflies and other pollinators. Increased interest and the varied habitat of this perennial herb warrant a discussion of more than just one of Ohio's 13 native milkweed species. Therefore, we will provide an overview. In general, Ohio's milkweed species have opposite leaves, clustered (umbels) small five-petal flowers and produce a seed pod. Blooming occurs May through August and colors include white, pink, orange, yellow, green, purple and red. When bruised or cut most, but not all, stems and leaves exude a milky sap. The habitat for the milkweed family vary from dry to medium, well-drained soils to damp or wet soils and from full sun to one that thrives in shade.

   The two species present in all Ohio counties are the **COMMON MILKWEED** (*Asclepias syriaca*) and **SWAMP MILKWEED** (*A. incarnata*). Common milkweed's fragrant, pinkish-purple blooms appear mid-June. It grows easily in open habitats and can become aggressive and has earned the "weed" designation for Asclepiadaceae family. It grows 2 - 3’ tall. Swamp milkweed flowers early July through August and prefers moist, wet habitats and can grow from 2 - 5’ in height depending on conditions.
Rather than in long rows. Sweet corn needs all of the sunlight available, so plant the corn close together in blocks on your own side of the garden or local farm markets is the warm-season vegetable we call sweet corn. Corn, also called maize, is native to the Americas and has been cultivated in Central America since 3500 BC! Sweet corn cultivars vary in days to maturity and are classified as early (55 - 70 days), mid-season (71 - 85 days) and late (85 - 100 days). Typically the days to maturity also reflects the size of the ear of corn with early being the smallest (6 - 8") and late-season being the largest (10 - 12")

Corn types also come in varieties consisting of white, yellow or bi-color kernels and usually are designated as normal sugary (su), sugary enhanced (se), supersweet or "shrunken two" (Sh2). Normal sugary (su) sweet corn converts the sugar in the kernel to starch immediately upon being harvested; consequently, this type of sweet corn must be cooked immediately after picking or all of the "sweet" is rapidly lost. Sugary enhanced (se) varieties contain more sugars than "su" types and if refrigerated, will remain sweeter for 2 - 4 days following harvest, due to that high sugar content. Supersweets (Sh2) are so named because the sugar content can be two to three times that of "su" sweet corn when mature. Another advantage for Supersweet types is that they also slow the conversion of sugar to starch so that the sweetness will persist much longer. In fact, if cooled and refrigerated properly, these "Sh2" varieties can remain sweet up to 10 days following harvest! The down side of "Sh2" varieties is they need to be isolated from other type of corn tasseling at the same time to ensure their sweetness and tenderness. If they are not isolated, their weak pollen is easily superseded by the pollen of other corn types, which results in the kernels developing a flavor and consistency equal to field corn!

Remember when planting sweet corn that it is wind pollinated so plant the corn close together in blocks rather than in long rows. Sweet corn needs all of the sunlight available in a day and the old adage of "sidedress or fertilize corn when it is knee high or by the 4th of July" really applies this year because all

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*WOODY - BOTTLEBRUSH BUCKEYE (Aesculus parviflora). Bottlebrush buckeye is not our state tree or our state shrub, but this is one beauteous buckeye. Check out some of the mass plantings at Dawes Arboretum and Holden Arboretum and many other sites. Bottlebrush buckeyes have creamy-white, 4-petaled flowers with red stamens in lovely panicles and layered tiers of branches with 5 - 7 leaflet, palmate leaves. As W.J. Bean was quoted in Dirr's Manual of Woody Landscape Plants, "No better plant could be recommended as a lawn shrub." Additionally Michael Dirr states, it is a great plant even without the June flowers, but enjoy the blooms while they last. Bottlebrush buckeye will be soon coming into full bloom in northern Ohio. An additional bonus is that bottlebrush buckeye has very little susceptibility to Giugnarda leaf blotch disease, so devastating to the foliar beauty of relatives such as common horsechestnut and many of the buckeye-horsechestnut hybrids (though not all Aesculus hybrids, as attested by 'Autumn Splendor', which has good resistance).

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*VEGETABLE - SWEET CORN (Zea mays). One of the vegetables most anticipated and prized from the garden or local farm markets is the warm-season vegetable we call sweet corn. Corn, also called maize, is native to the Americas and has been cultivated in Central America since 3500 BC! Sweet corn needs all of the sunlight available in a day and the old adage of "sidedress or fertilize corn when it is knee high or by the 4th of July" really applies this year because all
of the rain has leached the nitrogen away from the corn. Then wait for it to ripen, apply butter and
ENJOY!!

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*WEED - BROADLEAVED HELLEBORINE (Epipactus helleborine). This non-native, terrestrial orchid is
being noted throughout the state and seems particularly prevalent in the Cuyahoga County region this
year. It was introduced intentionally in the 1800s and is now naturalized through most of the Northeast
and Great Lakes regions. It is found in shady to partially-shaded areas, disturbed soil, and increasingly,
in the landscape.

Broadleaved helleborine is a monocot and reproduces by rhizomes and seed. Several succulent stems
will arise in a cluster from the same rootstock. The stem is light green and has short hairs. The leaves
can be 1 1/2 - 6" long, half as wide, oval to lance-elliptic shaped with pointed tips, and smooth with
parallel veins. The leaves become smaller up the stems until they form the bracts of the flower cluster.
The lowest leaf on the plant is also smaller than the one above it and it can grow up to 3' tall. The
flowers are 1/2 - 3/4" across. There are two petals on each flower and the petal color of the flower can
range from pale yellow, green, pink to deep red. There are three light-green sepals below the petals that
often have purple streaks. Broadleaved helleborine usually flowers in June. When the flower cluster
emerges, it is drooping and gradually straightens out as the flowers open. There can be up to 50 flowers
on each plant.

This weed is very difficult to control. Hand-pulling can be somewhat effective, however all pieces of the
roots must be removed because if even a small part remains a new plant could sprout. Research is not
complete on herbicide effectiveness. Applications of glyphosate are reported to be ineffective.
Repeated applications of products that contain 2,4-D or triclopyr (or both) may be effective. Always
follow label directions and avoid application to non-target plants.

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2. HORT SHORTS.

A. BOOK REVIEW: "GOOD GARDEN BUGS". Charles Darwin as a young man eschewed his
mathematics and theological studies, opting instead to look under rocks for beetles and to lead group
expeditions to better understand nature, much like Joe Boggs and his BYGLivers, J. B. S.Haldane
quipped that "God must have an inordinate fondness for beetles" with regard to their diversity, Douglas
Brinkley, wrote in Wilderness Warrior about a young Teddy Roosevelt that "To the bafflement of his
parents he gathered more than 100 different species of lichens and fungi under rocks and in dense
undergrowths. He brought out from caves unusual samplings of moss to scrutinize back home under a
magnifying glass..." Insects must also have been in those samplings. They do indeed draw the active
and curious mind, and at least most partially explain the similar curiosity of Dr. Mary Gardiner, an
associate professor in OSU's Entomology Department.

Her new book is "Good Garden Bugs", a 176 page book of all the insects that are doing a major piece of
our pest management for us in landscapes and gardens, as intimated by the book's subtitle: "Everything
You Need To Know About Beneficial Predatory Insects." Examples of these beneficials include ground
beetles, big-eyed bugs, a host of different ladybug beetles, parasitic flies and wasps, doodle bugs,
ambush bugs, green lacewings, fellow-travelers such as a wide range of spiders, and on and on. Check
out this book with its hundreds of photos (from the contributors to Iowa State University's BugGuide.net)
and illustrations (by Michael Cooley).

These pictures help you identify the range of different beneficial insects and spiders in landscape
settings, essential to any pest and plant health management program development. We are learning
more and more about how important diverse plantings are as they produce habitat for a range of good
bugs that help us to keep plants healthy. Low diversity and pieris lace bug = big problem. High plant diversity with a range of ecological services such as pollen and nectar sources for predators and the problem often resolves itself, without pesticides. Use the old practices of multiple cover sprays and cocktails to try to counter any possible problem and the damage to the good bugs results in bigger problems long-term.

According to Mary: "There are many great books in the marketplace focusing on insects in home gardens. However, I saw a need for an in-depth book focused solely on natural enemies that provided identification information below the order or family level. I can attest from the many photos I receive that when someone finds a beetle they don't only want to confirm that it's a lady beetle, they also want to know what species they have found and what type of prey it attacks. Gardeners are also interested in learning more about what natural enemies spend their time doing within the landscape. So, the reader will not only be able to identify their insect but will also learn about interesting courtship rituals, hunting strategies, and defensive behaviors employed by these species." Mary is focusing her current research in the urban vacant lots of Cleveland and their biological diversity, studying how we might redesign urban land to encourage native vegetation, provide ecosystems services, and influence local food production.

Check it out: We looked for it on Amazon; $17.00.Well worth it as a reference and a good read.

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3. BUGBYTES.

A. BACKYARD MOSQUITO CONTROL. With precipitation ranging from one to eight inches in the past week across the state of Ohio, mosquito populations are bound to be abundant in the coming weeks. While there are a number of products that claim to reduce mosquito populations around the home, the most effective control is achieved by interrupting the breeding cycle. Most species of mosquitoes (e.g. Aedes) fly just a few miles from where they hatch. Therefore, it is important for homeowners to follow a few management techniques in order to reduce breeding sites around the home.

Mosquito eggs require water to hatch. Therefore, locate sources of standing water around your home and eliminate if possible. Old tires, clogged gutters, bird baths, children's toys, flower pots, tree stumps, and over irrigated lawns and gardens are all possible sources of standing water ideal for mosquito breeding. When faced with mosquito control on permanent standing water such as aquatic gardens, a number of larvae killing materials are available. These products are naturally occurring bacterium: Bacillus thuringiensis var. israelensis (Bti) (e.g. Vectobac, Aquabac) or B. spaericus (e.g. VectoLex). These bacterium products are designed to target mosquito and black fly larvae. Thus, the risk to non-target insects and aquatic life are non-existent to low.

There are a few traps on the market that promise to trap mosquitoes as a form of control. Research has shown these traps to be very effective at trapping mosquitoes, but not effective enough to reduce populations in an outdoor setting. Likewise, foggers and misting products are effective at killing adult mosquitoes, but only provide temporary relief as they do nothing for larval control. Other available control measures include repellents in the form of citronella candles and the Citrosa 'mosquito plant' but research has shown these products have little to no effect on biting rates. Some so-called "bug zappers" have also been marketed to control mosquito populations, but studies show less than 1% of insects killed are mosquitoes. Most kill beneficial insects.

For more information on mosquito management, see OSU Extension Bulletin 641, "Mosquito Pest Management," available through Extension offices or online at: [http://ohioline.osu.edu/b641/index.html].

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B. FALL WEBWORM FIRST GENERATION. Small nests of first generation fall webworms (*Hyphantria cunea*) are appearing in central and southern Ohio. Fall webworm moths typically have two generations per year in Ohio and despite their common name, first generation nests usually appear in late spring. Fall webworm caterpillars only feed on the leaves that are enveloped by their silk nest. As caterpillars grow in size, they expand their nest by casting silk over more leaves to accommodate their expanding appetites.

First generation nests are seldom as numerous or as large in size as those produced by the second generation; the first generation nests normally involve only a few leaves. However, female moths often lay their eggs on or near the nests from which they developed, thus second generation caterpillars expand the nests once occupied by first generation caterpillars. The second generation nests typically reach their maximum size in the fall which accounts for the common name. Fall webworms have two distinct bio-types named for the color of their head capsules: black-headed and red-headed. Caterpillars of both types are very hairy, but differ in body coloration, nesting behavior, dates for spring adult emergence, and to some extent, host preferences.

Beyond having black head capsules, caterpillars of the black-headed bio-type also have two rows of black bumps (tubercles) running the length of their yellowish-white bodies. Black-headed caterpillars typically feed in a common web until they are half-grown, then they may separate to produce small, elongated, wispy nets along tree branches that envelope only a dozen or so leaves. Both bio-types spend the winter as pupae in cocoons buried in the soil; however, the adults of the black-headed type usually emerge 2 - 3 weeks prior to the emergence of red-headed adults; thus, black-headed caterpillar nests appear earlier than red-headed caterpillar nests.

Caterpillars of the red-headed race have red to reddish-orange head capsules; some publications call this bio-type "orange-headed.” The caterpillars have reddish-orange tubercles running the length of their light to dark tan bodies. Red-headed webworms remain together throughout their development to produce truly spectacular multilayered nests enveloping dozens of leaves at the ends of branches. Although first generation female moths of both races often lay their eggs on or near the nests from which they developed, this behavior is most commonly practiced by the red-headed race which explains their often truly spectacular sized nests. This also explains why the red-headed fall webworms are more destructive than the black-headed race.

The caterpillars of both bio-types may be found on a wide variety of shade, ornamental, and fruit trees and shrubs. If first generation nests are few in number and easily accessible, the best control approach is to physically remove and destroy the nests and caterpillars. Insecticide applications should be used sparingly since insecticides may kill bio-allies that help keep population densities in check. There are over 50 species of parasitoids, and 36 species of predators known to make a living on fall webworms. Dave Shetlar reported that virtually every fall webworm nest that he has observed thus far this season have been surrounded by a compliment of hungry predators including predacious stink bugs. These and other beneficial insects are very effective in reducing year-to-year populations of this defoliator.

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C. PREDATORS ON THE WING. Mary Gardiner (OSU Entomology) specializes in research and educational outreach on beneficial insects. Her recently published book, "Good Garden Bugs: Everything You Need to Know about Beneficial Predatory Insects," (2015, Quarry Books, ISBN: 978-1-59253-909-3) is reviewed in this week's BYGL (see "Hort Shorts" above). So, it was fitting that BYGLers spent a considerable amount of time discussing and highlighting the recently observed impacts of hymenopteran predators; specifically, PAPER WASPS (Polistes spp.), YELLOWJACKETS (Vespula spp. and *Dolichovespula* spp.), and BALDFACED HORNETS (*D. maculate*).

These insects are often feared owing to their stinging defense strategies coupled with the habit of some species to buzz around sugary or fermented drinks in the fall. However, during the summer months, these hymenopterans focus their attention on providing protein to their young in the form of harvested
caterpillars, sawfly larvae, and other soft-bodied insects. Thus, these stinging insects are considered to be important beneficial insects.

In BYGL 2015-10 (06/11/15), we reported that participants in a S.W. Ohio BYGLive! Diagnostic Walk-About witnessed the destruction of a luckless CATALPA SPHINX MOTH CATERPILLAR (Ceratomia catalpa) by the mandibles of a paper wasp. The wasp was converting its hapless victim into caterpillar-pulp to be fed to helpless, legless, wasp larvae living in cells back in its paper nest. Dave Shetlar reminded BYGLers that he has made a similar observation of “disappearing” hornworms in past years (2009-12, 06/25/09). Both he and Joe Boggs have observed large openings torn in the sides of BAGWORM (Thyridopteryx ephemeraeformis) bags by baldfaced hornets as they extract morsels of bagworm caterpillar.

Sawfly larvae are also common prey for paper wasps, yellowjackets, and baldfaced hornets. Indeed, Dave noted that he recently watched the depletion of colonies of SCARLET OAK (SLUG) SAWFLY (Caliroa quercuscoccineae) at the mandibular “hands” of paper wasps. He reported seeing the obvious leaf skeletonizing damage on various oaks, including white oaks, but only finding one or two lonely sawfly larvae; the larvae were no doubt wondering what happened to their sawfly neighbors!

The downside with general predators including these hymenopteran meat-eaters is that they have an indiscriminate palate. All caterpillars are meat items whether it’s “preferred” caterpillar or a pestiferous caterpillar. Dave described an observational study conducted some years ago by Whitney Crenshaw (Entomology, Colorado State University). The researchers witnessed EUROPEAN PAPERS WASPS (Polistes dominula) committing a significant amount of snatch-and-grab with MONARCH BUTTERFLY (Danaus plexippus) that were feeding on common milkweed. As Dave noted, their observations were surprising given the general opinion that the toxic alkaloids extracted from the sap of milkweed and sequestered in the flesh of the caterpillars will provide protection against predators. Obviously, the wasps had failed to read and learn about this caterpillar defense strategy.

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D. BAGWORM IS NOT JUST ON CONIFERS. Bagworms (Thyridopteryx ephemeraeformis) have hatched and begun feeding and BYGLers would like to remind you that while these caterpillars are most notably found on our evergreens such as juniper, arborvitae, spruces and pines, they are also pests on many deciduous plants. Bagworms can often be found creating their signature case out of sycamore, willow, maple, apple, elm, poplar, oak, birch, black locust, and honeylocust tree leaves creating considerable defoliation when populations are high enough. Inspect deciduous trees closely for bagworms if there is noticeable defoliation or skeletonization.

Bagworms get their name from the iconic case or "bag" that they create using pieces of foliage, twigs, and silk. These cases function as protection and camouflage. Males will pupate in this case and emerge to fly in search of females. However, the females remain caterpillar-like and never emerge from their cocoon or fly to new hosts. For this reason, populations are slow to spread. Dispersal only happens through the ballooning of early instar caterpillars by letting out a strand of silk that catches the wind, and carries the larva to neighboring plants.

Bagworm overwinters as an egg and hatch is usually in early to mid-June. The tiny 1st instar larva are hard to spot, but can be identified often by the tiny “dunce cap” they have on their head. This cap is actually the beginning of its case. Management of bagworm is most successful while caterpillars are most young and small. It is during this window that the bacterial spray Bt (Bacillus thuringiensis) is most effective. Inspect foliage closely for signs of feeding and the signature “dunce cap” to determine if treatment can still be applied. As the caterpillars grow, the effectiveness declines and other insecticides will have to be considered. Make sure to read all labels to ensure the product is labeled for both bagworm pests AND the host plants you are treating. Once bagworm reaches full size and is no longer feeding, management will switch to mechanical hand removal and pruning to remove cases to reduce
populations for NEXT season. Bagworm also has several predators and parasitoids that help to manage populations.

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E. WINDSHIELD WIPES. BYGLers also ran into a few other insect pests this week including:

* BYGLers who attended last week's OSU Ag and Natural Resources Summer Retreat held at the Shawnee State Park Lodge observed heavy damage on black locust caused by the LOCUST LEAFMINER BEETLE (*Odontota dorsalis*). The captivating reddish-brown leaf coloration caused by this beetle is often a familiar sight to travelers motoring on Ohio's interstate highways. Indeed, black locust may be identified at highway speeds because they are the "flamed" trees in the tree lines bordering the highway. The damage is caused both by the larvae which feed as leafminers and the adults which feed as skeletonizers. Usually, the adult feeding damage is most apparent which is why the browning of black locusts is most apparent later in the season. However, the damage in Shawnee State Park was mostly caused by larval leafmining activity which may predict heavy summer damage caused by the adults that will emerge from the blotch-like leaf mines.

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* Clusters of fluffy, white PLANTHOPPER NYMPHS are appearing on the stems of annuals, perennials, and the lower branches of trees and shrubs in southern Ohio. Planthoppers belong to the Family Flatidae (Order Hemiptera; Suborder Auchenorrhyncha), and are sometimes referred to as "flatids." The nymphs of several planthopper species cloak themselves in a dense tangle of waxy, white "fluff." They congregate in groups, or "colonies," and their profusion of flocculent material on affected plant stems and leaves draws attention to the insects. The nymphs also produce copious quantities of honeydew which may coat the plant and become colonized by black sooty molds. Planthoppers usually have little impact on the overall health of landscape plants and seldom become more than a nuisance pest. The nymphs can be killed with insecticidal soap applications which will also wash away the "fluff," or by using a standard insecticide labeled for use on the host plant.

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* Curtis Young reported that the VIBURNUM LEAF BEETLE (VLB) (*Pyrrhalta viburni*) has reached the adult stage in a sample that he collected from under a arrowwood viburnum plant in Hancock County. These adults are from pre-pupal larvae that had buried themselves in the soil beneath the host plant they had fed upon earlier in the season. This is part of the normal behavior pattern in the life cycle of VLB (i.e., they overwinter as eggs in pits on the stems of the host plant. They hatch from their eggs in early spring and move to the foliage to feed. Mature larvae abandon the leaves and move to the soil to shallowly burrow into the soil where they construct small pupation chambers. After a couple of weeks, new adults emerge from the soil to return to the foliage to eat, find mates and lay eggs for the next generation. These eggs are the ones that overwinter to the following growing season.). New adults should be appearing in the landscape as well. Dave Shetlar commented that he too was looking for VLB adults and did find one in the landscape in the past week. Thus, anyone wanting to protect the foliage of their viburnum plants that live in the colonized areas of Ohio, especially the NE region of Ohio, now is the time to take action.

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4. DISEASE DIGEST.

A. GUIGNARIDIA LEAF BLotch OF AESCULUS. Caused by the fungus *Guignardia aesculi*, Guignardia is a common disease afflicting members of the genus *Aesculus*, which includes buckeyes and chestnuts.
Guignardia is a foliar disease. This fungus thrives in the warm, wet conditions we are currently experiencing in Ohio. The spores require moisture to spread to new growth in the spring, and also to germinate and infect foliage.

Water-soaked lesions form on infected foliage and eventually brown, appearing similar to leaf scorch. Weather conditions and planting site are big clues as to whether you are dealing with a case of leaf scorch or Guignardia. Wet, warm conditions and moisture foster development of Guignardia, while leaf scorch results from excess sun or drought.

Early season symptoms are beginning to appear on foliage in southern Ohio. Brown lesions resulting from Guignardia infection are often surrounded by a yellow, chlorotic halo, and peppered with black pinhead-sized fruiting bodies. As the disease progresses, lesions may coalesce to cover the entire leaf. The infected foliage will begin to curl and drop prematurely. The fungus survives overwinter in infected leaves, releasing spores the following spring.

Cleaning infected leaves at the end of the season and promoting airflow by thinning canopies to reduce moisture can prevent Guignardia from developing in the spring. Once symptoms appear, it is too late to control the disease.

Damage from Guignardia is largely aesthetic and will not cause long-term health problems to infected trees, so chemical control is not usually recommended to control this disease in home landscapes. If Guignardia has been a serious problem causing defoliation several years in a row, fungicide applications may be made to prevent damage resulting from repeated stress. Fungicide application should be made as leaves emerge in the spring, before the fungus is able to infect foliage, in order to effectively prevent infection.

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5. TURF TIPS.

A. BROWN PATCH RUNS AMUCK! Joe Rimelspach reported on this week’s BYGL call that the heat, rain, and humidity have created the perfect storm for turf diseases, particularly BROWN PATCH (Rhizoctonia solani) on tall fescue in home lawns. Samples have come into the lab from Northeast and Central Ohio.

Brown patch is a fungal disease that causes blighted brown patches on turf that are unsightly in home lawns or fields alike. These brown, tan, or yellowish spots can appear quickly. Individual blades will develop lesions that are brown to tan with darker rings around them. In some areas moisture and humidity are so high that the gray fluffy mycelium, or fungal strands, of the offending organism are visible on the grass.

To combat these diseases, there is a suggestion that is somewhat counter intuitive to regular practices for lawn care. In the heat of the summer, higher mowing height is generally helpful for establishing dense root systems that can withstand the droughty conditions of summer. However, for brown patch on fescue, Joe suggested setting mower height to the lower end of the 2.5 - 3” spectrum as this may help increase airflow around the turf blade and cut humidity, which may reduce disease if it exists in your lawn. Still be wary of scalping the lawn, but a lower mower height MAY help air flow, though could sacrifice root volume.

There are fungicides available for brown patch but can be on the pricier side. Joe suggested products PILLAR (by BASF) and HERITAGE (by SYNGENTA), which are both available for home and sport field with no site restrictions for use. As always, follow instructions carefully as the label is the law for use of the product. Most fungicides are best used as preventatives, not after disease has formed so programs
should be planned when conditions favor disease development. As long as humid, warm conditions continue, so may turf diseases. Avoid over watering during this time.

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6. INDUSTRY INSIGHTS.

A. WHITE PINE WEEVIL DAMAGE BECOMES EVIDENT. White pine weevil (Pissodes strobi) larval feeding damage is now becoming very evident in southern Ohio. This means that localized weevil populations may be reduced by removing and destroying infested conifer terminals. Overwintered females deposit eggs in early spring in the terminals of a wide range of conifers including Douglas-fir, all spruces, as well as Scotch, jack, red, pitch, and eastern white pines. After the eggs hatch, the resulting white, legless, slightly curved, grub-like larvae tunnel downward just beneath the bark feeding on phloem tissue until pupation. The tops of weevil infested trees become wilted, turn brown, and die. Main leaders are often curved into a "shepherd's crook."

Removing the paper-thin bark from infested leaders will reveal reddish-brown frass (insect excrement) and weevil larvae. As the larvae near pupation, they form so-called "chip cocoons" by excavating tub-shaped chambers in the xylem and surrounding themselves in Excelsior-like wood fibers. New adults emerge through the bark creating small, round exit holes. The adults mate and feed on bud and twig tissue; however, their damage is inconsequential. The weevils then move to the duff beneath conifers to spend the winter.

Years of successive weevil damage to terminal leaders will eventually create "cabbage trees" which are short, squat trees with multiple terminal leaders. The weevil is common to the northeast part of the state and it is becoming common to central Ohio; however, it remains less common in the southern part of the state. Consequently, the weevil damage may be misdiagnosed as being caused by other problems such as root injury or drought stress, or symptoms may go unnoticed allowing localized populations to expand.

There is one generation per year and populations may be reduced by removing the infested terminals before adult weevils emerge. Wilted terminals should be pruned from trees and the cut ends closely examined to determine if the cut top contains all of the weevil larvae. Larval tunnels appear as round to oblong holes in the phloem ring that are filled with reddish-brown frass. If larval tunnels are found in the portion of the terminal that remains on the tree, another cut should be made further down on the stem. Infested material must be destroyed since the weevils will complete their development in cut tops left on the ground. Young conifers typically respond well to training a lateral branch to become a new terminal.

Conifers may be protected against white pine weevil by making a soil drench or soil injection application of imidacloprid (e.g. Merit, Xytect, etc.) in the fall. However, this preventative control measure should be reserved for landscapes, nurseries, or Christmas tree plantations that have a history of significant white pine weevil activity.

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B. SPRUCE SPIDER MITES: TOO LATE AND TOO EARLY. Dave Shetlar reported that while leading a group of golf course and horticulture professionals on a diagnostic walk-about late last week in Secrest Arboretum, OSU OARDC, in Wooster, OH, the group came across firs showing heavy spruce spider mite (Oligonychus ununguis) feeding damage. Despite their common name, spruce spider mites may be found on a wide range of conifer hosts including their namesake host as well as arborvitae, juniper, hemlock, pine, Douglas-fir, and true firs. The mites feed by rupturing individual cells of the host's foliage which produces characteristic tiny yellow spots, or "stippling." As the stippling coalesces, foliage becomes bleached and eventually bronze-colored. Inner foliage is generally affected first.
Dave showed the group how to use the "beating tray" method for discovering and assessing spruce spider mite populations. This tool can be a purchased piece of equipment or simply a stick and an 8.5 x 11" tablet of white paper. The white tablet is held a few inches beneath the conifer foliage and the foliage is struck several times with a stick causing the mites to drop onto the paper. The tablet should then be tilted slightly and lightly tapped to cause plant debris to slide off. The white surface can then be closely examined for small, slow-moving dots, not much bigger than the period at the end of a sentence in a 12 pt. font-sized document; those are the spider mites. Faster moving dots are likely to be predaceous mites; the good guys that feed on the spider mites. A finger can be used to "mash and smear" the mites to further distinguish the good mites from the bad. Greenish-brown streaks are "pate de spider mite."

Dave reported they only found 5 - 6 mites per assessment meaning that the mites were at the beginning of their annual summer decline. Spruce spider mites are a type of "cool season" mite meaning the highest nymph and adult populations - the damaging stages of the mite - occur in the spring and fall. The mite spends winter and summer months in the egg stage. As temperatures warm in the spring, or cool in the fall, the eggs hatch. Typically, fall generations are more damaging than the spring generations owing to a more extended feeding period. However, fall feeding symptoms do not become evident until the following season, so damage that is observed now may have occurred last fall or this spring.

Dave pointed out to the group that it is too late to control the spring generations and too early to make applications to control mites that will hatch from the summer eggs. Once eggs hatch, effective management options include washing (syringe) mites from the foliage using a heavy stream of water, applications of soaps and oils, or applications of traditional miticides. Syringe will conserve predaceous mites, but may be difficult on large trees or large numbers of trees. Soaps and oils are also kind to predators, but both will wash away the blue color on Colorado blue spruce. Certain miticides such as spiromesifen (e.g. Judo), hexythiazox (e.g. Hexygon, Savey), and bifenzate (e.g. Floramite), as well as a few others, have a low impact on the beneficial mites.

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7. **WEATHERWATCH.** The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from June 1 - 24, 2015, with the exception of the soil temperatures which are readings from Wednesday, June 24, 2015 at 5:20 p.m.

Rain, rain and more rain. Precipitation amounts reported by BYGLers were measured in inches, and ranged between as little as an inch, and up to 10" for the week in most areas of the state. High humidity and high moisture levels are creating a perfect storm for many plant diseases.

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<td>NE</td>
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<td>63.0</td>
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<td>77.28/75.84</td>
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<td>NW</td>
<td>79.5</td>
<td>60.9</td>
<td>3.68&quot;</td>
<td>2.8&quot;</td>
<td>82.39/77.85</td>
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<tr>
<td>Columbus</td>
<td>Central</td>
<td>81.8</td>
<td>62.9</td>
<td>5.56&quot;</td>
<td>3.5&quot;</td>
<td>83.64/80.67</td>
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<tr>
<td>Piketon</td>
<td>South</td>
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<td>62.8</td>
<td>3.7&quot;</td>
<td>2.3&quot;</td>
<td>89.26/85.19</td>
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For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/centernet/weather.htm](http://www.oardc.ohio-state.edu/centernet/weather.htm)

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8. COMING ATTRACTIONS.

A. SAVE THE DATE - NORTHWEST OHIO GREEN INDUSTRY SUMMER SESSION - AUGUST 5, 2015. The event will once again be held at Owens Community College. Stay tuned for a link to the registration materials.

B. 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. "Brain: An apparatus with which we think we think." - Ambrose Bierce, "The Devil's Dictionary"

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/
Following are the participants in the June 23rd conference call: Amanda Bennett (Miami); Joe Boggs (Hamilton); Jim Chatfield (Hort and Crop Science); Julie Crook (Hamilton); Erik Draper (Geauga); Mary Griffith (Greene); Denise Johnson (Master Gardener Volunteer program); Jacqueline Kowalski (Cuyahoga); Ashley Kulhanek (Summit); Joe Rimelspach (Plant Pathology); Dave Shetlar (Entomology); Amy Stone (Lucas); Nancy Taylor (C. Wayne Ellett Plant and Pest Diagnostic Clinic (CWEPPDC)); and Curtis E. Young (Van Wert).

BYGL is available via email, contact Cheryl Fischnich [fischnich.1@osu.edu] to subscribe. Additional fact sheet information on any of these articles may be found through the OSU FactSheet database [http://plantfacts.osu.edu/web].

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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].