BUCKEYE YARD AND GARDEN LINE 2013-25
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This is the 25th 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.

****BYGL READER SURVEY NOTICE:**** We are doing a short electronic survey to learn about the impact of the BYGL, how the BYGL is used, and how we can improve the BYGL for next season. If you received an e-mail message with a hotlink to the survey, please take a few minutes to complete the survey. Otherwise, you may take the survey online: [http://bygl.osu.edu](http://bygl.osu.edu)

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1. **PLANTS OF THE WEEK.**

*ANNUAL - ORNAMENTAL CABBAGE (*Brassica oleracea*). While cabbage may not be the first thing that comes to mind when you think of fall color, this unique choice can provide interesting textures and color to your garden throughout the fall. Ornamental cabbage is in the same family as the edible
crops – broccoli, cabbage, kale – with which many are familiar, however, these ornamentals were selected by breeders specifically for the beautiful colors they can add to the garden.

Although botanically a biennial, ornamental cabbage or kale, is grown as an annual since it's valued for its vegetative, rather than reproductive growth. Light frosts in late fall will serve to intensify the beautiful colors of the foliage, making this a perfect fall ornamental.

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

Turtlehead is best grown in moderate to wet, rich soil and can be planted in full sun or part shade. If planted in full sun the plant appreciates a good organic mulch. These plants can be used in shade or woodland gardens and can also be used as border plants as long as the soil moisture requirements can be met.

*VEGETABLE - ORNAMENTAL CABBAGE and KALE (Brassica oleracea). Ornamental cabbage and kale are two popular fall plants. They are also known as “flowering” cabbage and kale and are the same species as edible cabbage, broccoli, and cauliflower. Ornamental cabbage and kale are edible but tend to have a bitter flavor and used most often in culinary settings as garnishes. The plants are made up of rosettes of leaves in colors of white, pink, red, purple or light green. These late season ornamentals look great in mass plantings, in mixed or single container plantings and as border plants along the edge of a planting bed.

Ornamental cabbages and kales cannot tolerate the heat of Ohio summers, so these plants should be started about 10 weeks before the expected date of the first frost in your area. Purchased transplants of ornamental cabbage or kale for planting should be large and compact plants that are nearing full color. These plants usually will not get much bigger after they are planted in the garden so it is best to buy appropriate-sized plants for the location where they will be used. Ornamental cabbage and kale prefer full sun with moderately moist and rich soil. These plants will add color and beauty in your garden well into the late fall.

*WOODY - SEVEN-SON FLOWER (Heptacodium miconioides). The long inflorescent reign of seven-son flowers is underway now in Ohio. In northern Ohio, the white of fragrant flower petals are now evident on the candelabra-like, seven-pronged flower stalks. After several weeks the white will give way to a month or more of ripening ornamental salmon-pink sepals, the floral envelope just behind the petals. This large shrub to small tree will grow to 15-20' and even larger over time. Those flower stalks (peduncles) are also quite attractive for weeks, with their seven-armed candelabra effect. Add to this the attractive exfoliating bark which is reminiscent of crape myrtle, and this is a very ornamental woody plant selection that is gaining in popularity. Seven-son flower is in the Caprifoliaceae family, is native to China, and does best in sunny sites and, though tolerant of many soils, does best in moist, well-drained organic soils.

*WEED - AUTUMN OLIVE (Elaeagnus umbellata). Considered an invasive plant in many states, Autumn Olive is beginning to boast mature red fruits this time of year. Like many invasive plants in Ohio, autumn olive was historically planted for a variety of uses including: food and habitat for wildlife, ornamental use, erosion control, and strip mine reclamation. This upright shrub has since escaped cultivation to become a nuisance plant in successional fields, roadsides, and parks.
Autumn olive is easily distinguished both near and far by its silvery foliage that shimmers in the sunlight. Elliptical to egg-shaped leaves, arranged alternately along the stem, are 2-4” in length and narrower than they are wide. Fragrant, white, bell-shaped flowers bloom in clusters along the twigs at the base of leaves throughout spring. Small juicy berries dotted with silvery scales mature in the fall.

Methods of autumn olive control and removal depend on the degree of infestation and size of plants. Small plants can be hand pulled or mowed, while larger plants will likely warrant the use of hand tools and chemicals. Once cut, herbicides can be applied directly to the cut stump for effective control. Alternatively, a foliar application of herbicide may be used.

2. HORT SHORTS.

A. INSECTS INVADING HOMES. 'Tis the season for homeowners to begin noticing that there seems to be more insects coming into the home. Many insects overwinter as adults and need to find shelter to survive through the winter. Adult insects are often drawn to the warm south/southwest side of a home and make their way into cracks between siding, shingles, doors, windows, and roof eaves. They can go undetected within wall voids, attics, and unseen parts of the home, but when the insect makes its way into the living space, homeowners take notice. Many insects find their way into the corners of homes or become active during a warm, sunny winter's day and fly around the house.

Most notable may be the MULTICOLORED ASIAN LADY BEETLE, which becomes a nuisance when they stain walls or fabric when crushed or aggravated. While an annoyance, homeowners should not fear because the beetle does not damage or chew on wood or other home materials, does not lay eggs in the home, and does not spread disease. Other increasingly common invaders include the stink bugs and leaf-footed bugs. Like the multicolored Asian lady beetle, the BROWN MARMORATED STINK BUG (BMSB) overwinters as an adult and seeks out warm shelter for winter. As its name implies, these insects emit unpleasant odors that are not welcome in the home. Leaf-footed bugs are also common sites on siding and windows this time of year. These insects are also true bugs like the BMSB but it more elongated and has distinctive leaf-shaped feet on its rear legs.

SPIDERS may also be unwelcome guests in fall. The cold weather may drive some spiders into homes seeking shelter. However spiders are beneficial organisms that help control pest populations. Very few are problematic to humans.

To prevent home invaders, the best management is prevention. Inspecting the home for cracks and sealing openings will not only help prevent insect invaders, but will also help prepare your house for heating in the winter. Using a power washer or powerful stream from a hose can dislodge insects that are gathering on your home’s exterior but this is not a permanent solution. Insects found indoors can be vacuumed up. Vacuums should be emptied immediately to prevent insects from escaping and smell from accumulating in the home.

3. BUG BYTES.

A. BROWN MARMORATED STINK BUGS. Several BYGLers reported that they are getting calls and e-mails from concerned homeowners about brown marmorated stink bugs (*Halyomorpha halys*) showing-up on the outside walls and window screens of homes ... no doubt hatching plans in their bug-brains for a little breaking and entering. This non-native invasive was first identified in the eastern counties of Pennsylvania in 2001. Since then, the bug has spread westward across multiple states; it was first
reported in Ohio in 2007 in Franklin County. Although early population densities in Pennsylvania and other states have been almost apocalyptic, recent numbers have been less dramatic. Thus far, Ohio has experienced the stink bug primarily as localized hot spots occurring in the eastern, central, and southern counties.

The brown marmorated stink bug looks very similar to the native BROWN STINK BUG (*Euschistus servus*). Both have shield-shaped bodies, and mottled brownish markings. Indeed, it has been speculated that the similarity in the appearance and feeding habits between these two bugs may have contributed to the Marmorated stink bug being overlooked in many locations in the U.S. The two bugs may be differentiated by the black and white banding on the antennae and along the edge of the abdomen that is very apparent on the brown marmorated species. It also has dark-red eyes.

Brown marmorateds have a wide host range and can become a very serious plant pest, particularly on fruits and vegetables. Both the nymphs and adults use their piercing mouthparts to puncture and disfigure fruits making them bruise, crack, and ooze juice. Severe feeding damage can render the fruits unmarketable. The bugs will also feed on soybeans and woody ornamentals such as rose, maples, and crabapples. They produce stippling and necrotic spots on the leaves of trees and shrubs. Because several overlapping generations occur each season, the bugs move from crop to crop damaging multiple types of plants in each area.

The stink bugs may also become a serious nuisance problem to homeowners in the fall. They collect in large numbers around homes with a goal to spend the winter in a warm structure ... and perhaps watch some OSU football! Although they lack the ability to bite people, their relatively large size, lumbering gait, and penchant to appear in unexpected places means the last thing they usually hear is "Eeww ... !" just before they're smashed with a rolled-up newspaper causing their primary defense mechanism to waft into the air; they're called "stink bugs" for a reason.

The bugs are too large to squeeze through all but the largest of openings into our homes. Although they may loiter on window screens, they're too large to fit through the screens. However, the large opening created by a worn-out exterior door sweep might as well have an "Enter Here Little Stinkers" sign hanging above it. Leave the garage door up? Say hello to our little friends! An ounce of prevention is worth a pound of bugs. If the bugs do find their way into a home, they should be ushered outdoors before being dispatched, but don't stomp on them unless you want stinky shoes. A vacuum cleaner is an effective tool for giving the bugs the bums rush. However, make certain the vacuum cleaner is a "by-pass" type meaning that refuse is not passed through an impeller. Otherwise, you will create a horrifying stinking bug-blender.

B. FALL WEBWORMS GO CRAWL-ABOUT. BYGLers reported that late instar fall webworm (*Hyphantria cunea*) caterpillars throughout Ohio are beginning to leave their webbed nests to crawl about the landscaping in search of pupation sites. The hairy caterpillars feed gregariously as skeletonizers within webs spun over the foliage. As caterpillars grow in size, they expand their nests by casting silk over more leaves to accommodate their expanding appetites.

There are two types of fall webworms, known as "races", found in Ohio. The races are separated by the color of their head capsules (black or orange) and their nesting behavior. Black-race webworms feed in a common web until they are half-grown, then they separate to produce small, elongated, wispy nests along tree branches that may envelope only a dozen or so leaves. Orange-race webworms remain together throughout their development to produce truly spectacular multilayered nests at the ends of branches that envelope dozens of leaves.
Caterpillars of both races spend most of their developmental time feeding only on the leaves enveloped by their silk nest. They may be found on a wide variety of shade, ornamental, and fruit trees. However, once the caterpillars commence their crawl-abouts, they may appear on a wide variety of plants including annuals and herbaceous perennials. Fortunately, they do little or no feeding so damage is inconsequential.

C. OLEANDER-MILKWEED APHIDS. Joe Boggs reported finding high populations of oleander aphids (Aphis nerii) on butterfly weed (Asclepias tuberosa) in a landscape in southwest Ohio. This non-native late-season aphid carries the approved common name of "oleander aphid" because it is a commonly found sucking juices from oleander (Family = Apocynaceae). However, it will also suck juices from milkweeds (Family = Asclepiadaceae), giving rise to another commonly used, but non-approved common name of "milkweed aphid."

The aphids are parthenogenetic meaning that there are no males; all the aphids of this species are females. The brightly colored yellow to yellowish-orange females may be winged or wingless. The wingless form has black legs, antennae, and cornicles which are the two "stovepipes" on top of the back-end of the abdomen. The winged form is similarly colored but the wing veins and the top of the thorax are black.

It is no accident that the aphid feeds on oleander and milkweeds since the sap in these plants contains cardenolide glycosides (heart poisons). These are very serious toxins, and as with a number of other insects that feed on plants in the two families, the aphid incorporates the glycosides into their flesh as protection against predators. It is speculated that the bright coloration of the aphid warns predators against taking a taste. This is called "aposomatic" or "warning" coloration. Research has shown that predators that dine on insects protected by cardenolide glycosides suffer a range of malevolent consequences including death.

D. BOOGIE-WOOGIE APHID ENCORE. In BYGL 2013-07 (05/16/13), we reported that small colonies of BEECH BLIGHT APHIDS (Grylloprociphilus imbricator) were appearing on its namesake host in Ohio. This week, BYGLers noted that colonies have expanded to become very evident. Indeed, this aphid is generally considered a late-season pest due to its dramatic proliferation in late-summer to early fall. The blight aphids are specific to American beech; they should not be confused with the WOOLLY BEECH APHIDS (Phyllaphis fagi) which are found on European beech.

Beech blight aphids enshroud themselves in a profuse mass of white, wool-like filaments. Large numbers these "woolly aphids" will gather together in prominent colonies on twigs and branches of American beech trees. When a colony is disturbed, the aphids pulse their posterior ends in unison. This peculiar behavior has been accurately described in past BYGLs as making the aphids look like "dancing dust balls doing the boogie-woogie." The aphids have great entertainment value!

Blight aphids appear to cause little harm to their host and their colonies are usually relegated to a few branches. However, they are prolific producers of honeydew causing branches, sidewalks, parked cars, slow-moving gardeners, etc., beneath the colonies to become covered in sticky goo. Indeed, aphid colonies are often found by observing circular or semi-circular spots of sticky honeydew on hard surfaces beneath infested trees. The honeydew on leaves and branches may become heavily colonized by black sooty molds. Indeed, the fungus (Scolias spongiosa (Ascomycete)) is exclusively associated with the aphid and is commonly called "Beech Blight Sooty Mold." It is also sometimes called the "beech blight aphid poop eater" because of its food supply and obligate relationship to the aphid; the fungus only grows on honeydew produced by the beech blight aphid. The fungus starts out behaving like most sooty mold fungi; it grows as a dense, black, "fuzzy" mat on top of the honeydew. Over time, the black mat thickens into a furry mass. Then the fungus progresses into a growth phase that is unlike most sooty molds; it
produces a spongy, golden-yellow heap that rises 1/2" or more above the leaf or twig surface. The odd looking fungal growths look like nothing else that would commonly be associated with aphids or honeydew.

Adding to the diagnostic challenge, the fungus will grow anywhere that beech blight aphid honeydew is deposited. So, thick fungal accretions may appear on the leaves and stems of understory plants that are not hosts to the aphids. Thankfully, the aphid causes little harm its American beech host, and like other sooty molds, the fungus causes no direct damage to the plants serving as a substrate. Both are just two more weird things found in the woods.

E. REDHEADED PINE SAWFLY CONTINUES. In BYGL 2013-21 (08/22/13), we reported that colonies of second generation redheaded pine sawfly (*Neodiprion lecontei*) larvae were observed chomping away on a Mugo pine in northeast Ohio. The observation was made during Ohio Plant Diagnostic Clinic held at the OSU OARDC in Wooster, OH. This week, Curtis Young made an "on the road" report saying that he revisited the site and found that the colonies are continuing their needle-stripping feeding behavior.

Larvae of this native sawfly may be found feeding on Scotch, jack, shortleaf, loblolly, slash, red, and Mugo pines, with white and Austrian pines serving as occasional hosts. The caterpillar-like larvae range in color from light yellow to greenish-yellow and they have longitudinal rows of black markings running the length of their bodies. Their shiny, bulbous head capsules are reddish-orange with two black eye spots; however, the head capsules of newly molted larvae may be tawny brown.

Redheaded pine sawfly spends the winter in the soil or duff beneath host trees as pre-pupae inside cocoons. Pupation and adult emergence occurs in the spring. Sawflies are so named because adults resemble flies and the females have saw-like ovipositors. The females use their ovipositors to insert eggs into needles. After that eggs hatch, the first instar larvae begin feeding on needles, but they are too small to consume the entire needle. Instead, they feed along the needle's edges producing clusters of dead, curled, straw-colored needles. Later instars consume entire needles. This feeding behavior and symptomology is characteristic of several of the "pine sawflies" including EUROPEAN PINE SAWFLY (*N. sertifer*).

In Ohio, first generation redheaded pine sawfly larvae are usually found in May through early-June and second generation larvae in July, August and September. The significance of two generations is that their conifer hosts are subjected to defoliation throughout much of the growing season with both the current and previous year's needles consumed. Once larvae have totally stripped the needles, they often feed on stem tissue with heavy feeding damage killing the affected branches.

All instars feed in colonies making them easy to control by knocking them off into a bucket of soapy water or onto the ground to be dispatched using the "sawfly two-step dance." A topical application of an insecticide labeled for use on the conifer host will also suppress sawfly populations. Although sawfly larvae look like caterpillars (order Lepidoptera), sawflies belong to the same order as bees and wasps (Hymenoptera). Thus, caterpillar-control products based on the naturally occurring bacterium *Bacillus thuringiensis* (Bt) will not be effective for controlling redheaded pine sawfly, or any other sawfly.

USDA Forest Service Leaflet

F. A ROPE OF WORMS. Ashley Kulhanek reported that a homeowner in Medina had found strange "ropes" of small maggots in her yard. These were identified as FUNGUS GNAT LARVAE (family Sciaridae), possibly the DARKWINGED FUNGUS GNAT (*Bradysia* spp. (formerly *Sciara* spp.)).
These larvae are gregarious in nature, tending to stay in groups and piles. When the larvae migrate in search of food, suitable habitat, or due to population explosions, they do so as a group. This often creates unusual formations of undulating ribbons, piles, or circles of tiny larvae as shown here. The behavior is poorly understood, but aggregations of insects generally have been known to help maintain moisture and warmth. It may also fool predators into thinking they are one larger organism, such as a snake, rather than a tasty pile of smaller juicy critters.

Fungus gnats reproduce in moist, shady areas where organic matter is high. They are most commonly a problem in greenhouses and mushroom operations, but can be found in homes where potted plants are kept or in lawns with high organic matter and heavy thatch when moisture is high. Larvae feed on roots, fungus, decaying matter and living tissue. This year’s rainy weather may have made lawns a more suitable habitat for these larvae than years past.

To prevent fungus gnats, improve drainage and help soil to dry out. Pruning trees to allow more light to reach the ground can help in the landscape. Bringing potted plants outdoors to dry in the sun may also help. When potting plants, use sterile potting soil when possible. Physical removal is an option when finding large piles of maggots but high infestations in potted plants may warrant disposal.

4. DISEASE DIGEST.

A. ELM YELLOWS. Francesca Hand reported diagnosing elm yellows on 'Princeton' American elms growing in an Ohio nursery. The tree-killing disease is produced by an unnamed phytoplasma. These single celled organisms were once referred to as "mycoplasma-like organisms" (MLOs); however, they are now classified as a group of very small, specialized bacteria. All known forms are plant pathogenic and are naturally spread from plant to plant by sucking insects, particularly leafhoppers. Indeed, the phytoplasma responsible for elm yellows is spread from tree to tree by WHITE-BANDED ELM LEAFHOPPER (Scaphoideus luteolus). The phytoplasma is also spread from infected to healthy trees by root grafts.

The name "elm yellows" describes the color of the leaves on infected trees. Typically, the entire canopy turns an intense shade of yellow with the change occurring rapidly, usually in mid-to-late summer. The color-change occurs without the leaves first wilting; the yellowed leaves appear otherwise normal. The disease was once called "elm phloem necrosis" and the old name captures the essence of the infection since the phytoplasma targets and destroys the phloem; the inner phloem becomes yellowish-brown to caramel colored. Another diagnostic indicator is a wintergreen scent given off by the diseased phloem tissue. This "scratch and sniff" method of detecting elm yellows involves cutting a section of bark to the white wood and placing the sample in a sealed jar. The wintergreen scent is easily detectable after the sample has been held in the jar for about 1-2 hours.

Elms may also be killed by other vascular diseases such as Dutch Elm Disease (DED) and Verticillium Wilt (VW); however, both of these diseases are produced by fungi that affect the xylem. There are some distinct differences between the symptoms produced by these xylem-plugging fungal diseases and symptoms produced by the phloem destroying elm yellows. Both DED and VW usually start with individual branches being infected rather than the entire canopy. Since the flow of water to the leaves is being disrupted, leaves on the affected branches may show leaf scorch symptoms prior to wilting. Eventually sectional dieback may occur with entire branches dyeing while other branches appear healthy.

Elm yellows affects all native North American elm species including American elm (Ulmus americana); cedar elm (U. crassifolia); red (slippery) elm (U. rubra); September elm (U. serotina); and winged elm
European and Asian elm species appear to be immune to the disease. There is no effective treatment for elm yellows other than to remove and destroy infected trees to reduce the spread of the disease. Given the dire prognosis and drastic response required for control, a field diagnosis should never serve as the final word on elm yellows. Stem samples should be sent to the PPDC for confirmation of a suspected elm yellows infection.

B. PINE WILT DISEASE. Nancy Taylor reported that samples taken from rapidly declining pines in a landscape in central Ohio were diagnosed with PINE WILT DISEASE which is caused by the PINEWOOD NEMATODE (Bursaphelenchus xylophilus). The nematode is found in the main stems and branches of its namesake hosts where it feeds on cells surrounding resin canals. Their feeding damage causes sap to leak into the vascular system which eventually creates air pockets that disrupt the flow of water up the tree. Infected pine trees wilt rapidly and typically die within a single growing season from the time that wilt symptoms first appear. The rapid progression from the first appearance of symptoms to the death of the infected tree is extremely fast compared to other diseases that can infect pines.

The pinewood nematode is native to North America and past reports indicate the nematode may be found throughout Ohio. Both the nematode and the resulting disease are most commonly associated with non-native pine species such as Austrian (Pinus nigra), Scotch (P. sylvestris), Japanese red (P. densiflora), and black (P. thunbergii) pines. Although the nematode has been isolated from eastern white pine (P. strobus), it appears to be a rare occurrence on this native tree.

The nematode is spread from tree-to-tree by the PINE SAWYER BEETLE (Monochamus carolinensis) which is a type of longhorned beetle (family Cerambycidae). As with most sawyer beetles, the pine sawyer is naturally attracted to pine trees that are stressed, dying, or recently dead. If the tree is infected with pinewood nematode, the nematode will soon have a vehicle to move to new hosts. When the sawyer beetle pupates within the wood of the infected tree, the nematodes migrate into the trachea of the pupae. Thus, the nematodes take advantage of being carried to new trees by the newly emerged adults. The nematodes exit their ride and enter the new host through beetle feeding wounds.

There is also a lateral relationship between the pinewood nematode and blue-stain fungi. Like sawyer beetles, bark beetles (family Scolytidae) are also attracted to stressed, or dying pine trees and some species of bark beetles carry blue-stain fungi. The beetles inoculate their host trees as they feed and the nematode utilizes the fungi as an addition food item; they not only feed upon cells lining the resin canals of the pine tree, but they will also feed on the blue-stain fungi. Indeed, research has indicated that higher nematode populations occur in trees that are infected with the blue-stain fungi compared to trees free of fungal infection. However, the presence of blue-stain fungi should not be used as the sole diagnostic indicator that a tree has pine wilt disease; blue-stain fungi can occur in trees that are free of the pine wilt nematode.

A diagnosis for pinewood nematode should be conducted on any pine suspected of dying from pine wilt, especially pines that die rapidly in a single season. The reason for seeking a diagnosis of the dead tree is to verify that pinewood nematode is present and to reinforce the need to remove and destroy the dead tree before it can produce new pine sawyer beetle adults to carry the nematode to other nearby pines.

Sample collection for pinewood nematode analysis takes some effort and care. The samples should be composed of either 6 - 8" long, branch sections taken as close to the trunk as possible and from branches 1" or greater in diameter or 1" thick or greater trunk wafers taken from the middle to the base of the tree. Care must be taken not to allow these sample sections to dry out or sit inside of a hot vehicle very long. If they dry out or overheat, the nematodes will die and a false reading will be produced.
Pine wilt management is primarily limited to prevention. Samples should be sent to the PPDC for an accurate diagnosis and infected trees should be removed and destroyed to limit spread of the nematode. Landscape trees should be kept healthy using good horticultural practices since healthy trees are less attractive to the sawyer beetles.

C. THE DISEASE TRIANGLE: BASICS OF PATHOGEN CONTROL. There is a great quote over a century ago from the Russian plant pathologist Antonin Woronin, who declared: “The only cure for cabbage hernia is fire!” Until recently cabbage was generally not considered an ornamental plant, but Woronin’s point still applies to us in the green industry. He was talking about a disease now known as club root of cabbage, caused by a primitive organism known as *Plasmodiophora brassicae*, and what he meant was that they had no cabbages with good genetic resistance to “cabbage hernia” and no pesticides to control it, and no way to seriously modify the environment conducive to disease - but they could control it by sanitation. By getting rid of the pathogen - in this case by burning the infested fields after harvesting whatever they could each year. By burning the remaining herniated cabbage debris they were reducing the amount of *P. brassicae* inoculum that overwintered to the next year.

We need to do the same thing with ornamental diseases, both during a disease outbreak and after that outbreak. Rose black spot is a good example. Each spring when black spot susceptible roses leaf out they are exposed to infections by the *D. rosae*. Where does the fungus come from? From spores that survived the winter on old black spotted leaves and canes. You cannot prevent spores from blowing in from other areas but you can greatly lessen the amount of fungal inoculum and the amount of black spot disease by cleaning up infested debris from the previous year. Not only that, but since this sanitation effort is never perfect, it is also important to clean up the black spotted leaves that develop during the current season’s infections - do not wait until the end of the year to clean up the planting. Though as we move toward the end of this season, it certainly is a good idea to practice good sanitation now and in the next few months.

Of course, the other way to preventively manage *D. rosae* is to spray labeled fungicides on foliage as it emerges and develops in order to kill the fungus as the microscopic spores are germinating and trying to enter wet leaf tissue. This effort too is of course always imperfect as timing and complete coverage are always challenging. So combining sanitation and fungicides to control the pathogen, and use of at least some black spot resistant rose varieties mentioned earlier, and modifying the environment that we will discuss later- all combine to provide good integrated rose black spot control. All too often only one facet of the triangle - eg. use of fungicides - is employed and control is inadequate.

Another example of sanitation to help control the pathogen is with hollyhock rust disease (*Puccinia malvacearum*). The orange turning to brick-red and chocolate-brown rust pustules are a common sight for almost everyone who has ever grown hollyhocks. This fungus, like the rose black spot fungus has a repeating cycle that just goes on and on as the season progresses, so removing infested leaves during and after the season is one big key to getting the disease under control. Otherwise, it just gets worse and worse. Fungicides help but must be applied multiple times and will not be enough without the help of removing pathogen inoculum when infestations do occur. A further issue with hollyhock rust is a further aspect of sanitation - removal of additional hosts of *P. malvacearum*. It turns out that this fungus also infects a number of hollyhock’s relatives in the Malvaceae family, including weeds such as the round-leaved mallow, *Malva rotundifolia*.

Sometimes plant diseases become issues only once pathogens arrive in an area; Dutch elm disease (*Ophiostoma ulmi*) is a classic example. American elm (*Ulmus americana*) and other elms native to the United States are highly susceptible to infection by *O. ulmi*. The environment conducive to disease is present. The missing ingredient until the 1920's was that the pathogen was not present in the U.S. Then in the late 1920's elm logs were imported to the U.S. and transported across the country in open, flat-bed railway cars. These European elm logs were infested with European elm bark beetles which in turn
carried *O. ulmi*. The beetles hopped off, fed on American elms and vectored the pathogen to these highly susceptible elms. The result was an epiphytotic event that continues to this day. The disease triangle was completed by the introduction of the pathogen to the United States. Continued control efforts range from looking for genetic resistance in elms, sanitation in communities where the disease has not already swept through, including removal of any infested wood where bark beetles can survive, and use of fungicides and insecticides for the bark beetle vectors.

Without question, sanitation is often not enough to prevent key diseases. Sometimes it is a matter of practical marshaling of resources. Though cleaning up a rose planting of black-spotted rose tissue or a hollyhocks of leaves and stems with rust may be possible, cleaning up all the scabby leaves from crabapples or an apple orchard is too time consuming. Fungicides, in conjunction with the other facets of the triangle, are clearly one important approach. Proper selection of the right fungicide, applied with appropriate timing to prevent infection (we are not good at eradicating infections), and application in the right way to obtain good coverage and limit off-target application are all keys to proper fungicide use.

5. INDUSTRY INSIGHTS.

A. OHIO ASIAN LONGHORNED BEETLE (ALB) UPDATE – ALB ERADICATION PROGRAM BEGINS TREE REMOVALS TO PROTECT EAST FORK STATE PARK. On Tuesday, September 16, 2013, The U.S. Department of Agriculture’s (USDA) Animal and Plant Health Inspection Service (APHIS) in conjunction with the Ohio Department of Agriculture (ODA), the Ohio Department of Natural Resources (ODNR), and the U.S. Army Corps of Engineers (USACE) announced efforts to protect Ohio’s East Fork State Park against the ALB by conducting high-risk host tree removals on a portion of the East Fork Wildlife Area.

"Since signs of low infestation levels are not readily apparent on high-risk trees, they can remain unnoticed by visual surveys, and due to their proximity to known infested trees and the dispersal behavior of the insect, there is a risk of infestation on host trees in East Fork park, woodlands, and wildlife areas," said Phillip Baldauf, APHIS project manager for the Ohio ALB Eradication Program. "The removal of high-risk host trees from the southern wildlife area is being done in an effort to protect East Fork from becoming infested and stopping the spread of this invasive pest in Ohio."

East Fork recreational area is a federally-owned property that USACE leases to ODNR. The eradication program will removal high-risk host trees up to a quarter mile from infested trees. Tree removals will take place on approximately 55 acres of the 2,705-acre designated state wildlife area. An estimated 7,200 high-risk host trees are expected to be removed. All removal and restoration activities will follow the best management practices (BMPs) for erosion control for logging practices in Ohio. At this time, no cutting will be done on any part of the 4,870-acre East Fork State Park.

The infested trees were detected on several private properties within Tate Township that abut the edges of the wildlife area. Infested trees were identified through tree inspection surveys conducted by eradication program staff as part of the ongoing ALB eradication efforts in Clermont County.

The use of high-risk host removals is part of an integrated approach in eradicating the invasive insect. High-risk host tree removals have been used in every State where ALB eradication operations have taken place – New York, Illinois, New Jersey, Massachusetts and Ohio. ALB high-risk host tree removals began in Tate Township this past May on properties where landowners have provided permission.
The beetle was discovered in Tate Township, Ohio in June 2011. To control the pest in Clermont County, 61-square miles are regulated, which includes all of Tate Township and East Fork State Park, a portion of Monroe Township, and a portion of Stonelick/Batavia Townships. To date, the Ohio eradication program has detected 10,195 infested trees, removed 9,952 infested trees and 8,912 high-risk host trees, and surveyed more than 665,000 trees. The area identified for high-risk host tree removals to take place at this time is around portions of Sugar Tree Creek and Poplar Creek, located southeast of Woodruff Road and north of State Route 125. High-risk host tree removals may be conducted in other areas of the wildlife area as infested trees are identified in or near the wildlife area, suitable work plans are developed, and sufficient resources are allocated. The program will seek landowner permission to conduct high-risk host removals on the properties abutting the wildlife area. If landowner consent is not granted for the removal of high-risk host trees on these properties, then additional survey work will continue and host trees would be removed only if they are subsequently identified as infested.

The eradication program will use the existing removal contract with Davey Tree Expert Company to conduct the high-risk host tree removals. Program officials will be on location daily for removal operations. The program is still delimiting the infestation in Tate Township and surveys will determine the full extent of the infestation.

Members of the public are encouraged to inspect their trees for signs of damage caused by the insect and report any suspicious findings. The sooner an infestation is reported, the sooner efforts can be made to quickly contain and isolate the area from future destruction. Firewood and other regulated articles are prohibited from leaving the quarantined areas. People should not move firewood, because doing so can unintentionally spread the pest. For more information, please visit http://www.aphis.usda.gov or www.asianlonghornedbeetle.com or call the Ohio ALB Eradication Program directly at 513-381-7180 or toll-free at 1-866-702-9938.

B. GET YOUR GREEN INDUSTRY FIX WEBINAR ON OCTOBER 9. Please join us on Wednesday, October 9, 2013 at 8:00-8:50am for the next Green Industry Fix webinar. 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.

6. WEATHERWATCH.

A. WEATHERWATCH. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from September 1 – 18, 2013, with the exception of the soil temperatures which are readings from Wednesday, September 18, 2013 at 5:05 p.m.

Cooler temperatures over the weekend have been followed by a slight warm up as this week progresses. Rainfall totals are still running behind the month-to-date average at each of the highlighted weather stations, as well as in BYGLer reports too.

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<td>65.45/65.44</td>
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<td>NW</td>
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<td>0.51&quot;</td>
<td>1.8&quot;</td>
<td>63.18/64.14</td>
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<tr>
<td>Columbus</td>
<td>Central</td>
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<td>0.49&quot;</td>
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For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/centernet/weather.htm]

7. 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 1 more event in 2013: 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. CHESTNUT WORKSHOP. Before the blight, American chestnuts were majestic forest trees, sometimes called "the Redwoods of the East." A keystone species, one in four trees of the eastern US forest was a chestnut. These huge trees were highly valued since the golden hardwood resisted rot, and its crop of sweet nuts fed abundant wildlife and generations of Americans. Learn how to bring back the chestnut through a morning workshop, followed by lunch and tours to three nearby chestnut sites. Participants will also receive at least one pure American chestnut seedling, and seeds to grow next spring in your garden, farm or woodland.

The workshop starts at 10:00 a.m. on September 21, 2013 and will be held in NW Ohio at the Swanton Public Library, 305 Chestnut Street, Swanton, Ohio. The cost of the workshop is $25.00. The Fulton County Soil and Water Conservation District is handling the workshop registration. They can be contacted at [kbowles@fultoncountyoh.com], or by calling 419-337-9660.

The workshop presenter is Penn State University Researcher, Sara Fern Fitzsimmons. She is also the Regional Science Coordinator of the American Chestnut Foundation. Sara will share chestnut history, planting and growing methods; common diseases and pests; and leaf and wood identification. The workshop is co-sponsored by Lange Tree Farm, Lucas and Fulton Soil & Water Conservation Districts, Wild Ones-Oak Openings Region, Metroparks of the Toledo Area, OSU Extension-Lucas County, Owens Community College, ODNR Maumee State Forest, Black Swamp Conservancy, and the Oak Openings Green Ribbon Initiative.

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 Resouces. 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.

Check out registration details at [http://go.osu.edu/chatfield].

F. SEASONS. Autumn, which commences tomorrow, is for planting, though for trees wait until they are dormant in another month. On the other hand, what is better than the mid-summer season of corn and tomato harvests. Then there are the glories of spring as woods and gardens come alive anew, and winter bulbs indoors are wonderful as well. Jim Crockett of Victory Garden fame always said, “November is arguably the most important time for gardening” (speaking of planning) and, oh, let’s face it, plants are truly for all seasons. “The seasons go round and round on a carousel of time” as Joni Mitchell sang in her tribute to Neil Young, and so it is for all of us as plant lovers.

This included recently, a new season of students, as the many of the incoming Freshmen at the College of Wooster arrived during orientation week for one of their service projects. They helped out at Ohio State University’s Secrest Arboretum at the OSU Wooster Campus and Ohio Agricultural Research and Development Center less than a mile from the College of Wooster campus. Students planted, watered, cleaned windows in the Miller Pavilion, mulched, and were rewarded with fun at the most groovey (I date myself) Secrest Slide in the new Secrest Children’s Garden.

This is all part of the OSU Wooster Campus and College of Wooster and Tree Campus USA partnership, with the Tree Campus for OSU Wooster led by Kenny Cochran and for the College of Wooster by Beau Mastrine. It was a glorious time for all, especially with all that is new at Secrest since the tornado there a dozen seasons ago now (three years as of September 16 earlier this week), and these students from Cleveland, California and Korea, are a reminder of our promising collective future wealth.

Speaking of seasons, it is the football season, and an early Homecoming game arrives Saturday for the College of Wooster hosting Oberlin College. There will be a low-key pre-Homecoming tree activity on campus from 10-12 before the 1:00 game. Included are demonstrations of chippers by the City of Wooster and emerald ash borer control by the College of Wooster, tasting of apples. There will be a comparison of the carbon footprint of locally grown apples and those shipped in from Oregon. Also
happening will be a meeting with College of Wooster faculty member Matt Mariola and his environmental studies students, and tree giveaways from Ohio State University’s Secrest Arboretum, a frequent Tree Campus USA partner with the College of Wooster Grounds Department and their lovely and storied campus tree canopy.

The four trees to be given away are diverse: 1. The Konara or Bao li oak (*Quercus serrata*), a Chinese oak for relatively moist soils that may grow to 100 feet tall; 2. The paper or canoe birch (*Betula papyrifera*), a native medium-sized birch with strips of attractive white bark and greater resistance to the bronze birch borer insect than Asian and European birches – it is great for firewood and bark is a great firestarter; 3. Hardy rubber tree (*Eucommia ulmoides*), a medium size Chinese tree (50 feet) which indeed has rubbery latex holding together leaves by the veins and is a successful street tree in Wooster and other Ohio locations, also producing one of the 50 fundamental herbs in Chinese herbology; 4. The American smoke tree (*Cotinus obovatus*), a shrub or small tree which flowers in early summer but then takes on a puffy and smoky appearance as frilly hairs attached to spent flower clusters give a light airy appearance to the canopy above the leaves.

Come for a tree, a taste of apples and Dolgo crabapple butter, a fun parade, some tree facts, and big time football. After all, Oberlin is the last Ohio team to beat the Ohio State Buckeyes, 7-6 in 1921, though Oberlin did lose by the biggest margin in OSU history 128-0 in 1916. Topping that, the College of Wooster, facing OSU in their initial 1890 season, scorched the Buckeyes 64-0!

8. BYGLOSOPHY. "Live in each season as it passes; breathe the air, drink the drink, taste the fruit, and resign yourself to the influences of each...Some men think that they are not well in spring, or summer, or autumn, or winter; it is only because they are not well in them." - Henry David Thoreau

APPENDIX - ADDITIONAL WEBSITE RESOURCES:

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

- Buckeye Turf
  [http://buckeyeturf.osu.edu](http://buckeyeturf.osu.edu)

- Emerald Ash Borer Information
  [http://ashalert.osu.edu](http://ashalert.osu.edu)

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

- Hungry Pests Website

- Ohio State University Department of Horticulture and Crop Science Plantfacts
  [http://plantfacts.osu.edu/web/](http://plantfacts.osu.edu/web/)

- Ohio State University Extension Master Gardener Volunteer Program
  [http://mastergardener.osu.edu](http://mastergardener.osu.edu)

- The C. Wayne Ellett Plant and Pest Diagnostic Clinic (CWEPPDC)
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 September 17th conference call:  Julie Crook (Hamilton); Erik Draper (Geauga); Ashley Kulhanek (Medina); Joe Boggs (Hamilton); Francesca Peduto-Hand (Plant Pathology); Nancy Taylor (C. Wayne Ellett Plant and Pest Diagnostic Clinic) 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].

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