BUCKEYE YARD AND GARDEN LINE 2014-15
07/10/14

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This is the 15th 2014 edition of the Buckeye Yard and Garden Line (BYGL). BYGL is developed from a Tuesday morning conference call of Extension Educators, Specialists, and other contributors in Ohio.

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1. PLANTS OF THE WEEK.
ANNUAL - PETUNIA (*Petunia x hybrids*). Many years ago when I was younger (much younger) I really didn't like petunias because I always had to help my grandma deadhead the slimy smelly things. Boy, things are really different today as they are one of my favorites! When I give presentations on the results of our field trial's top-performer, petunias are always at the top of the list. I tell the audience that these aren't my grandma's petunias! Over the years, breeding of these plants has improved so much that they are one of my favorite annuals to use for massive splashes of color. I call them the "55 miles an hour plant" because you can easily see them from a distance. You can plant a bed and almost leave it alone because the newer vegetative cultivars require very little maintenance.

I know I may sound a little over-the-top but petunias have performed year after year in our trial plots in Springfield, Ohio and have come a long way in terms of their performance. The down side for consumers is that there are so many varieties to choose from that it's often very difficult to decide which one to use.

Petunias come in all shapes and sizes and growth habits and colors. When you purchase petunias, make sure you know the mature habit and size. The multiflora types, for instance, have a much more compact growth habit than do the grandiflora types. The flowers tend to be a little smaller as well. You also can select from the different petunia series that breeders specialize in such as 'Wave', 'Surfinia', 'Supertunia', 'Cascadia' and more. Some varieties are better suited for containers while others are best in mass plantings in flower beds.

Whichever variety you select, plant them in full sun for best performance. They thrive in hot dry weather so don't overwater. Fertilize according to your soil test results and you will be extremely happy with these plants.

Author: Pamela J. Bennett

PERENNIAL - CONEFLOWER. (*Echinacea* spp.). These tough native Ohio plants as well as the hybrids are coming into full bloom around most of Ohio, attracting a bounty of butterflies and bees. They are one of the easiest perennials to grow and can be found in many gardens and landscapes around the state. Coneflowers start to bloom in mid-June in central Ohio and continue on until the end of August. The flowers come in a broad spectrum of colors, including the most common, purple, as well as white, pink, maroon, orange, yellow and assorted variations of these colors. In addition, the flowers have single or double petals as well as unusual shapes such as those that resemble badminton shuttecocks ('Marmalade', 'Milkshake', and 'Hot Papaya').

Plant coneflowers in full sun in well-drained soils. They are heat and drought tolerant and once established, require little maintenance. They can be planted in perennial borders or in a meadow or prairie planting. Most varieties grow around 2.5 - 3' in height and width.

There are a few challenges to be aware of in growing coneflowers. First of all, they can be prolific seeders so you have to decide whether or not to deadhead. Some like to leave the seed heads on the plants to feed goldfinches. Others would rather not rogue out all of the seedlings that come back the next season, so they deadhead. It's your choice but keep it in mind it's one you should make! Another challenge lately has been the sunflower head-clipping weevil that will ruin the blooms just as they hit their peak (see BYGL 2014-14), under Bug Bytes for full details on this pest - http://bygl.osu.edu/content/sunflower-head-clipping-weevils-0. On the other hand, deer really don't like them so take your pick on which you might want to manage!

Author: Pamela J. Bennett
*WOODY – GOLDENRAINTREE (Koelreuteria paniculata).* Goldenraintree is a medium-sized deciduous tree with magnificent bright yellow flower panicles (12 – 15” long) and is in bloom now in Ohio. It has a rounded crown and typically grows 30 - 40’ tall with an equal spread. Goldenraintree has a good tolerance to drought, alkaline soils, heat, wind and pollution conditions and does well as an urban tree where there is space for its growth. The leaves are pinnate or bipinnately compound 6 - 18” long. Leaves emerge purplish-red in the spring, mature to a bright green in summer and turn yellow to golden in fall. The fruit are interesting papery seed capsules 1.5 – 2” long which change from green to yellow to brown. Goldenraintree grows best in full-sun and makes a great addition to the landscape if you are looking for a summer-flowering tree.

**Author: Julie S. Crook**

*VEGETABLE - EGGPLANT (Solanum melongena).* Eggplant is a warm season vegetable that requires a long growing season. Plant 6 - 8 week-old transplants after all danger of frost has passed. Eggplants are very vulnerable to low temperatures. Plants should be spaced 18 - 24” in the row with 30 - 36” between rows.

Fertilizer application should be based on a soil test. Apply a starter fertilizer at transplanting and side dress with nitrogen when the plants are half of their mature size and after harvest of the first fruit. Eggplants are ready to harvest when 6 - 8” long and glossy. Use pruning shears or a knife and use caution because some cultivars have thorny stems and calyces. Fruit that are left on the plant too long will be dull, spongy and often bitter. While the plants are fairly drought tolerant, they should be irrigated during extended periods of dry weather.

The major pest on eggplant is FLEA BEETLE (Epitris fusula) which can be very problematic in the spring. Keep the plant covered with row covers until the plant is large enough to tolerate the damage. Pesticides containing carbyl, spinosad, and permethrin can provide control for several days. Follow label directions. Other problems that can occur are MITES (Tetranyclus urtica) and PHYTOPHTHERA BLIGHT (Phytophthora capsici).

While most of us are aware of traditional, long, oval varieties, many interesting and colorful varieties have come onto the market. Several varieties have been developed for container gardens. Recommended varieties include (large oval) ‘Dusky’, ‘Epic’, ‘Black Beauty’, ‘Black Magic’ (elongated) ‘Ichiban’, Pintung Long ‘Hansel’ and Gretel’ (miniature) ‘Fairy Tale’.

**Author: Jacqueline Kowalski**

*WEED - CANADA THISTLE (Cirsium arvense).* The lavender flower heads and white feathery pappus of the Canada thistle can be seen throughout Ohio’s roadways, crop lands and landscapes. The pappus allows the achenes (seeds) to be carried by the wind to propagate this noxious weed a distance away. The Canada thistle is native to Europe and Asia and was accidentally introduced to America in the 1600s. It is a member of the Aster family (Asteraceae).

This aggressive, creeping broadleaved perennial weed grows 1 - 4’ high with leaves 3 - 8” long, alternating with spiny and crinkled edges with lobed lower leaves. The grooved stems become hairy with age. The creeping root system spreads aggressively forming dense stands that shade out other plants. Canada thistle roots can extend 20’ deep and 17’ horizontally, forming vegetative buds anywhere along the system.

Control of Canada thistle is very challenging and a long-term endeavor. A combination of mechanical and chemical controls requires consistent and repeated applications. The key to eliminating Canada
thistle is to stress the plant to force it to use stored root nutrients. Consistent disturbance of roots by mowing, tilling and pulling forces the plant to use and deplete stored food. The use of systemic herbicides further hinders the plant's reproductive cycle. For details on effective herbicides check out Purdue Extension's Control of Canada Thistle in CRP and Other Noncrop Acreage.

Author: Denise M. Johnson

2. HORT SHORTS.

A. WILDLIFE HAPPENINGS: SNAPPERS, RED-TAILS, AND TINY TOADS. Along with the typical damage reports of rabbits, deer, and geese, Marne Titchenell also received reports on the ongoing of several other wildlife species. SNAPPING TURTLES typically lay eggs in June in Ohio, the females only venturing onto land long enough to excavate a burrow to lay their eggs in. Sometimes these ventures will take them just to the shore of the pond they call home, but other times, female snapping turtles can travel up to ¼ a mile in search of good nesting grounds. Typically, female snapping turtles look for well-drained sunny areas as nesting sites. Once the ideal spot is decided on, the mother-to-be digs a nest roughly 4 - 7' deep into which she deposits anywhere from 20 - 50 eggs. Each egg is white and round in size with a diameter of 1 inch, resembling a ping pong ball. As each egg is laid, the female scrapes soil over it before laying the next egg. Once all the eggs are laid, she covers the nest with more soil then smooths it over with her plastron (bottom shell). She then heads back to the water, leaving her many young, which will hatch around August - September and make their own journeys back to the water. Many snapping turtle nests, as well as other species of turtle nests, do not make it to hatching. Raccoons, skunks, cats, foxes, and mink prey on the eggs, digging them up and littering the area with white, wrinkled egg shells.

While snapping turtles have just finished laying eggs, RED-TAILED HAWKS are well into their breeding season, which started in the spring. At this time of year, you may hear an adult red-tailed hawk making a lot of constant racket for no apparent reason. An adult that is constantly calling in the same area is likely attempting to entice young from a nest. In early July, young red-tailed hawks are learning to fly and hunt on their own, which often requires encouragement from mom and dad. This ritual of continuously calling young from the protection of the nest is common in many bird species. Robins and house wrens may be two species you’ve noticed engaging in the same ritual around your home.

Even further ahead of the breeding game than snapping turtles and red-tailed hawks are AMERICAN TOADS and SPRING PEEPERS. It’s not uncommon for homeowners to encounter tiny toads and peepers while mowing, weeding, and tending the gardens and flowerbeds around the home. These miniature frogs are actually newly metamorphosed juveniles that will over the years grow to the size of adult toads and peepers (though peepers won’t get too much bigger as, when fully grown, they are only the size of your thumb nail). Homeowners are encountering these frogs and toads as they are dispersing from the waters they were born in. Usually, with a little patience on the part of the homeowner, the frenzy of frogs and toads declines in a couple weeks’ time as the young amphibians migrate on and disperse to find their own, individual spaces. For more information on these tiny amphibians, see BYGL 2013 - 15 (07/11/13) under Hort Shorts.

Author: Marne Titchenell

B. BE ON THE LOOKOUT FOR BARN OWLS. The Ohio Department of Natural Resources, Division of Wildlife has requested that Ohio citizens report any sightings of BARN OWLS to 1-800-WILDLIFE or send an email to WildInfo@dnr.state.oh.us. Barn owls are listed as a threatened species in Ohio and have had a fluctuating history of abundance in the buckeye state – up until now that is. The number of
barn owl nests in Ohio is up from only 19 in 1988 to over 100 in 2013. This comeback has led Ohio wildlife biologists to request sightings of these beautiful raptors in an effort to estimate the number of barn owls in Ohio. The barn owl is easily identified by its white, heart-shaped face and large black eyes. The body is a mottled mix of dark grey to golden-brown feathers with a black-dotted buff to tan feathered chest. Barn owls prefer to forage over open areas for mice and other small rodents, and are cavity nesters. True to their name, barn owls are content to also live in human structures, such as barns.

Author: Marne Titchenell

C. NOW IS TIME TO PICK FARM-FRESH BERRIES! Blueberry, black raspberry and summer red raspberries are ripening in many parts of Ohio. Now is the best time to visit farms that off pick-your-own berries. This is a perfect way to purchase fresh berries and support our Ohio farmers at the same time. One good way to locate a berry farm is by visiting http://www.pickyourown.org/index.htm. This website has a lot of good information. Once you have located a farm, it is still a good idea to call to find out the business hours, berry availability, pricing, payment methods, pet policy and other pertinent information. Bring some cash and your checkbook since some of the farms may not accept credit cards.

Fresh berries are known to offer many health benefits. It is really hard to beat the farm fresh berries. Many gardeners enjoy making berry preserves. Berries can also be frozen for later use. Berry harvest season does not last that long in Ohio. Now is the time to go out and enjoy the berry harvest!

Author: Gary Gao

3. BUGBYTES.

A. ANNUAL DOG-DAY CICADA EMERGENCE. Annual dog-day cicadas (Tibicen spp.; family Cicadidae) have emerged in southwest Ohio. Like periodical cicadas (Magicicada spp.; family Cicadidae), these cicadas also develop underground with the nymphs sucking juices from tree roots. However, periodical cicadas require 13 or 17 years to complete their development with adults emerging en masse in the spring, usually beginning around mid-to-late May and ending in early June. Indeed, parts of southern Ohio and northern Kentucky bordering the Ohio River experienced a previously undocumented emergence of 13-year periodical cicadas earlier this season (BYGL 2014-09, 05/29/14).

Dog-day cicadas appear sporadically throughout the "dog days" of summer usually beginning in early July. Although it takes 2-3 years for dog-day cicadas to complete their development, some adults emerge every year due to overlapping generations. Even though dog-day and periodical cicadas do not appear together in Ohio, the two types of cicadas are sometimes mistaken for one another, particularly during years with unusually high dog-day cicada population. Dog-day cicadas have silvery-white underbellies, greenish-black eyes, green legs and wing veins, and green markings on their black thorax. Periodical cicadas are usually smaller, depending upon the species. They have reddish-orange eyes, and reddish-tan legs and wing veins.

As with periodical cicadas, dog-day cicada females use their long, spade-like ovipositors to insert eggs through the bark of twigs and into the white wood. The resulting damage splits the bark and white wood leaving deep longitudinal furrows of ruptured tissue. The injury often causes the twig to die, the leaves to turn brown ("flag"), and the twig to detach and drop. However, owing to the smaller numbers of dog-day cicadas, their egg-laying damage usually goes unnoticed.
Like their periodical cousins, dog-day cicada males also "sing" to attract females. However, the sound of an occasional dog-day cicada buzzing to entice a female doesn't compare to the cacophony created by a multitude of periodical cicadas; a barbershop quartet doesn't compare to a million man chorus! An abrupt halt in the buzzing of a cicada, often punctuated by a high-pitched screech, usually means a CICADA KILLER WASP (Sphecius speciosus) has committed an insecticidal act.

Author: Joe Boggs

B. CICADA KILLERS ARE ON THE WING. Participants in this week’s Southwest Ohio BYGLive! Diagnostic Walk-About held in Glenwood Gardens (Great Parks of Hamilton County) observed CICADA KILLER WASPS (Sphecius speciosus) cruising areas with bare soil. 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 ruse 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 one or two 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. Deeping 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.

Author: Joe Boggs

C. WEIRD WILLOW GALL. During the BYGL conference, Joe Boggs showed images of a gall on black willow that is arguably one of the weirdest plant galls found in Ohio. The gall's appearance isn't weird; it looks like a pine cone. However, finding a "pine cone" on a willow is weird. The WILLOW CONE GALL, which is sometimes called the "pine cone willow gall," is produced under the direction of the midge fly, Rhabdophaga strobiloides (family Cecidomyiidae). As the common name implies, the gall closely resembles a pine cone with closed seed scales.

Females of this mosquito-like midge fly initiate gall formation when they lay a single egg in terminal buds in the spring. Chemicals injected by the female coupled with chemicals exuded by the egg and then by the resulting larva (maggot) direct the stem tissue to stop elongating and the nascent leaf tissue to broaden and harden into the shape of scales on a pine cone. Slicing the gall open lengthwise will reveal a single, midge fly larva housed in an elongated chamber at the center of the gall structure and
protected by multiple layers of cone-like scales. Early instar larvae are yellowish-white but they become yellowish-orange as they molt through successive instars. Once larvae complete their development, they pupate and spend the winter inside their protective chamber. New adults emerge from the top of the gall in early spring to initiate the formation of new galls.

As with most plant galls, the willow cone gall causes little harm to the overall health of its willow host. The galls are actually considered rare with heavy, repeating infestations almost never occurring. However, if control is desired, removing and destroying the galls will reduce the midge fly population. Of course, this would also reduce the chance that others may get a chance to view first-hand one of the weirdest plant galls found in Ohio!

Author: Joe Boggs

D. MOSSY ROSE GALLS ON MULTIFLORA ROSE. Participants in this week's Southwest Ohio Diagnostic Walk-About at Glenwood Gardens in Hamilton County were “treated” to bizarre looking mossy rose galls sprouting from multiflora rose (Rosa multiflora). The hairy-looking galls are produced under the direction of a tiny wasp (Diplolepis rosae) belonging to the gall-wasp family Cynipidae. The wasp occurs both in Europe and North America. They will produce their characteristic galls on several species in the Rosa genus; however, they are most commonly found in Ohio on hybrid tea roses.

The galls consist of a solid, fleshy, internal structure covered by a dense mass of spiky filaments; they look like a ball of moss stuck on the rose stems, thus the common name. Other common names include “rose bedeguar (bedegar) galls,” and “Robin's pin cushion galls;” however, these common names are generally confined to the European literature. Cutting the internal fleshy part of the galls open will reveal individual chambers, each housing a single wasp larva. The size of the gall depends on the number of larval chambers with single-chambered galls usually measuring less than 1” in diameter and multi-chambered galls measuring over 2” in diameter, filaments included.

The wasps have one generation per year. Females initiate gall formation when they use their ovipositors (= stingers) to insert eggs into leaf buds in the spring. The resulting wasp larvae exude chemicals that further direct gall formation. The galls change color from light green to crimson red as the wasp larvae mature. Late instar larvae spend the winter in dark reddish-brown galls and new adults emerge in the spring. Spent galls become grayish-brown and often remain attached throughout the season. As with most plant galls, mossy rose galls cause no harm to the overall health of their rose hosts. However, the galls may appear unsightly when they occur on display roses. The gall-makers can be effectively managed by pruning and destroying developing galls which will reduce or even eliminate localized gall-wasp populations.

Author: Joe Boggs

E. SYCAMORE SEED BUGS. Southwest Ohio Diagnostic Walk-About participants found sycamore seed bugs (Belonochilus numenius) on the developing fruit heads of the bug’s namesake host (Platanus occidentalis). 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 life-styles 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. This bug has never been reported in past BYGLs and the literature implies they are somewhat rare. Indeed, they were only found on one sycamore in the Walk-About site.

*Author: Joe Boggs*

F. STRIPED AND SPOTTED CUCUMBER BEETLE. Cucumber beetles have found their way to gardens and are now feeding on cucurbit plants, including cucumber, squash, pumpkin and melon. Striped cucumber beetles (*Acalymma vittatum*) are yellow-green with three black stripes down the back and are 1/4" long. The spotted cucumber beetle (*Diabrotica undecimpunctata*) (also known as the southern corn rootworm), also 1/4" long, is yellow-green with 12 black spots on its back. The head and antennae are dark.

Larvae of striped beetles feed on cucurbit roots which stunt and kill young plants. Adults of striped and spotted cucumber beetles feed on leaves, but only striped beetles feed on cucurbit fruits. Both insects are vectors of bacterial wilt disease. The bacterium that causes bacterial wilt overwinters in the gut of some striped cucumber beetles. When beetles become active in the spring and begin feeding, they spread the bacterium either through feces or from contaminated mouthparts. Chewing damage from these insects open the entry points for the pathogen. Once inside the plant, the bacterium multiplies quickly in the vascular system, producing blockages that cause the leaves to wilt. Infected plants wilt quickly, and leaves dry out just prior to death. Beetles are attracted to infected plants and can pick up the bacterium and move it to healthy plants. Infected plants wilt quickly, and leaves dry out prior to death.

Inspect plants frequently for beetle infestations. Row covers provide some protection, but must be removed a few hours each day to allow for pollination. Plant wilt-resistant varieties and use trap crops, if possible. Insecticides can be used and should be applied at five day intervals, from the time plants emerge from the soil until vines run.

*Author: Cindy Meyer*

G. WINDSHIELD WIPES. Southwest Ohio Diagnostic Walk-About participants also ran into a number of other insects in Glenwood Gardens including:

* A heavy PLANTHOPPER infestation was observed on climbing hydrangea. These sucking insects belong to the family Flatidae (Order Hemiptera; Suborder Auchenorrhyncha), and are sometimes referred to as “flatids.” Planthoppers are sometimes misidentified as woolly aphids. The nymphs of several flatid species cloak themselves in a dense tangle of waxy, white “fluff.” They also congregate in groups, or “colonies,” and their profusion of flocculent material on affected plant stems draws attention to the insects. The nymphs also produce copious quantities of honeydew which may coat the plant and become colonized by black sooty molds.
Planthoppers usually have little impact on the overall health of landscape plants and seldom become more than a nuisance pest. However, the Diagnostic Walk-About participants agreed that the population was so dense the hydrangea was being damaged. Effective management includes applications of insecticidal soaps, or standard insecticides labeled for use on the host plant.

Author: Joe Boggs

*A highly localized JAPANESE BEETLE (*Popillia japonica*) infestation was observed on an American basswood tree (*Tilia americana*). Walk-About participants were amazed that both the beetles and their heavy leaf-skeletonizing damage were generally confined to the single tree; nearby wild grapes - another favored host - were largely unaffected. The participants noted that this highly focused pattern of infestations seems common throughout the region this season. Indeed, BYGLers located in several areas of Ohio reported that they are observing the same thing; Japanese beetles are more common this season compared to the past few years, but high populations are not widespread.

Author: Joe Boggs

4. DISEASE DIGEST.

A. ANTHRACNOSE OF BLACK RASPBERRIES. Gary Gao reported receiving an email inquiry about black raspberry anthracnose. The symptoms from the pictures match those of black raspberry anthracnose. Canes had spots that were ash gray in the center with slightly raised purple margins. According the OSU Extension fact sheet #HYG-3007, "Anthracnose sometimes attacks the leaves and can cause some leaf drop. Small spots, about 1/16 inch in diameter, with light gray centers and purple margins appear on the leaves. Lesion centers later fall out, leaving a shot hole effect. Anthracnose is a disease common to raspberries, blackberries, and other brambles or cane fruits. It causes severe damage to black and purple raspberries and susceptible varieties of red raspberries throughout the United States. The disease reduces the size and quality of fruit on infected canes. In addition, it may kill canes or weaken them so that they do not survive the winter."

In home black raspberry plantings, improvement of air circulation, reduction of nitrogen application, and removal of all floricanes (fruited) after harvest are some of the recommended measures. Fungicides may also be necessary, if gardeners desire much better disease control. Refer to OSU Extension bulletin #780, "Controlling Diseases and Insects in Home Fruit Plantings" for a spray schedule, and OSU Extension bulletin #940, "Midwest Home Fruit Production Guide" for cultural management techniques.

Author: Gary Gao

B. A BERRY MUMMIFIED MESS. Erik Draper reported visiting a blueberry grower in Northeast Ohio, who wanted to know why blueberries would turn pink instead of blue. The reason for this color scheme confusion of pink on blueberries was due to the fungal pathogen *Monilinia vaccinii-corymbosi*, which causes the disease called MUMMY BERRY. This devastating blueberry disease not only damages the plants, but also causes tremendous fruit losses from the fungus infecting the blossoms too. The spores are generated from last year's overwintering "mummified berries" on the ground, during cool, rainy weather. If, by chance, there is not enough moisture to activate the fungus during the spring, the fungus will not produce spores; unfortunately, the fungus may survive in mummified berries for one year or more! Small mushroom-like structures, appearing as tiny cups, grow from the hard mummified fruit. Inside the cups, spores are dispersed into the air and carried aloft by wind to land on young, developing leaves and succulent shoots, causing primary infections. The infection on the newly emerging leaves
and expanding twigs/shoots results in a rapid flagging, collapse, blighting and death of those infected leaves and shoots. These primary infections are often mistaken for or easily attributed to winter damage or frost injury.

Environmental conditions, consisting mainly of high relative humidity, will cause the fungus in those primary infections to produce another type of spore, called conidia. The conidia from the blighted, dying shoots are transported via wind, rain, bees, and/or other pollinating insects, to adjacent flower blossoms resulting in secondary infections. It is these infected blossoms that allow the conidia to slowly develop inside of the berry. This slow, internal fungal development goes unnoticed until a portion of the berry or all of it turns pink instead of blue. The fungus matures inside the shriveling pink to brown to gray berry and then falls to the ground, where it will overwinter and start the cycle all over the following year.

Control for homeowners is simply sanitation - clean up the mummified berries on the ground and destroy or bury them. For commercial growers, if bare ground exists between the rows of blueberries, then cultivation in early spring to disturb or cover the mummies has been reported to be effective. Apparently, the mummified berries that are disturbed or covered with soil in early spring will remain dormant or do not produce spores. Bear in mind that if just one mummy is missed, a single mushroom-like cup has the potential to release over a million spores in less than a week! There are several mummy berry resistant cultivars of blueberries, including Duke, Elliott, Lateblue, and Northsky. Note also that a good fungicide spray program, consisting of three, specifically-timed applications, is also very effective in managing this disease of blueberries.

Author: Erik Draper

C. ASH LEAF SPOT. Participants in this week’s Southwest Ohio BYGLive! Diagnostic Walk-About at Glenwood Gardens (Great Parks of Hamilton County) observed heavy ash leaf spot on small trees growing in a naturalized area. Fungal leaf spots on ash may be caused by two different fungi: *Mycosphaerella effigurata* and *M. fraxinicola*. The diseases associated with these fungi are sometimes called Mycosphaerella leaf spot. Other names used in the past include "Piggotia leaf spot," and "Phyllosticta leaf spot."

Leaf spots caused by *M. effigurata* appear as small, deep purple or yellow fleck-like spots on the upper leaf surface. Leaflets can become covered by hundreds of tiny spots making them look like they were splashed with specks of paint. Fruiting structures that eventually arise from the spots in late summer may give leaflets a sooty appearance. Leaf spots caused by *M. fraxinicola* are initially pale green, irregularly shaped, and much larger measuring as much a 1/2” in diameter. The spots may coalesce causing the entire leaflets to die.

In past years, both types of fungal ash leaf spots have been observed in Ohio on trees that had been treated with systemic insecticides to protect the trees against EMERALD ASH BORER (*Agrilus planipennis*) (EAB) leading to the misconception by tree care clients that the insecticides caused the spotting. Of course, EAB treatments have nothing to do with the leaf spots. Several arborists in the Walk-About group noted that they are educating their clients to not expect "perfect trees" after insecticide treatments to protect against EAB. The insecticides have no impact on fungal diseases such as the leaf spot, ash anthracnose, ash yellows, and *Verticillium* wilt. Indeed, ash yellows and Verticillium wilt are tree killers, just like EAB.

Severe infections by both fungi can cause premature defoliation. Unfortunately, there are no fungicidal control recommendations. The fungi overwinter in fallen leaves and disease development is favored by wet weather in the spring. Close proximity to the fungal inoculum from fallen leaves coupled with
reduced air circulation causes leaves located lower in the canopy to become more heavily infected compared to leaves higher in the canopy. Consequently, disease severity may be reduced by raking and destroying fallen leaves, pruning to increase air circulation, and avoiding wetting the leaves with irrigation.

Author: Joe Boggs

D. CHLOROTIC CANADA THISTLE. Participants in this week’s Southwest Ohio BYGLive! Diagnostic Walk-About also observed Canada thistle plants with "bleached tips;" the result of infections by the bacterium Pseudomonas syringae pv. tagetis (PST). The bacterium produces a chemical called tagetitoxin that is a RNA polymerase III inhibitor that blocks the production of chloroplasts. Walk-About participants noted that the symptoms could be mistaken for exposure to photosynthesis-inhibiting herbicides such as the triazines (e.g. atrazine) and nitriles (e.g. bromoxynil). Of course, the herbicides would tend to affect the entire plant whereas PST only affects the upper portions of infected plants and is described in the literature as "apical chlorosis."

PST infections will not only produce chlorotic stems and foliage, but also will reduce seedhead production and can occasionally cause plant mortality. The bacterium received a great deal of research attention in the early 2000s as a possible biocontrol agent for Canada thistle. Such an approach would be desirable for sensitive sites such as animal pastures where herbicide selection is limited, or for organic farming where standard herbicides are barred from use altogether.

However, researchers needed to answer two basic questions. First, can PST be successfully cultured on a large scale? Unfortunately, PST has defied being cultured in a laboratory; all testing thus far has been done using extracts from infected plants. The second question: can PST provide an efficacy equivalent to a standard herbicide? The answer my friend, is blowing in the wind. Despite several research trials that yielded promising results including one trial where flower head production was reduced by 87%, Canada thistle is such a prolific seed producer that researchers have concluded PST would not be able to overcome re-seeding by surviving plants. Still, as the Walk-About participants observed, PST infections can arise on their own without human assistance … hope springs eternal.

Author: Joe Boggs

5. TURF TIPS.

A. RED THREAD REDUX. Joe Rimelspach, Turfgrass Pathology Ohio State University Extension Specialist, dropped a "red thread bombshell" on the assembled BYGL group stating RED THREAD, pathogen Laetisaria fuciformis, is not just related to a lack of nitrogen; although, that is most often what we assume is lacking in the turfgrass. Joe made us all see red when he told us that research indicates that phosphorus deficient turfgrass is also very prone to the red thread disease! Joe’s own writings, from a May 19, 2011 Turfgrass Pathology Program update states, "Malnourished turf often has a chronic case of red thread. Deficient nitrogen and/or phosphorous fertility levels can result in serious outbreaks." Then a little later in that same update he wrote, "The most important nonchemical (cultural) control option involves implementing an adequate fertility program. A good fertility program implemented over two to three years will drastically reduce further red thread problems. If soil is low or deficient in phosphorous the disease is often severe."

The questions then began exploding— how long have we known this… how can one remediate low phosphorus levels in turfgrass when all turf-oriented fertilizers contain ZERO phosphorus? Joe explained to the group that the phosphorus usage or lack thereof issue, has become a very big concern
for turfgrass researchers, specialists and managers. He indicated that if the soil tests indicate the phosphorus soil levels to be too low, then most turfphiles will use a “starter fertilizer”. A typical starter fertilizer will contain a higher amount of phosphorus (e.g. 21 – 24 - 4, 18 – 24 - 6, 9 – 13 - 7, etc.) to remediate the deficiency. Then once all of the important major nutrients (i.e. phosphorus, potassium and calcium) have been restored to adequate levels, one may return to simply using nitrogen on the turf. Once again, Joe has clarified the red thread ruckus and reminds us… Okay, let’s pay more attention to the details people - class dismissed!

Author: Erik Draper

6. WEATHERWATCH.

A. WEATHER UPDATE. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from July 1-9, 2014, with the exception of the soil temperatures which are readings from Thursday, July 10, 2014 at 5:05 a.m.

With this year half over, recent precipitation amounts have been scattered throughout the state. Even within a county, there are areas that have received abundant rainfall, where others nearby have been dry as rain has gone north or south. The average temperatures in July at the selected stations range from the high seventies to the low eighties for the first nine days in July—slightly below average for this time of the year.

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For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/cenrnet/weather.htm].

Author: Amy Stone

7. COMING ATTRACTIONS.

A. PERENNIAL PLANT ASSOCIATION PERENNIAL PRIMER. All day symposium at the Netherland Hilton Hall of Mirrors in Cincinnati on July 28, 2014. Top perennial speakers will be Tony Avent, Paul Cappiello, Susan Martin, Jennifer Brennan, Gene Bush, and Laura Deter. For more information and registration visit: [http://events.r20.constantcontact.com/register/event?oeidk=a07e96pflsf38b4bdf6&llr=8swoa7cab].

B. NW OHIO GREEN INDUSTRY SUMMER SESSION. Don’t miss this year’s NW Ohio Green Industry Summer Session. The program will be held on Wednesday, August 6, 2014 at Owens Community College. The program will include a keynote address by Matt Ross. Matt previously worked for The Toledo Botanical Garden and Owens Community College, and is currently working at
Longwood Garden in Pennsylvania. It will be great to have Matt back in NW Ohio for this program. Additionally, there will be 16 concurrent sessions that participants can choose from throughout the afternoon from the plant track, best practices track, diagnostic track, and pest track, and will include credits from both ODA and ISA. Registration will go live next week.

C. PESTICIDE SAFETY TRAINING. New Commercial Applicators and Training Servicepersons, August 27, 2014. Core and Trained Serviceperson trainings are held in the morning, and Categories 8, 5, 2c, and 6c in the afternoon. The session will be held at the ODA in Reynoldsburg, Ohio. For more information about the event, check out the PestED website at [http://peed.osu.edu].

D. PLANT TRIALS DAY AT THE CINCINNATI ZOO & BOTANICAL GARDEN. This all day symposium will take place August 28, 2014. Speakers include legendary plantsmen/nurseriesmen Roy Klehm of Beavercreek and Song Sparrow Nurseries and Bill Hendricks of Klyn Nurseries; top perennial trials expert Richard Hawk, Chicago Botanical Garden; top annual trials expert Susie Raker, Raker's & Sons; and Steve Foltz and Scott Beuerlein. For more information and to register visit [www.cincinnatizoo.org].

E. FARM SCIENCE REVIEW. This year’s Farm Science Review takes place September 16th - 18th, 2014 at The Ohio State University’s Molly Caren Agricultural Center outside London, OH. Participants can peruse 4,000 product lines from 600 commercial exhibitors, and capitalize on educational opportunities from Ohio State and Purdue University specialists. For in-depth information on natural resources, visit the Gwynne Conservation Area during the review or visit [www.gwynne.osu.edu] for more information now. Farm Science Review pre-show tickets are $7 at all OSU Extension county offices, many local agribusinesses, and also online at [http://fsr.osu.edu/visitors/tickets]. Tickets are $10 at the gate. Children 5 and younger are admitted free. Hours are 8 a.m. to 5 p.m. Sept. 16th-17th and 8 a.m. to 4 p.m. Sept. 18th.

F. PESTICIDE SAFETY TRAINING. New Commercial Applicators and Training Servicepersons, September 24, 2014. Core and Trained Serviceperson trainings are held in the morning, and Categories 8, 5, 2c, and 6c in the afternoon. The session will be held at the ODA in Reynoldsburg, Ohio. For more information about the event, check out the PestED website at [http://peed.osu.edu].

G. WOOD-DESTROYING INSECT INSPECTION TRAINING. October 8, 2014. Mandatory training is required for applicators becoming licensed in commercial Category 12. Recertification credit is available. The session will be held at the ODA in Reynoldsburg, Ohio. For more information about this event, check out the PestED website at [http://peed.osu.edu].

8. BYGLOSOPHY. "Adopt the pace of nature: her secret is patience." - Ralph Waldo Emerson

APPENDIX
ADDITIONAL WEBSITE RESOURCES:

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

Buckeye Turf
http://buckeyeturf.osu.edu

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

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

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

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

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

Ohio State University Extension Bee Lab
http://u.osu.edu/beelab/

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

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

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

USDA APHIS Beetle Buster Website (Asian Longhorned Beetle)
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 July 8th conference call: Pam Bennett (Clark); Joe Boggs (Hamilton); Julie Crook (Hamilton); Erik Draper (Geauga); Gary Gao (Piketon); Denise Johnson (Master Gardener Volunteer Program); Jacqueline Kowalski (Cuyahoga); Ashley Kulhanek (Medina); and Cindy Meyer (Butler); Joe Rimelspach (Department of Plant Pathology); and Randy Zondag (Lake).

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

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BYGL is available online at: [http://bygl.osu.edu], a website sponsored by the Ohio State University Department of Horticulture and Crop Sciences (HCS) as part of the "Horticulture in Virtual Perspective." The online version of BYGL has images associated with the articles and links to additional information.
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Keith L. Smith, Associate Vice President for Agricultural Administration; Associate Dean, College of Food, Agricultural, and Environmental Sciences; Director, Ohio State University Extension; and Gist Chair in Extension Education and Leadership.