BUCKEYE YARD AND GARDEN LINE 2013-22
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This is the 22nd 2013 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.

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1. PLANTS OF THE WEEK.

*ANNUAL - DAHLIA (Dahlia spp.). Amy Stone was walking through the Toledo Botanical Garden this week and stopped in her tracks when she came upon the dahlia beds maintained by the local Dahlia Society. They were absolutely beautiful!

Dahlias are bulbs that are generally planted as tubers in early spring. They can be planted from seed as well. Some of the newer varieties are grown from vegetative cuttings and can be found in garden centers in the spring with the bedding plants. These newer varieties tend to require less deadheading than older varieties.
Dahlia flowers come in a huge variety of sizes, shapes, and colors, and make excellent cut flowers for arrangements. Once they start blooming, they'll last until frost (with deadheading). The colors range from white to pink, yellow, purple, burgundy, orange, salmon, coral, red and multi-colors; butterflies are attracted to them. These flowers have such a wide range of shapes that they are grouped into categories. These categories include: anemone, ball, cactus, fimbriated, orchid, decorative, collarette, single, waterlily, pompom and dwarf. If one succumbs to dahlia fever, consider joining all of the other infected people in the American Dahlia Society [http://www.dahlia.org]! One can find trial gardens and much more at their website.

Dahlias take full sun and require some work. Plant sizes range anywhere from 1 - 6' depending upon the variety. They can be bushy and covered with clusters of smaller flowers or slimmer with longer stalks of individual flowers. Plant dahlias indoors in the early spring; transplant them after the danger of frost in order to have blooms earlier in the season. They can be directly planted into the ground once the soil warms up. Keep them watered during the summer as they don't like to dry out. Water in the morning and avoid long periods of moisture on the foliage as this can lead to powdery mildew in some varieties. In the fall, pull up the tubers and store them for next year.

PERENNIAL - GOLDEN ROD (Solidago spp.). Roadsides and ditches are turning yellow - that is if goldenrod is present. The genus Solidago includes approximately 100 species of goldenrods that are mostly native to North America. Although there are 22 naturalized species that are scattered throughout Ohio, only Canada goldenrod has a distribution encompassing the entire state. The species does not tolerate frequent disturbances, so it is mainly found grounding in perennial crops, abandoned fields, ditches, roadsides, riverbanks, open woodlands, and floodplains. This plant prefers moist conditions and medium textured soils. Canada goldenrod usually doesn't establish on very wet or dry sites, and it is fairly intolerant of shade.

Over the years, several discoveries have been made in the world of goldenrods that have added interest to Ohio gardens. The flowers bloom at or near the same time one might find them in natural areas. Flowers range from gold to bright yellow.

Despite the belief by some that these plants are "weeds," they have some positive characteristics including: deer resistance; pollinator attraction; ease of cultivation; and use of both cut and dried flowers. Newer cultivators include: 'Fireworks', 'Golden Baby', and 'Little Lemon.'

It is also important to know that goldenrod is often falsely accused for causing hay fever and allergies. Instead, the culprit is more likely to be ragweed (Ambrosia spp.).

WOODY - SHAGBARK HICKORY (Carya ovata). Shagbark hickory is a large (70 - 90') slow-growing native tree for Ohio and the Eastern US, though less prominent in the south. It has compound leaves with mostly five leaflets, monoecious flowers (male and female flowers on the same plant but separated), and dramatic shaggy plates of bark on older trees. Large foliose, terminal buds are a good ID characteristic. The jagged branch structure of the tree is dramatic in winterscapes. Shagbark hickory thrives in moist, well-drained acid soils, but often predominates in upland sites due to its comparative advantage of excellent drought tolerance. Sweet nuts are a source of food for squirrels and many other animals and sap is used by some human chefs for specialty woodsy syrups. Green wood is used for smoking meats, cut timber for furniture, tool handles and other uses. Shagbark hickory readily hybridizes with certain other Carya species, C. illinoiensis (pecan) and C. laciniosa (shellbark hickory). It has limited formal landscape use since it has a tendency to be a "dirty" tree, dropping numerous twigs, small branches, and leaves.
*WEED - COMMON RAGWEED (Ambrosia artemisiifolia).* Common ragweed, which is found throughout North America, is a troublesome plant that invades most cultivated land when soil temperatures are between 50 - 80F. Seeds of this plant can survive up to 80 years in the soil, thus making it very hard to control. The leaves on common ragweed can be described as typically twice compound and arranged alternately. Flowers are present from late summer into autumn and are monoecious meaning male and female flowers are in separate heads. The male flowers are in racemes at the top of the plant and the female flowers are located in the axils of the leaves. GIANT RAGWEED (Ambrosia trifida) is a close relative to common ragweed. It can grow nearly twice as high as common ragweed, sometimes towering beyond 10'. The leaves of giant ragweed are opposite and mostly palmately 3-lobed. Pollen from both common and giant ragweed is the primary cause of hay fever even though they are distant cousins. Both of these plants will not tolerate frequent mowing. Broadleaf chemical controls should be selected based on the plant crop you are trying to protect. When spraying pesticides always read the label and apply according to label directions.

2. HORT SHORTS.

A. DAN HERMS: WINNER OF R.W. HARRIS AUTHOR'S CITATION. The International Society of Arboriculture (ISA) presented Dan Herms, Chair, OSU Department of Entomology with its prestigious R.W. Harris Author's Citation at its Annual International Conference in Toronto, Canada. The ISA's description for the Citation: "Granted to authors of outstanding publications for sustained excellence in the publication of timely information pertaining to the field of arboriculture." Notable past recipients include: P.P. Pirone, Cynthia Westcott, L.C. Chadwick, Elton M. Smith, Jr., Warren T. Johnson, and Wayne Sinclair.

The ISA published the following in its special awards newsletter: "Dr. Daniel Herms' passion for tree care led him to a career in research and writing to guide arborists, fellow scientists, and students in arboriculture and urban forestry. Currently a professor and chair in The Ohio State University Department of Entomology, his research is dedicated to understanding insect and woody plant interactions and their implications for pest management."

"Dr. Herms has written more than 200 publications, including more than 70 peer-reviewed publications and book chapters. His work involving the emerald ash borer and the development of EAB-resistant trees is believed to hold great promise for the future of our urban forest."

You can watch a video tribute to Dan Herms that was aired at the 2013 ISA Annual International Conference: [http://www.youtube.com/watch?v=c3wegnuJyew&feature=youtu.be].

Here in Ohio we are well aware of Dan's contributions and good spirit on many levels; it is great to see him recognized with this international award. Join BYGLers in congratulating Dan.

B. APPLE FRUIT CRACKING. Gary Gao reported receiving calls about apple fruit cracking. Fruit cracking is a common problem during the second half of the fruit growth. This is due to the fact that apple fruits accumulate a lot of sugar during fruit ripening. High sugar content promotes absorption of water from rain. The added water makes apple fruits grow too fast for apple skin to handle. Apple fruits crack under extreme pressure. There is not much that a gardener can do to avoid cracking apples. However, research does indicate that limiting nitrogen applications might help reduce the incidence of cracking apple skins. Additionally, selecting thicker skinned apple cultivars might help.

Another common cause of fruit cracking is apple scab. The apple scab infected areas on apple fruit are not capable of cell division and expansion. Those parts of the fruit skin stop growing and thus crack.
With fruit cracking caused by apple scab, controlling apple scab with fungicides and scab resistant apple cultivars is the key.

Refer to OSU Extension Bulletin 940, "Midwest Home Fruit Production Guide," for more information on apple growing in home fruit plantings.

3. BUG BYTES.

A. LAST HURRAH FOR YELLOWNECKED AND WALNUT CATS. Dave Shetlar and Joe Boggs reported that with most caterpillars in their final instar stages, the annual defoliation caused by WALNUT CATERPILLARS (Datana integerrima), and YELLOWNECKED CATERPILLARS (D. ministra) is coming to a close for the season, although landscapers may still find a few early instar colonies hanging on to the bitter end. The caterpillars of both species are general defoliators and they feed in groups that may include 10 - 30 caterpillars. Since both species occur at the same time, share general traits and some hosts, the two species are sometimes misidentified.

Both species of moths lay eggs on the underside of leaves. First instar caterpillars often go unnoticed because of their small size and their feeding behavior; they often confine their feeding to one or two leaves. Damage becomes more apparent when the caterpillars reach the second instar stage and consume most of the leaf, except for the midvein. Later instar caterpillars devour whole leaves, often including the petiole. Since the caterpillars of both species are gregarious feeders, defoliation tends to occur one branch at a time, unless populations are high and multiple groups are feeding on many branches. Both species of caterpillars have the interesting habit of rearing their front and tail ends in unison to ward off offenders. Also, they both pass through several color phases, meaning that the larvae change color patterns as they mature.

The yellownecked caterpillars have black heads and a bright orange "neck," or prothorax, which gives them their common name. The caterpillars pass through three distinct color phases during their development. First instar caterpillars are copper to reddish-tan in color and they have faint longitudinal lines, or no distinct lines. The next color phase begins with second instar caterpillars; they have distinct alternating longitudinal yellow and orangish-red lines. The final color phase is observed on last instar caterpillars which have alternating longitudinal black and yellow lines. Although all instars have hairs, the hairs are most evident during the last instar stage.

Walnut caterpillars also have three color phases. Newly hatched caterpillars are reddish to reddish-yellow and they remain this color through the second instar stage. During the third and fourth instar stages, the caterpillars are brick red with faint white stripes. In the final instar stage, the caterpillars are grayish black with long, soft white hairs. Walnut caterpillars practice an unusual molting behavior. When molting, they group together on the bark of their host tree and all molt at the same time, leaving behind a mass of hairy exoskeletons that looks like a patch of fur.

The yellownecked caterpillars feed on a wide variety of trees including: crabapples, flowering fruit trees, maples, elms, nut trees, beech, lindens, honey locusts, and boxwoods. There are normally two, and sometimes three generations in Ohio. With the early spring this season, there will almost certainly be three generations this year. As their common name implies, walnut caterpillars favor walnut trees, but they will also feed on hickories, birches, oaks, and willows. Both species have two generations per season in Ohio; however, egg hatch may occur over an extended period of time for the second generation meaning that early instars may be present at the same time as late instars. For example, Joe reported that he just took pictures of first instar walnut caterpillars on their namesake host in southwest Ohio; however,
he noted that they will probably run out of food given the dramatic defoliation that is now occurring because of walnut anthracnose.

Caterpillars of both species feed for 4 - 6 weeks until full grown (about 2" long), then they drop from the trees and pupate in underground cells. Although the damage caused by both types of caterpillars can be devastating to small trees in landscapes, these caterpillars are seldom considered a serious pest in woodlands. The caterpillars can be easily managed on small landscape trees by knocking them to the ground and performing the "caterpillar stomp dance;" so far, none have become resistant to this control method.

B. FALL WEBWORM UPDATE. In BYGL 2013-12 (06/20/13), Dave Shetlar, Curtis Young, Gary Gao, and Joe Boggs reported running across the small nests of first generation fall webworms (*Hyphantria cunea*). This week, Dave, Curtis, and Joe noted that large-sized second generation nests coupled with large numbers of nests are making the webworms very obvious in some parts of Ohio, particularly in the central, northwest, and southwest parts of the state. 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.

There are two types of fall webworms, known as "races," found in Ohio: the black-headed race and red-headed race. The two differ in coloration and to some extent; the races also differ in host preferences, nesting, behavior, and the timing for spring adult emergence. Caterpillars of the black-headed race have black head capsules and 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. Black-headed race moths usually emerge from overwintering cocoons prior to the adult emergence for the red-headed race.

Caterpillars of the red-headed race have red to reddish-orange head capsules and two rows of reddish-orange tubercles running the length of their light to dark tan bodies. Adult moths usually emerge from overwintering cocoons 2 - 3 weeks after the black-headed race adults have emerged. 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 races may be found on a wide variety of shade, ornamental, and fruit trees and shrubs. It is too late for insecticides to have an appreciable impact since dense webbing of large sized nests will interfere with insecticide penetration. Where practical, nests can be pulled apart and the caterpillars destroyed (e.g. do the "caterpillar two-step!"). On the long-term upside, there are over 50 species of parasitoids, and 36 species of predators known to make a living off of fall webworms. In past seasons, parasitoids have proven to be very effective in reducing year-to-year populations of this defoliator.
C. MIMOSA WEBWORMS. Joe Boggs reported heavy localized mimosa webworm (*Homadaula anisocentra*) populations in southwest Ohio. Despite their common name, mimosa webworms are most often found on honeylocusts in Ohio. The caterpillars feed gregariously as skeletonizers within webs spun over the foliage. Attention is usually drawn to an infestation by clusters of orangish-brown "torched" leaves and leaflets that are tightly encased in webbing.

There are two to three overlapping generations per season in Ohio and female moths often lay eggs on nests from which they developed. Consequently, the nests are expanded by each new crop of caterpillars. Eventually, the nests become so dense that insecticides will fail to penetrate to kill the caterpillars. This means that management strategies involving insecticide applications should focus on targeting first generation caterpillars that were present earlier in the season. Their nests are constructed with loosely woven silk that usually encloses only a few leaflets.

Mimosa webworms on honeylocust are generally considered an aesthetic and nuisance pest problem. The nests make trees unsightly and caterpillars will occasionally drop from infested trees to visit backyard gardeners and grillers. Significant leaf damage usually occurs late in the season as a cumulative effect of nests being expanded or new nests being created with each successive generation. Consequently, there is seldom enough leaf lose early in the season to cause long-term weakening of trees.

Fortunately, there are numerous predators and parasitoids as well as several pathogens that naturally suppress webworm populations. These bio-allies are responsible for the wide swings in webworm population densities from year-to-year. Indeed, a location that suffers through a year with high webworm populations usually enjoys a number of years with almost no webworms.

If insecticides are being considered to target first generation caterpillars next season, standard insecticides labeled for use on honeylocusts will be effective in controlling the webworms. However, they may also suppress the bio-allies. Products based on the naturally occurring bacterium *Bacillus thuringiensis* (Bt) will have little to no impact on the bio-allies. Two applications of Bt products spaced 7 - 10 days apart and targeting the first generation caterpillars is recommended. Of course, nests on small trees may be removed by hand. Preventing first generation nests will reduce the attraction of trees to second and third generation females.

D. ANTLIONS ROAR. Curtis Young and Joe Boggs reported observing the curious looking handiwork of pitfall-type antsions (*Myrmeleon* spp.) in northwest and southwest Ohio, respectively. Antlions belong to the insect order Neuroptera (neuro = nerve, optera = wing); the delicate wing veins look like nerves. Females of the "pitfall-type" antsions insert their eggs into dry, powdery soil. Favored locations include loose soil near building foundations or around the base of trees. Once the eggs hatch, the true "antlion" portion of the life cycle appears on the scene.

The grayish-brown, slightly hairy larvae are heavily plated, almost armor-like, and they sport impressive out-sized, sickle-shaped mandibles; necessary equipment for a predator. The pitfall-type antsions excavate their pits by moving backwards in the loose soil in a spiral pattern and using their mandibles like tiny shovels to flip away soil. Eventually, a funnel-shaped pit, measuring around 3/4 - 2" wide and 1/2" deep is created with the antlion buried at the bottom; only their wicked looking mandibles are exposed.

The loose dry soil particles provide no traction for escape when a hapless victim blunders into the pit-fall trap. The antlion uses its sharp-pointed mandibles to seize its trapped prey and to pierce the victim's body allowing the essence-of-insect to drain into the antlion's mouth. Their dinning menu includes their namesake prey as well as any other arthropod the antlion can skewer with its mandibles.
Antlions are sometimes called "doodlebugs;" however, as with many common names for insects, geography plays a role in exactly which insect is attached to the doodlebug moniker. In some parts of the US, the doodlebug name is attached to dung beetles (Order Coleoptera; Family Scarabaeidae) while in other locations the name refers to the larvae of tiger beetles (Family Carabidae). Of course, an antlion by any other name is still a ferocious and fascinating predator!

E. JIMINY CRICKET! THE CRICKETS! As summer draws to an end, several species of crickets are reaching adulthood and courting is commencing with the males chirping for the females and females are chirping back. Among the species of crickets commonly encountered include the FIELD CRICKET (Gryllus pennsylvanicus), the HOUSE CRICKET (Acheta domesticus), and the TREE CRICKETS (Oecanthus spp.). The courting calls of these crickets fill the air both day and night.

Field crickets are relatively large (about 1" long) and are dark brown to black in color. They have large hind legs and two cerci (spiky things coming out of the back of their abdomens). Female field crickets also have a long ovipositor (about 3/4" long) coming from the abdomen between the cerci. Males lack the ovipositor.

Field crickets are omnivorous. They eat plant material, especially seeds, small fruits, and living and dead insects. If they are really hungry, they will even eat each other!

Once mated, female field crickets look for some damp soil to lay eggs. They insert their ovipositors into the soil to lay their eggs. She will lay about 50 eggs at a time, and one female can lay over 400 eggs in her adult life. These eggs will overwinter and hatch the following spring.

Field crickets can be a pest when they eat plants or seeds of plants that are desired to keep in gardens. Field crickets also sometimes enter homes. Once inside, they sometimes damage furniture, rugs, or clothing. Their incessant chirping indoors can also drive homeowners crazy trying to find and rid the house of the intruder.

One high note about the chirping is that one can approximate air temperature based on the number of chirps produced. The rate of chirping is directly influenced by temperature. Counting the number of chirps a male field cricket makes in 13 seconds, and then adding 40 to that number generates an approximate index of the environmental temperature (in degrees Fahrenheit).

4. DISEASE DIGEST.

A. TAR SPOTS OF MAPLE. At Diagnostic Workshops this August we have frequently displayed samples of the two tar spots of maple. Rhytisma acerinum causes dense, tarry spots, mostly on silver maple and red maple, while R. punctatum causes tiny "punctate" spots which diffusely coalesce into inch size or larger roundish spots, mostly on Norway maple. On Norway maple this tar spot can cause considerable leaf drop in late July and August, resulting in great concern to homeowners, though typically little long-term health problems result with this late-season problem. The Rhytisma fungi overwinter in fallen leaves, so if there is a concern, raking up the leaves (followed by removal from the landscape or composting) can be effective, though sometimes fungicides are used in spring when homeowner demand is high.

B. GUIGNARDIA LEAF BLOTCH DISEASE OF AESCULUS. This disease is fairly severe this year and symptoms are quite evident on susceptible buckeyes, horsechestnuts, and some of their hybrids now in late August. As noted in OSU Extension Home Yard and Garden FactSheet 3044 ([http://ohioline.osu.edu/hyg-fact/3000/3044.html](http://ohioline.osu.edu/hyg-fact/3000/3044.html)): 
"This disease is a serious aesthetic problem on most horse chestnut and buckeye species, although bottlebrush buckeye (*Aesculus parvifolia*) exhibits excellent resistance. Large irregular reddish-brown lesions with surrounding yellowed tissue occur on leaves, often badly disfiguring foliage by early to mid-summer. Leaves often curl and brown and, by August, the overall plant often looks as if it was blow-torched. Early leaf drop also occurs. The problem is enhanced by wet foliage conditions and the disease is not a problem in drier Western US sites.

Initial infections are in spring from spores produced in infected leaves from the past year. Moist conditions enhance the infections and subsequent cycles of infection occur if moist conditions continue. Black fruiting bodies of the fungus are often evident in lesions. The disease does not appear to be a serious health problem, as much of the annual growth of *Aesculus* has occurred by the time foliage is badly damaged. Controls for the serious aesthetic damage include fungicide applications made as leaves emerge, with repeated applications at 10 - 14 day intervals if wet conditions persist. Use a labeled fungicide containing chlorothalonil or mancozeb. Also practice sanitation by cleaning up infested foliage at the end of the season, and improve air movement in the tree canopies to hasten leaf drying."

C. MOIST CHAMBER. Other diseases noted on our BYGL call this week included FOLIAR NEMATODE ON ANEMONE by Nancy Taylor in the C. Wayne Ellett Plant and Pest Diagnostic Clinic (CWEPPDC), a case of leaf flagging in upper branches on Valley Forge elm due to DUTCH ELM DISEASE reported by Nancy Taylor of the CWEPPDC, and a RUST ON RASPBERRY by Joe Boggs in southwest Ohio. Also noted by many BYGLers the past week were a profusion of honey mushrooms produced by the *Armillaria mellea* FUNGUS.

**FOLIAR NEMATODES** such as the *Aphelenchoides* sp. nematode sample in to the CWEPPDC cause patch-like desiccation injury with distinct margins on leaves. Damage is very difficult to diagnose since symptoms are similar to damage from certain bacterial, fungal or downy mildew pathogens or even insect feeding injury.

Check out an image from Purdue at: [http://www.ppdl.purdue.edu/PPDL/images/foliarnematodes2.jpg](http://www.ppdl.purdue.edu/PPDL/images/foliarnematodes2.jpg) and [http://www.ppdl.purdue.edu/PPDL/images/foliarnematodes1.jpg](http://www.ppdl.purdue.edu/PPDL/images/foliarnematodes1.jpg).

**DUTCH ELM DISEASE** is sometimes arrested on elms known to have some resistance to the disease such as 'Valley Forge,' and in some cases the symptoms of flagging of foliage on upper branches is not followed up by full-fledged vascular wilt and death of the tree.

**RUSTS ON RASPBERRY** are various, including the systemic orange rust of brambles with bright orange pustules and late leaf rust with fungal rust pustules on the underside of leaves, but the rust Joe Boggs noted, which was not orange rust of brambles, had fungal pustules on upper leaf surfaces.

*Armillaria mellea* is an opportunistic pathogen of many woodland and in some cases landscape plants, which also produces several visible "signs" of the fungus, including hardened fungal mycelia known as rhizomorphs (giving this fungus the name "shoestring fungus"), and fruiting bodies known as honey mushrooms.

5. TURF TIPS.

A. EVEREADY BEETLES? We reported in late June that JAPANESE BEETLES (*Popillia japonica*) were beginning to emerge in many areas of the state (BYGL 2013-13, 6/27/13). The timing agreed closely with historical data; adults typically begin to emerge sometime in mid-to-late June, the emergence
peaks in July and begins to trail off sometime in early to mid-August. However, Dave Shetlar reported that he is seeing large numbers of JAPANESE BEETLES again showing-up to feed on preferred hosts. He noted that they are not "Eveready beetles;" they didn't just keep going and going after emerging earlier in the season. This appears to be a second emergence.

Dave noted that this may be more than just a life-cycle anomaly since this apparent bimodal emergence pattern has been a topic of discussion among researchers over the past decade. However, the asynchrony has not been closely studied and the exact cause can only be speculated. One possible explanation may be connected to the egg laying behavior of Japanese beetles. Females lay dehydrated eggs that must absorb water from the soil in order to develop; moist soils means eggs will develop and hatch while dry soil means eggs will fail to develop and will die. It is conceivable that beetle emergence patterns could be influenced by multiple years with a pattern of wet - dry - wet soils occurring during the seasonal emergence of the beetles. Since only the eggs from early and late emerging beetles would survive to hatch, a bimodal emergence pattern could eventually evolve.

B. CHINCH BUGS ARISE. Dave Shetlar also reported that the appearance of second generation HAIRY CHINCH BUGS (*Blissus leucopterus*) has been delayed this season in southwest Ohio. This means the most damaging stages (late instars and adults) of this turfgrass pest will not appear until sometime in September ... just in time to wreak havoc on newly planted turfgrass! Chinch bug damage usually appears as browned turf occurring in irregular patterns and the symptoms may be mistaken for high temperature dormancy, drought stress, or even certain turfgrass diseases.

Chinch bug infestations cannot be identified using drive-by diagnostics. A proper identification requires an up-close and personal inspection on bended knee. Parting the grass will reveal the chinch bug adults and nymphs darting about among the turfgrass stems. If the grass is becoming off-colored, look closely at the exact color. Chinch bugs inject toxins into stems as they feed causing the blades to first turn a purplish color rather than the straw-brown color associated with drought stress.

Chinch bug management strategies may include short-term suppression using insecticide applications, or long-term suppression through plant selection. Effective curative insecticides include: bifenthrin (e.g. Talstar); lambda-cyhalothrin (e.g. Scimitar); and deltamethrin (e.g. DeltaGard). For clients who desire a more "organic" approach, university research studies have shown that azadirachtin (e.g. Azatrol) provides about 80% control with one application and nearly 100% control with two applications made 10 - 14 days apart.

Lawns with a long history of chinch bug outbreaks are good candidates for using turfgrass selection to suppress chinch bug populations. Certain cultivars of turf-type tall fescue are known to harbor endophytic fungi. These fungi reside between plant cells within the turfgrass blades (= endo) where they enjoy a symbiotic relationship with the turfgrass plants. The fungi live off waste products exuded by plant cells. In return, the fungi protect turf plants by producing alkaloid compounds that are toxic to top-feeding insects, including chinch bugs. Over-seeding with "endophyte enhanced" turfgrass cultivars will provide a long-term solution to chinch bug problems.

C. GRAY LEAF SPOT OF TURFGRASS. Dave Shetlar and Joe Rimelspach reported the occurrence of gray leaf spot fungus (*Pyricularia grisea*) in perennial ryegrass (*Lolium perenne*). Gray leaf spot infects and can cause death of grass blades. In severe infections, the fungus can move into the grass crown and kill the entire plant. Gray leaf spot has been a known problem in St. Augustine turfgrass in the southern US for many years. Recently, it has also become more problematic in northern cool season grass species especially annual and perennial ryegrass. Typically gray leaf spot infections occur in late summer and into the fall of the year. The worst cases have occurred in hot summers followed by warm, humid days of
late summer and fall, especially after experiencing the remnants of hurricanes. This year's infections have come earlier than usual.

In Ohio, gray leaf spot is more prevalent in the southern half of the state than the northern half. Joe reported the identified infections in athletic fields and Dave reported infections in lawns. Gray leaf spot can be mistaken for other less significant diseases. Symptoms of gray leaf spot on cool season grasses often appear as tiny pinprick lesions. Under optimal environmental conditions and on susceptible hosts, these small spots quickly turn into water-soaked lesions, which rapidly coalesce together and progress to twisted necrotic leaf tips. The overall appearance of multiple infected plants resembles severe drought stress. Severe outbreaks look as if the turfgrass was scorched with a flamethrower. In later stages of disease development, the grass blades may take on a gray color as a result of the mass production of conidia spores by the pathogen. Examination of the conidia spores through a microscope reveal their waterdrop-shape. The shape of the conidia spores is a key to accurate diagnosis of gray leaf spot.

Turfgrass areas that have lost numerous plants to gray leaf spot should be reseeded, overseeded or slit seeded with resistant species of turfgrass such as turf-type fine fescue or Kentucky bluegrass.

Fungicides are important for gray leaf spot control on golf courses and sports turf. The most effective fungicides are strobilurin products (eg. Compass, Disarm, Heritage, and Insignia). Tiophanate-methyl (Cleary 3336) is also very effective. Chlorothalonil and DMI fungicides have limited efficacy but may be useful when disease pressure is low. Dicarboximides (Chipco 26GT and others), flutolanil (Prostar), and products used to control Pythium blight are not effective against gray leaf spot. The extent of disease pressure will greatly influence fungicide performance. If gray leaf spot outbreaks are in an advanced state by the time fungicide sprays are initiated, it is likely that levels of control will be unacceptable. Fungicide-resistant strains of the pathogen have been identified in the Midwest.

Managing gray leaf spot in home lawns will be a challenge. Homeowners who are interested in the fungicide option to manage gray leaf spot should be prepared to pay dearly for the treatments. They will be expensive. For best results, contract with lawn care professional for the fungicide applications.

6. INDUSTRY INSIGHTS.

A. ASIAN LONGHORNED BEETLE UPDATE. Last week (August 22, 2013), the Ohio Asian Longhorned Beetle (ALB) Cooperative Eradication Program distributed a media update. The update stated that the tree removals in southwest Ohio's Clermont County are ongoing. Ground and tree-climbing survey crews are continuing to conduct delimiting surveys by inspecting all host trees throughout the regulated areas in Clermont County. Between July 1, 2011 and August 17, 2013 – 600,105 trees have been surveyed. Of those trees surveyed, 10,166 are known to be infested with ALB. Of those infested trees surveyed, 9,806 infested trees have been removed. Between May 1 - August 17, 2013 there have been 2,324 high risk ALB host trees removed. An additional 13,237 high risk ALB host trees have been treated in 2013. The regulated area continues to be 61 square-miles in size.

While August's Tree Check Month [http://asianlonghornedbeetle.com/get-involved/tree-check/] is winding down, people are still checking trees and reporting suspect trees. This week, Amy Stone and Lee Richter visited a tree in northwest Ohio. An alert visitor to a cemetery noticed three round holes near the base of a linden tree (Tilia spp.). While lindens are not on the current ALB host list, this individual was concerned as he saw the perfectly round holes nearly the size of those created by ALB adult beetles. Following some research and consultation with Entomologist and Department Chair, Dan Herms, the newly installed tree appeared to be attacked by the LINDEN BORER (Saperda vestita). Check out this
B. MAGNOLIA SCALE CRAWLS. BYGLers in southern and northern Ohio reported that the reddish-brown first instar nymphs (= crawlers) of MAGNOLIA SCALE (*Neolecanium cornuparvum*) are appearing on the stems of infested host trees. This is one of the largest "soft scales" in Ohio with mature females measuring as much as 1/2" in diameter. The helmet-shaped females are brownish-purple and can be found attached to the twigs, branches, and main stems of their namesake host as well as tuliptree. The scale uses its sucking mouthparts to extract sap from phloem vessels. Heavy infestations can kill branches, or even entire trees, or produce enough physiological stress to make trees susceptible to succumbing to other problems.

Magnolia scale is also a notorious for exuding copious quantities of "honeydew." The sticky honeydew may drip onto the leaves and stems of the host plant as well as plants beneath an infested tree, or onto sidewalks, cars, slow-moving gardeners, etc. Honeydew is often colonized by black sooty molds and while the molds do not harm plants, the sticky goo combined with the molds can produce an unsightly mess. Of course, the occurrence of honeydew and sooty molds do not necessarily mean soft scales are afoot. Many other sucking insects (aphids, planthoppers, etc.) also exude honeydew.

Magnolia scale eggs remain inside the female's body until the eggs hatch which gives the appearance that the females are "giving birth" to live young. Egg hatch may occur continuously from early August into early October. This presents a serious challenge to the traditional approach to scale management which focuses on targeting the unprotected crawlers with topical insecticide applications. The extended egg hatch means multiple applications are required to kill all of the crawlers produced this season. Neonicotinoid systemic insecticides are an effective alternative with control being achieved in a single application. A soil drench application of imidacloprid (e.g. Merit), dinotefuran (e.g. Safari), or clothianidin (e.g. Arena) from September into November will suppress this scale.

C. NOW IS THE TIME TO APPLY FOR GYPSY MOTH SUPPRESSION. Even though the gypsy moth (*Lymantria dispar*) caterpillars have completed their feed for the season and we are left with only the egg masses until next year, now is the time to consider your management options for 2014. To be considered to be part of the Ohio Department of Agriculture's (ODA) Gypsy Moth Suppression Program, applications need to be completed and turned into the state right now. Minimum requirements include but are not limited to: the area must be forested or have tree canopy; a percentage of that canopy must include preferred host plants for the caterpillar; there must be a minimum of 250 egg masses per acre; have a volunteer block coordinator; and the area must be at least 50 acres in size.

The gypsy moth is a non-native, invasive species that has been advancing into Ohio from Pennsylvania and Michigan over the past decade. In its caterpillar stage, it feeds on the leaves of over 300 different tree and shrub species and is especially fond of oak. A healthy tree can usually withstand only two years of defoliation before it is permanently damaged or dies. To date, 51 of Ohio’s 88 counties have established gypsy moth populations. A current quarantine map can be found at [http://www.agri.ohio.gov/divs/plant/gypsy/maps/GypsyMothQuarantineCounties.pdf](http://www.agri.ohio.gov/divs/plant/gypsy/maps/GypsyMothQuarantineCounties.pdf)

The application and additional information about the program and the gypsy moth can be found online at the ODA website at [http://www.agri.ohio.gov/divs/plant/gypsy/gypsy-index.aspx](http://www.agri.ohio.gov/divs/plant/gypsy/gypsy-index.aspx). A direct link to the application can be found at [http://www.agri.ohio.gov/divs/plant/gypsy/docs/plnt-gyp-supp-application.pdf](http://www.agri.ohio.gov/divs/plant/gypsy/docs/plnt-gyp-supp-application.pdf). Those considering applying to ODA, or those wanting additional information should...
contact the gypsy moth program manager at (614)728-6400. Questions can also be emailed to [plantpest@agri.ohio.gov].

D. GET YOUR GREEN INDUSTRY FIX WEBINAR: SEPTEMBER 11. We had a great Webinar session in August on Thousand Cankers Disease of Black Walnuts. Next up: Wednesday, September 11, 8:00 - 8:50 a.m. Join OSU Buckeye Yard and Garden Line (BYGL) experts for this Ohio Nursery Landscape Association's Green Industry Webinar then. If you have questions about registering, contact ONLA at 614-899-1195 or 800-825-5062.

7. WEATHERWATCH.

A. WEATHER UPDATE. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from August 1 - 28, 2013, with the exception of the soil temperatures which are readings from Wednesday, August 29, 2013 at 5:05 a.m.

Dry, dry and dry! Although some BYGLers, primarily in the north, were receiving much needed rain during the BYGL conference call Tuesday, everyone mentioned the dry conditions in their BYGL reports. What a difference from the wet spring we experienced earlier this season. Dry conditions are causing some turfgrass to go dormant and some plants are struggling because of the lack of moisture. This in combination with the temperatures in 80s and 90s is what we call the dog days of summer.

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<td>Ashtabula</td>
<td>NE</td>
<td>76.3</td>
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<td>4.3&quot;</td>
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<tr>
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<td>1.89&quot;</td>
<td>3.3&quot;</td>
<td>72.50/72.50</td>
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<tr>
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<td>80.7</td>
<td>58.1</td>
<td>1.44&quot;</td>
<td>2.7&quot;</td>
<td>69.32/71.87</td>
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<tr>
<td>Columbus</td>
<td>Central</td>
<td>82.9</td>
<td>61.4</td>
<td>1.62&quot;</td>
<td>3.4&quot;</td>
<td>77.69/77.88</td>
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<tr>
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<td>South</td>
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<td>60.1</td>
<td>0.96&quot;</td>
<td>2.4&quot;</td>
<td>73.64/74.36</td>
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For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/centernet/weather.htm].

8. COMING ATTRACTIONS.

A. DIAGNOSTIC WALKABOUT FOR THE GREEN INDUSTRY. Diagnostic Walkabout for the Green Industry series is once again occurring around Ohio this summer. ONLA, AGI and OSU Extension will be hosting 2 more events in 2013: September 12, Inniswood Metro Gardens, Westerville; and September 26, Sunset Memorial Park, North Olmsted. Pre-registration is required and class size is limited to 30 per class. ODA, ISA and OCNT credits available. For registration, location and pesticide credit information see: [http://www.onla.org].

B. OHIO PLANT DIAGNOSTIC WORKSHOP. Time is a wastin' to sign up for next week's Workshop in Wooster. Check out [http://go.osu.edu/chatfield] for a registration form ($40) to the 81st running of the Ohio Plant Diagnostic Workshop or call Cheryl Fischnich of the OSU Extension Northeast Region Office at 330-263-3831. The workshop will be held on Wednesday, September 4, 2013 at the Secrest Arboretum of Ohio State University's Wooster Campus. This program, sponsored by OSU’s Extension Nursery Landscape and Turf Team, the Ohio Nursery Landscape Association and the Davey Tree Expert
Company is a full day of hands-on diagnostic samples and walks, and updates by OSU's Joe Boggs, Francesca Peduto, Nancy Taylor, Curtis Young, Erik Draper and Jim Chatfield, and all the assembled experts. If you want to learn, teach, and catharse about landscape, treescapenursery and greenhouse plant health problems, from beetles to blights to botany, this is the place. Loads of samples, beetles, blights, and botany.

C. NAME THAT TREE WORKSHOP. Join fellow tree IDers on September 27, 2013 at the Secrest Arboretum of Ohio State University's Ohio Agricultural Research and Development Center in Wooster, Ohio. We will be conducting a Name That Tree Workshop sponsored by the OSU Extension Woodland Stewards and Nursery Landscape and Turf Teams, combining tree ID from both sides now, from woodland species to landscape cultivars. You can register online at woodlandstewards.osu.edu. It will be a full day of indoor and outdoor sessions at the Jack and Deb Miller Pavilion and the Arboretum plantings. Cost is $35. Also check out all the other great Woodland Stewards programs listed on the site.

D. WHY TREES MATTER FORUM. The annual Why Trees Matter Forum, after a year's hiatus, returns to Ohio State and Wooster, Ohio this autumn on Wednesday, October 16, 2013. Details will be forthcoming regarding registration, but you will be sure to learn a great deal about the multiple benefits of trees and the practice of learning and teaching about these benefits. We will discuss the latest on i-Tree benefits, the OSU Arbo-Charrette Program, the Tree Campus USA program of the College of Wooster, updates on the pervasiveness of invasiveness in our urban and woodland forests (including the new Great Lakes Early Detection Network smartphone application). We will also highlight wildlife and trees, in a much-anticipated talk by Marne Titchenell of the OSU School of Environment and Natural Resources. Green ink your calendar.

E. THE ArborEatUm EDIBLE LANDSCAPE WORKSHOP. The date for this workshop is changed to Wednesday, October 9, 2013 (5:00 - 8:00 p.m.) at Secrest Arboretum. It is not too early to plan for this, as Laura acknowledged with her morning cooking. From file gumbo with its ground up young sassafras leaves to Chef Paul Snyder and his International Ornamental Crabapple Society-renowned Malus Mo Mas Magnifico Meatball Munchies this event will be a true celebration of hort cuisine. It is for everyone who loves landscape plants and good eats, it will include walks, talks and good eats, and there will be few rules other than table manners.

Did you actually grow the landscape plants used in the dish you bring, is the plant common or just occasional in Ohio landscapes? Not to worry, no horticultural or food police will be on hand. Though there will be a judging of sorts. That is because the cost of the program will be on a sliding scale: $25 if you just attend, $20 if you bring an edible landscaping recipe, $15 if you bring the actual dish to share of that recipe, and $10 if your recipe is selected by attendees for the ArborEatUm Cookbook fundraiser for Secrest Arboretum during Plant Discovery Day next May 10.

So try your hand at blueberry buckle (blueberries grow well in acid soils in northeast Ohio and have great fall color as an ornamental), corneliancherry dogwood jelly or cider, serviceberry pie from berries frozen earlier this summer (are you listening Bill Hahn, City of Akron Arborist) or wherever your Landscape Kitchen imagination lands. One recipe to share now:

Mike Lee's Nearly World Famous Dolgo Crabapple Butter
Start with 8 lbs of crabapples. Wash in a large kettle and cover with water. Heat to a boil. Simmer until fruit softens. Drain, then process through a mill. To the sauce add 3 lbs of sugar, two quarts of cider, one tablespoon of cinnamon, and a teaspoon of cloves. Simmer under low heat or use a large crock pot for 2 - 4 hours. Stir occasionally. As Mike notes, the house will then smell great. Pour off hot Dolgo butter into jars. Process in a hot water bath or freeze. Man oh man!
Check out registration details at [http://go.osu.edu/chatfield].

9. BYGLOSOPHY. "There are some people who live in a dream world, and there are some who face reality; and then there are those who turn one into the other." - Douglas Everett

APPENDIX - ADDITIONAL WEBSITE RESOURCES:

Ask a Master Gardener Volunteer (Consumer Gardening Questions)
http://mastergardener.osu.edu/ask

Buckeye Turf
http://buckeyeturf.osu.edu

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

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

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

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

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

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

USDA APHIS Beetle Buster Website (Asian Longhorned Beetle)
http://www.beetlebusters.info/

USDA APHIS Beetle Detective Website (Asian Longhorned Beetle and Emerald Ash Borer)
http://beetledetectives.com/

Following are the participants in the August 27th conference call: Joe Boggs (Hamilton); Jim Chatfield (Hort and Crop Science); Julie Crook (Hamilton); Gary Gao (OSU South Centers); Cindy Meyer (Butler); Dave Shetlar (Entomology); Any Stone (Lucas); Nancy Taylor (CWEPPDC); Curtis Young (Van Wert); and Randy Zondag (Lake).

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

BYGL is a service of OSU Extension and is aided by support from the ONLA (Ohio Nursery and Landscape Association) [http://onla.org/; http://buckeyegardening.com/] to the OSU Extension Nursery,
Landscape and Turf Team (ENLTT). 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.

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