BYGL Newsletter

July 23, 2015

This is the 16th 2015 edition of the Buckeye Yard and Garden Line (BYGL). BYGL is developed from a Tuesday morning conference call of Extension Educators, Specialists, and other contributors in Ohio.

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Plants of The Week

Annual – Dahlia (Dahlia pinnata)

Although dahlia are botanically perennials, they are grown as annuals in temperate climates. Native to Mexico, these flowers come in a dazzling array of colors, forms, and sizes. They are classified by flower shape and petal arrangement. The size of the flowers can range from ½” pom-pom types to 12” dinner plate types.

Although dahlia can be grown from seeds and cuttings, they are most often grown from tubers. They should be planted in a sunny, well-drained location. Before planting, the soil should be worked to a depth of 8 - 10” and compost or fertilizer such as 5 - 10 - 10 can easily be worked in at this time. The tubers should be planted 4 - 6” deep, with the eye or sprouted eye pointing up. Most varieties grow best with at least 3’ between plants. When the plants are 3 - 4” tall the terminal bud should be pinched just above the second set of leaves to encourage lateral branching. Once terminal buds are set, lateral buds can be pinched off if desired. Dahlias can become large plants and susceptible to breaking in strong winds so it is important to stake them. The fast growing plants are heavy feeders and should be fertilized with a ½ cup of 5 - 10 - 10 when the plants are 1’ tall and again when the plants are about 5” tall. Dahlias need to be watered frequently during dry weather and deadheaded to encourage continuous blooms. Slugs, Japanese beetles, grasshoppers, and mites can cause damage to both flowers and foliage. Several virus problems can also occur with dahlia. Plants that are suspected to be infected with virus should be removed from the field.

The flowers should be cut when they have fully opened, early in the morning, and the stems placed into warm/hot water. Once you are ready to arrange, cut ¼” off of the bottom of the stem before placing in fresh water.

Tubers should be harvested after the first frost or before the end of October. Clean off all of the soil, dry, and dust cut surfaces with sulfur. For the tuber to grow next year, it must have an eye. The “eyes” occur in the area where the plant stem connects with the underground tubers. Tubers can be separated either in the fall or spring. Store the tubers in boxes, crates, etc. with a few inches of sawdust and vermiculite at 45 - 50 F. Check them in late winter for fungal infection or shriveling. Bring tubers out of storage in April and divide them if not done in the fall.

For More Information:
Ohio State University Extension FactSheet
Perennial – Compass Plant (Silphium laciniatum L.)

This plant is a part of the aster family and is native to North America. The compass plant grows up to 10’ and has large rough leaves that can be 15 – 24” long that look like pin oak leaves with their deeply cut leaf margins. One plant can produce 6 – 30 composite, yellow flowers which bloom from June through August. This plant prefers full sun with soil that is somewhat moist to dry.

This plant's history is very interesting. Native Americans would use the powdered root to make a tea to treat people who were weak and frail. The sap was also used as a chewing gum to keep teeth clean and to refresh breath. Pioneers were said to use the leaves of this plant to orient themselves, thus giving this plant its common name. The leaves are said to grow in a north to south direction to keep away from direct sunlight. While leaves are often oriented north and south, using this plant as a compass is not always reliable.

For More Information:
USDA NRCS Plant Fact Sheet - Compassplant
Illinois Wild Flowers
http://www.illinoiswildflowers.info/prairie/plantx/compassx.htm

Woody – Common Buttonbush (Cephalanthus occidentalis)

A pollinator favorite, common buttonbush is a multi-stem shrub or small tree that grows easily in moist wet soils, standing water, along shorelines and swamps. It requires a pH of 5 to 7 and does not tolerate alkaline soils. It thrives in full sun to part shade. Growing to 5 - 12’ with a spread of spread 4 - 8’, this North American native is in the Rubiaceae or Madder Family. It blooms June through September with showy, 1” globe or ball-shaped flowers covered with tiny 4 to 5 lobed tubular white flowers. Radiating from the dense clusters of honey-scented flowers are long styles giving the flower the image of a tiny Fourth of July sparkler hanging from the tree. The glossy ovate dark green leaves are whorled or opposite and provide a beautiful backdrop for the buzzing of a variety of pollinators attracted to this shrub. The buttonbush provides multi-season interest with its reddish-brown circular seed pods that dangle from the bush, reminiscent of sycamore tree pods. Each fruit contains 2 nutlets that can be sown directly into moist soils for propagation; cuttings also easily produce roots in moist soils. The buttonbush is used for erosion control as well providing habitat for waterfowl and attracting hummingbirds, butterflies and other pollinators. Please be aware buttonbush contains a cephalathin, a poison, which if ingested causes vomiting, convulsions and paralysis.

For More Information:
USDA Plant Guide, Common Buttonbush
Missouri Botanical Garden Plant Finder, Cephalanthus occidentalis
http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx
Cornell University, Woody Plants Database, Cephalanthus occidentalis
http://woodyplants.cals.cornell.edu/plant/429

Vegetable - Peppers (Capsicum spp.)
Peppers can be fun to grow! They need well-drained soil and do best in soils high in organic matter. Peppers can be grown from seed or transplants.

Peppers are often classified by the shape of their fruit and come in a variety of colors. Any of these shapes and colors may be either sweet or hot.

Peppers should be watered by applying 1 - 2” per week when Mother Nature does not supply adequate rainfall – not much of an issue this season. Drip irrigation is a good alternative when it comes to growing peppers. Irrigate so that moisture goes deeply into the soil. Irregular watering, both over or under, can cause flower drop or blossom-end rot, a dark leathery spot on the bottom of the fruit caused by a calcium deficiency. Mulch around the plant will conserve soil moisture and reduce weed growth.

Blossom end rot, sunscald, virus, wilt, leaf blights, flea beetles and aphids can all be issues that one might encounter when growing peppers. Avoid heavy fertilization of peppers which encourages excessive foliage and delays flowering and fruiting.

Peppers are normally harvested in the immature green stage for use in relishes, salads, stuffing, and added for flavor in many cooked dishes. In general, peppers have a short storage life of only 1 - 2 weeks. Cool, moist conditions (45 - 50 F) and 85 - 90% relative humidity are the ideal storage conditions for peppers.

For More Information:
- Ohio State University Extension FactSheet
  http://ohioline.osu.edu/hyg-fact/1000/1618.html
- University of Illinois Extension FactSheet
  http://extension.illinois.edu/veggies/peppers.cfm
- Michigan State University Extension FactSheet

Weed - Kudzu (Pueraria lobata)

Kudzu has long been known as the "vine that ate the south." Most recently, it has been gaining a foothold in the north - more specifically here in the buckeye state. In addition to its invasive behavior, it is also a host of soybean rust. Additionally there is also a beetle that eats kudzu, but unfortunately it also attacks soybeans. Two potential strikes if you are a soybean producer.

Kudzu was introduced to the United States in 1876 at the Philadelphia Exposition. In the 1930s it was widely planted for erosion control. At that same time it became popular as a forage crop. There are estimates that 300,000 acres of kudzu were planted by the 1940s. Now, it is so aggressive, growing up to 12” in a single day and nearly 100’ in a year, it can cover buildings, barns, houses, and parked vehicles. It covers trees and power lines, often breaking them with the sheer weight of the plant/vine.

The leaves of kudzu are compound with 3 leaflets that can span up to 7”. The purple flowers are between 2 - 12”, are similar to the flowers set by the pea plant, and have a slight fragrance. Amy Stone described the scent as grape-like when she visited a stand of kudzu in Cleveland. The fruit, which will be set this fall, is flat and covered with fine yellowish hairs. Each pod can have between 3 - 10 seeds. The young vines will also be covered with hairs. The main method of spread is by stolons or runners, although seeds can also play a part.

If you see kudzu, or something that you suspect is kudzu, be sure to report it either by using the GLEDN smart phone app (http://gledn.osu.edu), or contacting your local Extension office.

For More Information:
- National Park Service Least Wanted FactSheet
  http://www.nps.gov/plants/alien/fact/pumo1.htm
Keep a Lookout for Porcelain-Berry

Porcelain-berry (*Ampelopsis brevipedunculata*) is a deciduous, woody, perennial vine native to Northeast Asia. The leaves are alternate, simple, and measure 2 ½ - 5” long and wide with a heart-shaped base and 3 - 5 palmate lobes. The inconspicuous flowers are green-white and appear in June through August. The colorful grape-like fruits mature from September to October changing from pale lilac, to green to a bright blue. Porcelain-berry grows and spreads quickly in partial to full sunlight. This vigorous invader grows well in moist soils and can often be found along ponds, stream banks and forest edges. Porcelain-berry can outcompete native trees and shrubs by reducing the availability of light, water, nutrients and space. This tendril-climbing vine colonizes by prolific growth and seeds that are spread by water, birds, and other animals. Porcelain-berry can be confused with species of grape (*Vitis*) and heartleaf peppervine (*Ampelopsis cordata*) which is native to the Southeast and has unlobed leaves and smooth (hairless) stems. Once porcelain-berry is established it can be difficult to control due to the vigorous root system. Vines in the home landscape can be pulled up by hand and the rootstock should be removed. Systemic herbicides like glyphosate and triclopyr can be applied to cut stems or leaves to kill entire plants including the roots.

For More Information:
- North Carolina State University
- National Park Service - Plant Invaders of Mid-Atlantic Natural Areas
- National Park Service Fact Sheet
- U.S. Fish & Wildlife Service Fact Sheet
  [http://www.fws.gov/delawarebay/Pdfs/Porcelain-berry_Fact_Sheet%20.pdf](http://www.fws.gov/delawarebay/Pdfs/Porcelain-berry_Fact_Sheet%20.pdf)

Walk on the Wildside: Bird Blurb

Amongst the beautiful blooms of summer perennials such as grey-headed coneflower, wild bergamot, and cardinal flower, TREE SWALLOWS (*Tachycineta bicolor*) and EASTERN BLUEBIRDS (*Sialia sialis*) have started round 2 of their nesting season. Marne Titchenell found both tree swallow and bluebirds eggs in nest boxes last weekend in a central Ohio Metro Park. She also observed HOUSE WRENS (*Troglodytes aedon*) nesting. While tree swallows and bluebirds start their nesting season in spring, house wrens begin a little later in the summer, around June. Their nesting season will last into September, several weeks after tree swallows and bluebirds have completed their seasons. House wrens construct their nests out of sticks and will typically fill the nest box to the top with material, making it very easy to identify the inhabitant of the box.

For More Information:
- All About Birds - Life Histories of North American Birds
  [http://www.allaboutbirds.org](http://www.allaboutbirds.org)

A Walk on the Wildside: Sandhill Cranes

BYGL writer Cindy Meyer observed large ostrich-like birds in a crop field in Warsaw, Indiana this past week. Closer inspection led her to identify the large birds as SANDHILL CRANES (*Grus canadensis*). As Cindy experienced, one of the first things you notice about these birds is their size. Sandhill cranes are very large, tall birds with long slender necks and broad wings. They stand roughly 4’ tall with a 6 ½’ wingspan. Sandhill cranes have slate gray bodies with a white cheek and red crown on a head that
closely resembles that of heron. However, while there may be a resemblance between cranes and herons, the relation stops there. Cranes belong to their own distinct family (Gruidae) with no close relatives.

The sandhill crane can be seen in prairies, fields, cropland, and other open grasslands and prefer to nest in wet areas surrounded by shrubs and trees. Loss of quality wetland habitat has led to population declines in cranes around the world, included North America's whooping crane, which is currently endangered. Most sandhill crane populations are stable and have been increasing since 1966, according to the North American Breeding Bird survey. However there are some subspecies and localized populations that are endangered. In addition, sandhill cranes congregate in impressively large numbers at migration stop-over points. Degradation or loss of these key habitats could have serious impacts. One such stop-over is on the Platte River in Nebraska, where nearly a quarter of a million sandhill cranes gather at one time (some incredible pictures can be found online by searching 'Platte River Nebraska sandhill cranes').

In addition to their size, sandhill cranes also impress with their elaborate dance moves. Courtship includes the male and the female, whom will mate for life, pumping their heads and bowing to one another, then leaping into the air while flapping their wings and exclaiming a bugling call. These courtship displays are used not only to facilitate pair formation, but also to maintain the bond in already paired birds. Looks like we humans aren’t the only species that enjoy a romantic dance to keep the love going strong! Sandhill crane females will lay 1-3 eggs once a year. Both the male and the female incubate the eggs, then feed and care for the young for up to 10 months after hatching.

Sandhill cranes can be seen in Ohio during migration times (in the spring and fall), but there are also small localized populations that are nesting in Ohio. For example, sandhill cranes have been found nesting at Killbuck Marsh and Funk Bottoms Wildlife Areas in Holmes and Wayne Counties, in northeastern Ohio in Geauga and Trumbull Counties, and also near the marsh refuges of western Lake Erie.

For More Information:
All About Birds - Life Histories of Sandhill Crane
http://www.allaboutbirds.org/guide/Sandhill_Crane/id

**Bug Bytes**

**Escalating Sunflower Head-Clipping Weevil**

In BYGL 2015-13 (07/02/15), we reported that damage caused by the SUNFLOWER HEAD-CLIPPING WEEVIL (Haplorhynchites aeneus) was appearing on coneflowers in southwest Ohio. This week, Joe Boggs reported that he observed one of the largest infestations of this native beetle that he has ever seen in Ohio. The infestation was occurring on coneflowers in a mass landscape planting in a county park. Worse, clipped seed heads were also found in naturalized areas in the park on various members of the Silphium genus including compass plant (S. laciniatum) and cup plant (S. perfoliatum).

This is a well-documented pest of cultivated and wild sunflowers (Helianthus spp.) in the Great Plains and the weevil is also known to infest other members of the aster family (Asteraceae = Compositae) particularly members of the Heliantheae tribe which includes both coneflowers as well as members of the *Silphium* genus. Indeed, the weevil is sometimes called the "Silphium weevil" owing to its strong association with plants in this genus.

The shiny black to brownish-black weevil is a little over 1/4" long with the measurement including an exceptionally long, curved snout. As with all weevils, this beetle's mouthparts are located at the end of their snout. The females insert their snouts into the flower stems to chew a ring of holes around the stem about 1" below the flower head. The flower stem is not completely cut; the damaged stem just breaks-over causing the flower head to hang from the stem on a thin strand of tissue.

Males and females move into the damaged flower head to feed on pollen and mate. The females then lay eggs on the dangling head. Eventually the flower head breaks from the stem and drops to the ground. Heavily de-flowered coneflower plantings look like a collection of soda straws. The eggs hatch once the flower heads drop to the ground and the weevil's grub-like larvae feed on the decaying flower head tissue. It is speculated that the female weevil's odd head-clipping behavior reduces larval exposure to plant defense chemicals and prevents other insects from competing with their off-spring in utilizing the flower head. Mature weevil larvae leave the flower heads and crawl into the soil to spend the winter.
Pupation occurs the following spring to early summer and adults appear sometime in late-June to early July. There is one generation per year.

The reduction of seed production caused by damage from this weevil can potentially cause a significant decline in natural re-seeding. The best method for controlling this weevil is to remove and destroy the dangling flower heads as well as heads that have dropped to the ground. This will prevent weevil larvae from completing their development. If the flower heads are removed gently to avoid disturbing the hidden adults, the heads can be dropped into a bucket of soapy water to kill the adults. This will reduce the weevil population and thus reduce damage to flower heads. Insecticides are not a viable suppression option. Insecticide labels will not support making an application to plants in full flower because of the substantial risk of killing plant pollinators. Remember: the label is the law!

For More Information:
Kansas State University Fact Sheet
http://entomology.k-state.edu/extension/insect-information/crop-pests/sunflowers/sunflower-headclipping-weevil.html

More Coneflower Calamities

Two other problems on coneflowers were also observed this week in southwest Ohio. They were the tufted flower parts that rise rosette-like from the cones and are produced by the CONEFLOWER ROSETTE MITE (no scientific name) and chlorotic, distorted, and stunted stems, leaves and flowers caused by the disease ASTER YELLOWS (see "Disease Digest").

The coneflower rosette mite is an eriophyid mite (family Eriophyidae) that has yet to be taxonomically categorized, so it has no scientific name or approved common name. However, the mite is generally referred to as the coneflower rosette mite based on the damage that it causes to coneflowers. The mites live inside the developing flower buds and suck nutrients from the base of the flowers. As a result, green to reddish-green elongated rosette-like tufts of stunted and distorted flower parts will sprout from the tops or sides of the cones of coneflowers.

The damage caused by the rosette mite is not only unsightly; it can also seriously reduce seed production and thus natural re-seeding. Sanitation is key to managing the mite. Cutting and destroying flower heads deformed by mite activity will reduce mite populations.

Blister Beetles on Tomatoes

Joe Boggs reported receiving a phone call from a home gardener whose tomatoes were being hammered by blister beetles. Their description of the culprits fit with BLACK BLISTER BEETLES (Epicauta pennsylvanica); however, MARGINED BLISTER BEETLES (E. pestifera) may also be found in Ohio. Both beetles are capable of showing-up in large numbers to feed on the leaves and flowers of a wide range of perennials and annuals including vegetable plants.

Aside from producing noticeable defoliation, the beetles also pack a serious defensive punch! The beetle's blood contains cantharidin, a chemical that can cause severe skin blistering if the beetles are mishandled, hence the common name. This chemical can also be toxic to people and animals if ingested. Oddly, cantharidin is extracted from a European blister beetle to produce the infamous "Spanish Fly."

Several species of blister beetles may be found in Ohio. They range in size from 3/4 - 1 1/4" long. The beetles have long legs and narrow, elongated soft bodies. Their heads appear bulbous because they are much wider than the pronotum ("neck"). The beetle's flexible front wings may fail to extend to the tip of the abdomen. Margined blister beetles are so named because the margins of their black wings are bounded by gray edges. Black blister beetles lack marking; they are totally … black.

The adults of most species are plant feeders and may be found consuming leaves or flowers on plants belonging to several families including Amaranthaceae, Asteraceae (= Compositae), Fabaceae (= Leguminosae), and Solanaceae. The larvae are
specialized predators. Some feed on grasshopper eggs while others feed in the nests of solitary bees where they consume bee eggs, larvae, and food stored in the nest. Blister beetle adults may emerge en masse and produce rapid plant damage. Fortunately, their visits are usually very short lived, lasting only a week or two. They can be controlled if necessary by using an appropriately labeled insecticide. Some online control recommendations include using a gloved hand to knock the blister beetles into a bucket of soapy water. However, the beetles are good flyers and their long legs make them quick movers. Knocking all of the beetles from a heavily infested tomato plant into a bucket is a real challenge and usually ends with a hasty retreat accompanied by a string of expletives and a flying bucket.

For More Information:
University of Illinois IPM Fact Sheet
http://ipm.illinois.edu/fieldcrops/insects/blister_beetles/index.html
University of Kentucky EntFact
http://www.ca.uky.edu/entomology/entfacts/ef102.asp

Cicada Killers are on the Wing

Joe Boggs reported spotting a few CICADA KILLER WASPS (Sphecus speciosus) over the weekend in southwest Ohio cruising areas with bare soil. However, he noted that their numbers were much lower than observed in recent seasons possibly due to heavy spring and summer rains drowning wasp larvae in their soil burrows. Of course, the cicada killer wasp season is just getting under way.

These giant wasps are the nemesis of DOG-DAY CICADAS (Tibicen spp.), so it is no coincidence that these giant wasps appear on the scene when dog-day cicadas emerge! Cicada killers are the largest wasps found in Ohio, measuring 1 1/8-1 5/8" in length. The wasps have black bodies that are marked with yellow to white patches on the first three abdominal (rear part) segments. The head, thorax and legs are rusty red and the wings russet-yellow. As with all hymenoptera (wasps, bees, etc.), only the females possess stingers (ovipositors); however, they are not aggressive.

The females spend their time digging and provisioning burrows with paralyzed cicada-prey. The males spend their time establishing and defending territories that encompass females. They will aggressively buzz any transgressor who dares to enter their territory; including people. The females prefer to dig their brood burrows in bare, well-drained soil that is exposed to full sunlight. Although the wasps are considered solitary, all of the females have the same nesting requirements. Thus, it is not unusual for there to be numerous burrows, and wasps, in relatively small areas. The males are notoriously territorial and will chase after other males as well as picnickers, golfers, volleyball enthusiasts, and gardeners. Fortunately, it's all a rouse since the males lack stingers.

Cicada killer wasps feed exclusively on dog-day cicadas, so they are considered beneficial insects. However, their low-level flights over sand volleyball courts, sparse lawns, and bare areas in landscapes can be disconcerting generating demands for control options. Cultural practices that promote a thick growth of turfgrass will usually eliminate a cicada killer infestation in a lawn in 1 or 2 seasons. In landscapes, the wasps prefer loose soil in full sun; however, they will occasionally set-up shop in open areas that are covered in a thin layer of mulch. Deepening the mulch layer and periodical raking to disturb the mulch or adding plants to shade the soil will make conditions less favorable for the wasps. Since this is a beneficial insect, using insecticides to kill these wasps is discouraged. Education is one of the best approaches to reducing the angst sometimes caused by these wasps.

For More Information:
NC State Entomology Insect Note
http://go.osu.edu/cicadakiller2015
University of Kentucky EntFact
http://www2.ca.uky.edu/entomology/entfacts/ef004.asp

Sycamore Seed Bugs

SYCAMORE SEED BUGS (Belonochilus numenius) were observed on the developing fruit heads of the bug's namesake host
**Disease Digest**

**Sycamore Seed Bug**

(Platanus occidentalis) in southwest Ohio. The small (1/4" in length), slender, elongated bugs are light brown with dark brown markings. They have a distinct boat-shape profile owing to their prow-like head which accommodates long, piercing-sucking mouthparts. Despite their common name, these bugs will also feed on London plane tree (Platanus × acerifolia).

As with many members of the "seed bug family" (Lygaeidae), sycamore seed bugs appear to confine their primary feeding activity to the seeds or fruit structures of their tree hosts, thus they cause no harm to the overall health of their hosts. There are reports in the literature of the bugs being collected on other plants including giant ragweed, hackberry, and willow; however, those were simply collection records with no indication whether or not the bugs actually fed on those plants. Of course, it would not be unusual for sycamore seed bugs to occasionally feed on other plants based on the lifestyles of other seed bugs; BOXELDER BUGS (Boisea trivittata) are commonly found sucking juices from the stems of perennials as well as annuals.

Sycamore seed bugs have multiple overlapping generations per season with 3 - 4 generations observed in Pennsylvania. The bugs overwinter as eggs inside the fallen fruit heads of sycamore or London plane tree. Eggs hatch in early spring and the first generation bugs develop from nymphs to adults feeding on fallen fruit heads from the previous season. Second generation nymphs and adults feed on the newly developing fruit and third and fourth generations feed on maturing and mature seeds. There have been reports of these bugs occasionally dropping from heavily infested trees onto unsuspecting hikers or picnickers where they can deliver painful bites if trapped between shirt collars and necks.

**Sumac Aphid Galls**

The large, bladder-like galls produced by the SUMAC GALL APHID (Melaphis rhois) are becoming evident on its namesake host in southwest Ohio. The single-chambered galls range in size from 1/2 - 1" in length and hang down from the midveins of the leaflets. The galls are currently light green but will eventually become variegated and more showy with areas that are greenish-white bounded by areas that are mottled reddish-pink. Cutting open the galls now will reveal the light yellow immature aphids surrounded by a white, fluffy material. Fully mature galls will split open to release the mature winged adult aphids. Spent galls either dry out to become whitish structures that retained the gall's general size and shape, or they became shriveled, brown, collapsed husks.

The aphid has a complex life cycle with some generations feeding on mosses as alternate host plants. Sexual females migrate to sumac in the spring where each female lays a single egg. Their egg laying activity stimulates gall formation and the single aphid offspring proliferate clonally within the gall. Although heavy galling may cause early coloring and shedding of some sumac leaflets, the overall impact appears to be inconsequential relative to overall health of affected plants.

**Boxwood Bight**

Boxwood Bight is a potentially devastating fungal disease which can affect many types and varieties of boxwood (Buxus spp.). It causes leaf spots, rapid defoliation, and elongated black stem cankers which can lead to stem dieback. An infected plant can be almost completely defoliated with only tufts of green leaves at the top of the plant and ends of branches. Although boxwood blight does not kill boxwoods initially it can move rapidly within a planting and resulting defoliation causes the plants to be unacceptable in the landscape. Repeated defoliation leads to plant decline. Ohio's recent rainy weather would be ideal for spread of this disease within a planting.

The pathogen which causes boxwood blight is Cylindrocladium buxicola. This fungus can develop resting structures which are called microsclerotia in leaf debris which will allow the fungus to survive a number of years in the absence of its
boxwood host. When conditions are favorable the fungus will produce spores which can spread within a planting using splashing water, wind or wind-driven rain. Spores can also be carried on tools, wet hands or gloves, and clothing.

Monitor boxwoods in the landscape for development of leaf spots and/or the onset of sudden defoliation. If boxwood blight is suspected branch samples can be sent to OSU's C. Wayne Ellett Plant and Pest Diagnostic Clinic for confirmation. See http://ppdc.osu.edu for general sampling and packaging guidelines. The address is:

CWEPPDC
OSU
8995 E. Main St., Bldg. 23
Reynoldsburg, OH 43068

For More Information:
The Knowledge Center, AmericanHort
http://americanhort.theknowledgecenter.com/OnDemand/index.cfm

Erik Draper and Joe Boggs reported that they had observed symptoms of grape black rot on grape leaves and fruits in southwest and northeast Ohio. Gary Gao has also seen the same thing in many parts of Ohio. Three fungicide sprays early in the season would have been very helpful. The best time to apply fungicides for black rot control is 1 week before bloom, during bloom and 1 week after bloom. Now is too late to apply fungicides to protect grape leaves and grapes clusters from black rot. However, removal of infected fruit might help reduce inoculum for next year. Selecting less susceptible grape cultivars, such as ‘Mars Seedless’ instead of ‘Concord,’ might help, if gardeners were to plant more grapes.

Symptoms of black rot first appear as small yellowish spots on leaves. As the spots (lesions) enlarge, a dark border forms around the margins. The centers of the lesions become reddish brown. Lesions may also appear on young shoots, cluster stems, and tendrils. The lesions are purple to black, oval in outline, and sunken. Fruit symptoms are very visible in July. Small, round, light-brownish spots form on the fruit first. The rotted tissue in the spot softens, and becomes sunken. The spot enlarges quickly, rotting the entire berry in a few days. The diseased fruit shrivels, becoming small, hard, black, and wrinkled (mummies). Tiny black pycnidia are also formed on the fruit mummies. The mummies usually remain attached to the cluster.

A fungicide spray program is extremely important for black rot control. Both timing and the right fungicide are critical. Early season control must be emphasized. The most critical period to control black rot with fungicides is during the period from early bloom through 3 - 4 weeks after bloom. Grape berries will not be susceptible to black rot infection once they start turning color, which is called veraison in grape-growing terms.

Captan, a common fungicide, is only slightly effective against black rot. Mancozeb, on the other hand, is highly effective. Mancozeb is not widely available. Gardeners may need to ask a garden center or a retailer to special order Mancozeb. For the latest spray recommendations, commercial growers are referred to the Bulletin 506-B2, “Midwest Commercial Small Fruit and Grape Spray Guide,” and backyard growers are referred to the Bulletin 780, “Controlling Diseases and Insects in Home Fruit Plantings.”

For More Information:
Midwest Commercial Small Fruit and Grape Spray Guide
Controlling Diseases and Insects in Home Fruit Plantings
http://ohioline.osu.edu/b780/

Pathological Erratum
The sharp-eyed Ornamental and Turfgrass pathologist at Ohio State University, Dr. Francesca Peduto Hand, a Powdery Mildew (PM) lover, noted an error in the article written in last week's BYGL. From the BYGL, "On perennial hosts, such as lilacs, PM survives from one season to the next as vegetative strands in buds or as spherical fruiting bodies, called chasmothecia (previously called cleistothecia), on the bark of branches and stems." This statement is CORRECT. However the next statement, "In spring or early summer, these airborne spores initiate primary infections on susceptible leaves..." is INCORRECT.

Francesca noted that, "Chasmothecia are not airborne spores. Upon rupture, normally following rain events, they release the ascii that contain the ascospores, which will initiate the primary infections. Conidia, which are the asexual spores produced later in the disease cycle, are the actual airborne spores that will carry out secondary infections."

So let's see if we can get it straight this time. The overwintering structures or spherical-shaped fruiting bodies for PM are called chasmothecia. Chasmothecia enclose ascospores, which are contained in acsi or sac-like structures inside of the chasmothecia. Upon splitting open from rain, a chasmothecium releases the ascospores, which can cause primary infections in the host plant tissues. These primary infections result in the production of other types of spores, called conidia, which are formed on conidiophores. The conidia are asexually produced and dispersed to new host tissues, which can then initiate new infections, resulting in what we call secondary infections. In an environment which favors PM conidial development, based mainly on ambient air temperatures and high relative humidity or moisture conditions, the PM infection cycle can take as little as 3 days to repeat! It is these secondary infections by conidia which cause the rapid escalation of both the pathogen populations and epiphytotic events.

For More Information:
Pacific Northwest Plant Disease Management Handbook—"Powdery Mildew Diseases"
http://pnwhandbooks.org/plantdisease/pathogen-articles/pathogens-common-many-plants/fungi/powdery-mildew-diseases

Guignardia Leaf Blotch Red Alert

In BYGL 2015-12 (06/25/15), we reported that symptoms of Guignardia leaf blotch of Aesculus produced by the fungus, Guignardia aesculi, was becoming evident on buckeyes and horsechestnuts in many areas of Ohio. The fungal spores require moisture to spread to new growth in the spring and to germinate to initiate foliar infections. Infections and resulting symptoms then progress rapidly during warm summer months.

The disease symptoms are generally described as zonate lesions on the leaflets that are often surrounded by a yellow, chlorotic halo. The lesions are at first small, reddish brown and often bounded by the leaf veins. They eventually expand to become large, dark brown blotches. Heavily infected buckeye and horsechestnut trees may appear scorched as the brown leaf blotches envelop entire leaflets.

However, this week, Joe Boggs reported observing Guignardia leaf blotch on Ohio buckeye (Aesculus glabra) trees in southwest Ohio with zonate leaf lesions that were various shades of red; from crimson to brick red. While some browning was evident, red was the dominate color scheme. The trees looked like they were showing unusual early fall colors with red replacing amber; the fall color normally associated with Ohio buckeye trees. It is not known why the Guignardia leaf blotch symptoms were so different from the "norm," but Joe noted this is not the first year that these trees have expressed these unusual symptoms. Participants in past S.W. Ohio BYGLive! Diagnostic Walk-Abouts held in the park where these trees are found have observed and discussed these interesting leaf blotch symptoms.

Aster Yellows on Coneflower

Aster yellows is a serious, chronic disease that occurs throughout North America and may affect over 300 species of plants in 38 families including a number of vegetables such as carrots and potatoes. However, as its common name implies, the disease most occurs on members of the aster family (Asteraceae =
Compositae); coneflowers appear to be particularly susceptible.

The disease is produced by a phytoplasma. These single celled organisms were once referred to as "mycoplasma-like organisms"; however, they are now classified as a group of very small, specialized bacteria. All known forms are plant pathogenic; they are obligate parasites of plant phloem tissue. They are naturally spread from plant to plant by sucking insects, particularly leafhoppers. Symptoms of aster yellows include: chlorotic, curled foliage; stunted stems; and bizarrely distorted flower parts. Flower petals may appear as a ring of tiny greenish-yellow spoons arrayed around the base of highly deformed cones. Cones may appear as tightly clustered rosettes.

Symptoms produced by aster yellows are sometimes mistakenly identified as damage caused by the aforementioned coneflower rosette mite (see "Bug Bytes"). Indeed, images can be found on the web that clearly show mite damage but are mislabeled as symptoms of the disease. The main differences between mite and disease symptoms are the colors of the rosettes. Aster yellows produces yellowish-green rosettes while the mites produce rosettes that usually retain some of the original color of the cones. Of course, the mites do not affect the rest of the plant; their damage is confined to the flower cones. Aster yellows wreaks havoc on all parts of the plant. There are no sprays that will suppress the disease and once plants become infected, they remain both infected and infectious which means they serve as a constant reservoir of the phytoplasma to be spread to other plants. Thus, sanitation is key to managing the disease. All parts of the plant including the root system must be removed and destroyed. As with all phytoplasmas, the aster yellows pathogen cannot survive outside of the plant so the bacterium will not remain in the soil.

For More Information:
Missouri Botanical Gardens

Turf Tips »

Horse Slobber...What?
A couple of BYGL'ers received calls about their client’s horses producing large amounts of slobber. While we are not horse experts we became interested in the fact that in most cases this excessive salivation is caused by the horse ingesting large amounts of legumes that are infected with a fungus called *Rhizoctonia leguminicola*. In humid wet, conditions, which has been the case in most parts of Ohio, this fungus goes wild. The fungus produces a mycotoxin called slaframine. This fungus can be visible on plant leaves as gold, brown or black spots, thus giving the fungus its common name, black patch disease.

We found this interesting because as you may recall we reported brown patch disease in the landscape several weeks back, which is *Rhizoctonia solani*. *R. solani* is a fungus, in the same genus as *R. leguminicola*, that causes brown patch disease on tall fescue. Both can easily present in yards and fields alike.

For More Information:
Kentucky Equine Research – Horse Slobber

Buckeye Yard and Garden Line Newsletter
http://bygl.osu.edu/content/brown-patch-runs-amuck-0

Industry Insight »

Mimosa Webworm

Heavy localized MIMOSA WEBWORM (Homadaula anisocentra) populations are once again appearing this season in southwest Ohio. Significant populations were observed in that part of the state over the past 2 seasons with some small trees becoming completely covered in nests (2013-22 (08/29/13); 2014-16 (07/17/14)). There are typically 2 - 3 overlapping generations per season in Ohio; however, a fourth generation may occur if supported by warm fall temperatures.

Despite their common name, mimosa webworms are most often found on honeylocusts in Ohio. This non-native nest-maker was
accidentally introduced into the U.S. from China in the early 1940s. The first infestations were found on honeylocust in Washington, D.C. landscapes that had been planted to replace American elms killed by Dutch elm disease. Since that time, the webworm has spread across much of the eastern and Midwestern US.

The caterpillars feed gregariously as skeletonizers within webs spun over the foliage; they only feed on leaflets enveloped by their silk nests. Attention is usually drawn to an infestation by clusters of orangish-brown “torched” leaves and leaflets that are tightly encased in webbing. 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 topical 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. Also, preventing first generation nests will reduce the attraction of trees to second and third generation females.

Fortunately, there are numerous predators and parasitoids as well as several pathogens that naturally suppress webworm populations. These bio-allies are responsible for the widely fluctuating population densities observed in Ohio and elsewhere from year-to-year. Locations that suffer through a few successive years with high webworm populations typically enjoy a number of years with almost no webworms.

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.

If insecticides are being considered, there are a few things you should consider. Impacts on bio-allies important for providing natural suppression should always be considered. Nests of all generations can be removed and the caterpillars destroyed by hand on small trees; this will preserve the bio-allies. Products based on the naturally occurring bacterium *E. cerinth, subspecies kurstaki* (Ekt) are specific to killing caterpillars and will have little to no impact on the bio-allies making this a "biorational" insecticide. Two applications spaced 7 - 10 days apart and targeting the first generation caterpillars is recommended. Other biorational insecticides may also be considered. Some suppression of later generations may be provided by insecticides with systemic properties such as acephate (e.g. Lepitect, Orthene, etc.) or acetamiprid (e.g. TriStar, Ortho Bug B Gon Systemic Insect Killer).

For More Information:
Purdue Extension Fact Sheet

WeatherWatch »

Weather Update
The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from July 1 – July 22, 2015, with the exception of the soil temperatures which are readings from Wednesday, July 22, 2015 at 5:20 p.m.

Four of the 5 weather stations are reporting above normal precipitation levels. While some of the totals are impressive for July, there are other “unofficial” mentions across the buckeye state that is double or even triple of the amounts shown below.

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<td>85.51/82.25</td>
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<td>86.03/83.06</td>
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**Coming Attractions**

**Save the Date - Northwest Ohio Green Industry Summer Session - August 5, 2015**

The event will once again be held at Owens Community College. Stay tuned for a link to the registration materials.

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**Wildlife Nuisance Class**

Are you having issues with wildlife such as deer munching on your landscape, raccoons rooting in your planters, chipmunks nibbling on your tomatoes, or bats in your home? Register for THE GOOD, THE BAD, AND THE HUNGRY: DEALING WITH WILDLIFE CONFLICT IN THE LANDSCAPE on August 7, 2015 in Lucas County. This is a day-long class, $35 per person. Participants will learn strategies for preventing and managing conflict with deer, rabbits, squirrels (chipmunks, tree squirrels, groundhogs), raccoons, skunks, bats, Canada geese, moles, voles, and coyotes. Lunch is provided as well as a folder full of additional information. Visit [http://www.woodlandstewards.osu.edu](http://www.woodlandstewards.osu.edu) to learn more about the class or register online at [https://www.regonline.com/wildlifeconflictsLucas](https://www.regonline.com/wildlifeconflictsLucas).

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**Tree Tour & Talks - August 25, 2015**

Have you ever seen a Kinki Winki? Or a Zydico Twist?

Join us for an opportunity to see an amazing collection of rare and unusual trees on this tour of a private property, "Barboretum". Afterward, enjoy lunch and the presentations of our 3 renowned speakers. Everyone is welcome and Master Gardeners receive 5 CEUs. This event will take place in Miami County, in Tipp City. Contact Deb Castle at debcastle@live.com or 937-409-1582 to register. Cost is $60 per person.

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**The OSU Green Industry Short Course, The Ohio Turfgrass Foundation Conference and Show, and Trees on Tap Programs**

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

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

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**Byglosophy»**

“Study nature, love nature, stay close to nature. It will never fail you.” – Frank Lloyd Wright

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