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Buckeye Yard and Garden Line (BYGL) enhanced with photos and links is available online at: [http://bygl.osu.edu]. Become a fan of the BYGL on Facebook at [http://www.facebook.com/OSUBYGL] or follow the BYGL on Twitter at [http://www.twitter.com/OSUBYGL].

This is the 28th 2013 edition of the Buckeye Yard and Garden Line (BYGL). BYGL is developed from a Tuesday morning conference call of Extension Educators, Specialists, and other contributors in Ohio.

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**BYGL NOTICE.** This is the last BYGL (Beagle) for the 2013 season; the BYGL is retreating to its doghouse for a long winter's nap. We're sure we all agree: the 2013 BYGL season went too fast, doggone it!

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1. **PLANTS OF THE WEEK.**

*PERENNIAL - LITTLE BLUESTEM 'BLUE HEAVEN' (Schizachyrium scoparium).* In the National Grass Trials at the Ohio State University Extension site in Clark County (see more details below), this cultivar of little bluestem has done well all season and is still going providing outstanding color. This 2007 introduction is a selection from the work that trial coordinator Mary Meyer has been doing at the University of Minnesota.

The height is around 3' tall by about 2 1/2' wide. The compactness of this plant lends to the fact that the foliage doesn't lodge or flop. The foliage is a silvery blue in the early season and turns an incredible purplish-red and orange in the fall. Flowers appear in late July and last most of the season.

Little bluestem is quite tolerant of a wide range of soil conditions and did not require additional irrigation during this past growing season in the Ohio trials. Place in full sun for best results.
VEGETABLE - PUMPKINS (Cucurbita spp.). Have you picked your pumpkin for carving or decorating this season? Pumpkin patches have probably been hopping with the recent run of beautiful weather. In addition to the traditional uses as a jack-o-lantern, pumpkins can also be used to make pies, rolls, bread, cookies, and soup.

Pumpkins can be harvested whenever they are orange, unless of course they are non-traditional in color (blue, pink, yellow, cream and white). In addition to the rainbow of color choices, bumpy or warty pumpkins can also be picked. They come in a variety of shapes and sizes too. There is a perfect pumpkin for everyone!

WOODY - BLACK TUPELO (Nyssa sylvatica). Black Tupelo, also known as Black Gum, Sour Gum, or Pepperidge, is known for its glossy dark green summer foliage. This tree is even more known for its outstanding autumn foliage colors of yellow, orange, bright red, scarlet, and purple. When these trees are planted "en masse" onlookers stop in their tracks to view the spectacular sight. When mature, black tupelo can reach heights of 60 - 80' and close to 25' in width. Black Tupelo is native to the entire eastern US, and is found in all of Ohio except for the northwestern part of the state. This tree grows best in full sun or partial sun. Black Tupelo strongly prefers moist, well-drained, rich, deep, acidic soils, but adapts surprisingly well to dry, average, alkaline soils. This tree has very few pest and disease problems.

WEED - KUDZU (Pueraria Montana). Kudzu has been called the "vine that ate the south." Recently it has been gaining a foothold in the north - more specifically here in Ohio. In addition to its invasive behavior, it is also a host of soybean rust. There is also a beetle that eats kudza, but unfortunately it also attacks soybeans. Two strikes if you are a soybean grower.

Kudzu was introduced to the United States in 1876 at the Philadelphia Exposition. In the 1930s it was widely planted for erosion control. Then it became popular as a forage crop as well. There are estimates that 300,000 acres of kudza was 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, and houses. It covers trees and power lines, often breaking them with the sure weight of the plant/vine.

Recently, there have been some suspect reports of kudzu reported on the GREAT LAKES EARLY DETECTION NETWORK APP. Those reports lead Joe Boggs to confirm three separate locations in Hamilton County in SW Ohio. We have also been made aware of a location in Cleveland in Cuyahoga County in NE Ohio. At each of these sites the plants where flowering and seeds had been set.

The leaves of Kudzu are compound with three leaflets that can span up to 7". The purple flowers are between 2 - 12", and are similar to the flowers set by the pea plant, and have a slight fragrance. Amy Stone described the scent as grape-like. The fruit 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 overground 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 app ([http://gledn.osu.edu](http://gledn.osu.edu)), or contacting your local Extension office.

2. HORT SHORTS.

A. SEASONAL NEEDLE YELLOWING AND DROP. This fall appears to be a dramatic one relative to the normal inner needle yellowing and needle drop on white pine. Each fall this seasonal needle yellowing comes as surprise to many, as does the seasonal needle yellowing in springtime that is noted on American hollies and yews. As for pines, no one has ever topped the lyrical explanation of Aldo Leopold in A Sand County Almanac who wrote:

"Pines have earned the reputation of being 'evergreen' by the same device that governments use to achieve the appearance of perpetuity: overlapping terms of office. By taking on new needles on the new growth of each year, and discarding old needles at longer intervals, they have led the casual onlooker to believe that needles remain forever green."
"Each species of pine [and spruce, and fir, etc.] has its own constitution, which prescribes a term of office for needles appropriate for its way of life. Thus the white pine retains its needles for a year and a half; the red and the jack pines for two years and a half. Incoming needles take office each June and outgoing needles write their farewell addresses in October. All write the same thing, in the same tawny yellow ink, which by November turns brown. Then the needles fall, and are filed in the duff to enrich the wisdom of the stand. It is this accumulated wisdom that hushes the footsteps of whoever walks under pines.”

B. FALL CLEAN UP FOR A BETTER SPRING GARDEN! Fall is an important time in landscape maintenance. Cultural practices completed prior to the beginning of winter will ensure a healthier landscape for next spring. Many pest problems and diseases encountered this season may survive until next season on or in plant debris.

Some of the fall crops can still be left in the garden for a while, however warm season vegetables are about done for the season. Remove all annual vegetable plants from garden beds in order to prevent overwintering insect and diseases. Diseased plants should not be composted unless the compost pile reaches temperatures that kill the pathogen; otherwise bag this material and place in the trash. Compost should be added to improve garden soil for next spring.

Take advantage of the autumn sunshine and spend some in your annual and perennial beds. Annuals should be pulled out of the ground with the roots included. Dead stems and foliage should be pruned on most perennials and wildflowers. Of course, this task is garden specific as some people prefer to leave certain herbaceous ornamentals such tall grasses uncut to enjoy their winter interest. Seed heads of achillea (yarrow), Echinacea, rudbeckia and other perennials are also important food sources for many of our overwintering bird species. Fall is also a great time to divide perennials and plant new perennials. Applying 2” of organic mulch to these newly planted perennials will help retain the soil temperature to encourage root growth and prevent heaving of plants over winter’s freeze and thaw cycles. Tender bulbs and tubers such as tuberous begonias, cannas and dahlias should be dug up and stored after the first frost.

Fall is also an excellent time to do corrective pruning of your trees and shrubs. Corrective pruning encompasses removal of dead, damaged, or diseased branches and the elimination of limbs that may be causing structural problems. Structural problems include branches that may be rubbing, those that are growing back to the center of the tree, and those with abnormally narrow crotch angles. As leaves drop from deciduous woody plants, it is easy to inspect and identify defects in your trees and shrubs. When not obscured by foliage it is easier to see canker formations, rubbing branches, splits or cracks in wood.

Putting your garden to bed this fall is just as important as any other gardening chore you perform throughout the season.

C. DEER-VEHICLE COLLISIONS PEAK IN FALL. It’s fall once again, a time for falling leaves, cool temperatures, pumpkins on doorsteps, Halloween costume shopping…and deer-vehicle collisions. Of all the months out of the year, October and November are on record as having the highest number of deer-vehicle accidents. In 2012, deer-vehicle collisions dropped 7.5% from the past few years (20,996 in 2012, 22,696 in 2011, and 23,201 in 2010). Only 20 of Ohio’s 88 counties showed an increase in deer-vehicle collisions, with Stark County followed by Richland and Hamilton Counties reporting the most accidents.

WHITE-TAILED DEER (Odocoileus virginianus) are on the move this time of year and that movement frequently takes them across back roads, urban streets, highways, and other roadways. Motorists are advised to take special precautions this time of year to avoid collisions, especially at dawn and after sunset, and during the hours of 5:00 p.m. - 1:00 a.m. and 5:00 a.m. - 8:00 a.m. Be extra careful throughout November, as last year’s number of accidents peaked at 5,050 collisions during the month. What can drivers around Ohio do to remain safe and decrease their chances of an accident?

* First of all, remember that breeding season for deer is October - December, and although most accidents occur in October and November, remain vigilant through December.
* Often times when there is one deer, there are more. If you see one deer cross the road ahead of you, slow down because there may be more on their way across.

* If a deer runs in front of your vehicle, brake firmly but try not to swerve. Swerving can cause the loss of control of your vehicle, which can lead to more damage to you and your car. The Ohio State Highway Patrol reports that more people are injured trying to avoid hitting a deer than those that don't.

* Pay special attention to deer crossing signs. They are there for a reason - to alert you of a high deer density area.

* Stay alert and constantly on watch especially during the dawn and dusk hours. Deer can be very unpredictable, especially when frightened. If you pass a deer on the road side, flash your lights at oncoming traffic to alert the other drivers of potential danger – a little warning can go a long way in avoiding an accident.

* Perhaps you have heard of the hood-mounted deer whistles and ultrasonic devices designed to scare away deer? Skip the purchase - wildlife biologists have found no evidence these devices work.

* Don't make the mistake in thinking that you will only encounter deer crossing roads in rural parts of the state. In fact, urban and suburban areas are also prime sites for deer vehicle collisions. More and more frequently, urban areas around Ohio are becoming home to substantial white-tailed deer populations.

* Finally, and possibly most important - because a deer-vehicle collision cannot always be avoided no matter how vigilant you are - wear your seat belt. Luckily, most deer vehicle collisions don't result in human fatalities; however the number of crash deaths is increasing in almost every state, including Ohio, which is one of the top 5 states with the highest fatalities. In a study completed by the Highway Loss Data Institute, 60% of the people killed in an animal collision accident were not wearing their seat belts. So be sure to buckle up.

Be safe on the roads this fall season!

D. BE PREPARED AGAINST WINTER RABBIT DAMAGE. The eastern cottontail rabbit (Sylvilagus floridanus) can be responsible for a considerable amount of damage no matter the season. In the spring rabbits feast on greening vegetation such as clover, herbs, and flowering plants, leaving plenty of time for crops to ripen (fruits, vegetables, legumes), which are preferred summer foods. Once fall and winter roll around, rabbits will turn their attention to woody plants for sustenance, eating the bark, buds, stems, and tender twigs of a variety of shrubs, vines, and young trees.

Winter damage by rabbits is fairly easy to identify. Older woody growth will have evidence of gnawing, with marks from the rabbit's two front incisors usually evident. Twigs, vines, and stems will be neatly clipped off at a characteristic 45 degree angle. Round droppings in the area can also be used to identify rabbit damage (they are about the size, shape, and color of Cocoa Puffs cereal). Keep in mind that rabbits are light enough to traverse on top of snow cover. Once the snow melts, the damage can be deceiving as it will appear to be much higher than a rabbit can reach. In places where snow drifts can reach 4 - 5' high, it's not uncommon to see rabbit damage to woody stems reaching that high.

Protect your woody plants this winter by surrounding them with a protective cylinder of hardware cloth or chicken wire. This barrier between your plant and hungry rabbits should be as tall as a rabbit's reach (about 2.5') while standing on the expected snow depth (perhaps another foot depending on where you live in Ohio). A mesh size of 1/4" is ideal but can be more expensive than larger mesh sizes. If you use mesh larger than 1/4", leave enough space between the plant and cylinder to prevent a rabbit from reaching tasty twigs through the mesh. Commercial tree guards are also an option, and serve the same purpose, if you do not want to make your own.

A dome or cage of chicken wire or hardware cloth can also be used to protect your early blooming flowers in the spring. Creating a barrier between the plants and rabbits is often a successful tool against rabbit damage throughout the year if other attempts, such as repellents, have failed. For more information on managing rabbit damage visit [http://www.icwdrm.org].
E. NATIONAL GRASS TRIALS. Ohio State University Extension in Clark County is the host of one of 17 sites participating in these ornamental grass trials. Partnering with 12 Universities, Pam Bennett is evaluating multiple cultivars of 2 genera of ornamental grasses, *Schizachyrium* (little bluestem) and *Panicum* (switchgrass). Planted in 2012, this 5 year trial is designed so that people across the country can view how these cultivars perform under different conditions.

Each trial site conducts visual ratings, collects heights and widths, overwintering and re-seeding information, and provides photos of the cultivars. Information about all of the sites and plants can be found at this site: [http://grasstrials.com](http://grasstrials.com).

Pam reported that for the most part, all of the cultivars performed quite well during this growing season. Watch for information next spring to learn which cultivars overwintered easily and perhaps which re-seeded.

3. BUG BYTES.

A. MANTIDS, MANTIDS EVERYWHERE! This is the time of the year when it seems that praying mantids are everywhere! Actually, the numbers haven't increased, only the size of the mantids as well as their behavior. When mantids hatch from eggs, the "nymphs" are very small and hard to spot as they skitter about on the foliage of plants. The immature mantids gradually become larger with each molt until they finally molt into adults. That's what is happening right now, and the large adults are simply easier to see compared to the smaller nymphs. Also, mature mantids are very interested in mating as well as eating. Indeed, the females of some species are interesting in doing both at the same time! The mantids become more obvious as they move about in search of a mate.

Mantids are large insects with some species reaching 5 - 6" in length. Females tend to be larger than males, particularly when their abdomens become swollen with eggs. Mantids range in color from solid brown or solid green, to the two-tone color motif of a green body with brown wings. There are several mantid species found in Ohio. The most common species are the CAROLINA MANTID (*Stagmomantis carolina*), a native species; the EUROPEAN MANTID (*Mantis religiosa*), an introduced species; and the CHINESE MANTID (*Tendora aridifolia*), also an introduced species. The Carolina mantid is the smallest of the three and the Chinese mantid is the largest.

All mantids are predators and their meat-eating life style is personified by their specialized raptorial forelegs. Their common name comes from the position they hold their front legs while at rest; they look like they are praying. Of course, once a mantid locates its victim, it's their prey who should be praying! Few victims elude death once they've felt the hug of a mantid. This includes male mantids; the females of some species are notorious for their cannibalistic behavior towards their mates. The femme fatale mantid may consume an amorous male right after mating or shortly after ... gives a different meaning to the saying "hugs and kisses."

Mantids are often highly touted as biological control agents; however, there are usually not enough of them in one spot (they're very territorial) to keep damaging insect populations in check. Additionally, mantids do not discriminate between pestiferous and beneficial insects. Mantids of all species are plentiful and there are no endangered species nor are there species that are protected by state or federal laws.

B. LADY BEETLE CURIOSITY. Most people think lady beetles are meat-eaters. In fact, the vast majority of lady beetle species are predators and they will chow-down on any insect or mite that they can get their mandibles around. Both the adults and larvae are meat-eaters with some types of lady beetle larvae looking like a miniature alligator. When you see these larvae lurking among aphids, think of a lion hunting wildebeests grazing on the Serengeti Plains!

However, there is one species of lady beetle that eschews meat for a fungal diet; they are grazers. As its common name indicates, the "Powdery Mildew Eater" (*Psyllobora vigintimaculata*) makes a living eating powdery mildew fungi. Indeed, research has shown that the tiny beetles will starve to death rather than munching on common lady beetle table fare such as armored scale nymphs or spider mites. The beetles have specialized mandibles armed with rake-like "teeth" that are used to snarf fungal conidia and spores. Joe Boggs reported observing an adult beetle on
an oak leaf with powdery mildew; there were areas with missing powdery mildew where the beetle has grazed upon the fungus.

Both the larvae and adults feed on powdery mildew and they are very small; adult beetles measure less than 1/8" long. To find them, you must look closely at plant leaves covered in powdery mildew. The brownish-black spots on the beetle are an identifying feature; "vigintimaculata" is Latin for "twenty-spotted." Unfortunately, research has shown that the beetles have a limited impact on their fungal larder; the powdery mildews reproduce faster than the beetles can feed. Regardless, the lady beetle - powdery mildew relationship is fascinating nature story about how the diversity of insects can challenge our preconceived notions.

C. AILANTHUS ARCHENEMY. Tree of Heaven (Ailanthus altissima) was first brought from China to the US in 1784. The reviews were positive for over a century; this tough tree seemed to be able to grow anywhere. Betty Smith, in her 1943 book, "A Tree Grows in Brooklyn" used the tree as a metaphor for overcoming difficult trials: "There's a tree that grows in Brooklyn. Some people call it the Tree of Heaven. No matter where its seed falls, it makes a tree which struggles to reach the sky. It grows in boarded up lots and out of neglected rubbish heaps. It grows up out of cellar gratings. It is the only tree that grows out of cement. It grows lushly...survives without sun, water, and seemingly earth. It would be considered beautiful except that there are too many of it."

Smith's final sentence captures the essence of the problem. In recent years, the seemingly unstoppable nature of this tree has positioned it at or near the top of most lists of noxious non-native invasive plants; Tree of Heaven has become Tree of ....

Aside from the expansive ability for this tree to grow under the most difficult conditions, it also lacks natural enemies; almost nothing likes to eat this tree's leaflets. Nothing except for Ailanthus webworm (Atteva aurea)! The caterpillars of this ermine moth (Family Yponomeutidae) feed exclusively on Tree of Heaven. The caterpillars consume leaflets enveloped by their webbing and the silk nests can include several hungry caterpillars. The onslaught continues through multiple generations of caterpillars per year with the caterpillars capable of defoliating their odoriferous namesake host. Unfortunately, feeding by this webworm has yet to halt the spread of tree of heaven, although hope springs eternal since this is one of only a few insects known to infest this encroaching non-native interloper.

D. WINDSHIELD WIPES. BYGLers also ran into several other insect pests this week including:

* Pam Bennett reported encountering a large population of GIANT BARK APHIDS (*Longistigma caryae* or *Pterochlorus viminalis* = GIANT WILLOW APHID) on a willow tree on The Ohio State University Columbus Campus. It was not the aphids that first drew her attention to the infestation, it was the swarms of yellowjackets clustered around the massive accumulations of honeydew under the infested tree. Once she looked up and spotted the aphids on the stems and branches of the tree, it was both obvious what produced the honeydew and surprising at the size of the individual aphids. These very large aphids are commonly noticed on the bark of deciduous trees in the late summer. The aphids are grayish black, and found in dense clusters on the bark of 1 - 3 year old stems on infested trees.

The giant bark aphid may be found on a variety of trees such as elm, sycamore, oak, maple, basswood, birch, walnut and willow. This aphid measures 1/4" in length. Its long legs make it appear even bigger. The giant willow aphid is found only on the stems of willow (including pussy willow and Austree). The size is approximately 3/16".

Bark aphids feed on sap from inside the twigs. Heavy infestations and severe sap loss may result in stunting or more severe injury including twig dieback. However, otherwise healthy trees often sustain very large populations without any observable affects. Controlling aphids in late summer or fall is usually not warranted.

4. DISEASE DIGEST.

A. DOWNY MILDEW OF IMPATIENS. Julie Crook reported confirmation of downy mildew on impatients in a landscape planting in southwest Ohio. Her report prompted a discussion among BYGLers on the current status of
this disease. Last season, the discovery of this destructive plant disease in Ohio made top news. However, Nancy Taylor noted that documented occurrences of this disease in Ohio, meaning samples were sent to the PPDC for confirmation, have been notably lacking this season.

BYGLers speculated that there are several possible reasons for the drop-off. First, the overall availability and use of impatiens has declined considerably compared to previous years; no doubt the discovery of the disease played a significant role. Second, as the greenhouse industry became more aware of the disease, proactive measures were successfully adopted to manage this disease.

Finally, it was speculated that perhaps the disease is still occurring on impatiens in Ohio landscapes; however, as landscapers have become more aware of the problem, they are making a "field diagnosis" without sending samples to confirm the disease. Of course, this can create an over-estimated anecdotal estimation of disease occurrence as other plant problems are misdiagnosed as downy mildew, or an underestimation of the actual occurrence of the disease since samples are not being sent to clinics. Both problems create serious issues with trying to determine the current status of the disease in Ohio!

Impatiens downy mildew is caused by *Plasmopara obduscens*. It causes plants to defoliate, leaving bare stems which eventually collapse leading to plants that may be unmarketable for the producer and unacceptable for the landscape owner. The pathogen is able to survive in plant debris in the landscape for a number of years. Thus, if landscapers suspect they are dealing with downy mildew, it's very important to confirm the existence of the pathogen because the soil will remain infectious. However, if the impatiens are being affected by another problem, there may be no problem with planting impatiens in the same site next season.

5. TURF TIPS.

A. TIME TO START WINTERIZING TURFGRASS. There are a couple of key maintenance operations to perform in the fall to help turfgrass survive the winter and support early spring growth. Three important operations are (1) late season fertilization; (2) coring/aerification; and (3) dormant over-seeding.

(1) Late Season Fertilization (LSF): This type of fertility program involves the application of much of the season's nitrogen during the late months of September through December. It is important that late season fertilization not be confused with dormant and/or winter fertilization. The latter method implies that fertilizer applications are made after the turf has lost most or all of its green color and is not actively growing. This differs notably from the late season concept, which requires that nitrogen be applied before the turf loses its green color in the late fall. Late season fertilization is popular because many of the agronomic and aesthetic advantages attributed to its use supposedly are not achieved when spring and/or summer fertilization are practiced. Purported advantages of the late season concept include:

* Better fall and winter color;
* Earlier spring green-up;
* Increased shoot density;
* Improved fall, winter, and spring root growth;
* Enhanced storage of energy reserves within the turf plant;

Timing for LSF: The late-season nitrogen fertilization concept is designed to apply nitrogen during that period of the year (late fall) that will favor root growth over shoot growth. Shoot growth of cool season grasses occur most readily in the temperature range of 50 - 65F. Root growth of cool season grasses will continue at soil temperatures close to freezing. When air temperatures in late fall consistently drop below 50F shoot growth slows or ceases but soil temperatures are still in the favorable range for significant root, rhizome, and stolon growth. LSF capitalizes on this differential in optimum temperatures for growth of roots versus shoots. The timing of LSF should be made
when vertical shoot growth has stopped, but the turf leaves are still green. Vertical shoot growth of cool season grasses will generally slow and stop at air temperatures of 45 - 50F.

Fertilizer Rate and Type for LSF: The most efficient nitrogen fertilizers for LSF are those independent of temperature for nitrogen release. Urea, more water-soluble methylene ureas, IBDU, and SCU are less-dependant on temperature for nitrogen release and, therefore, make excellent LSF nitrogen sources. Nitrogen rates should be in the range of 1 - 1.5 pounds of actual N/1000 ft2. Proper rate and nitrogen source will result in significant carryover of nitrogen for early spring green-up the following season. The standard spring fertilizer can then be reduced or eliminated, thus avoiding a spring fertilization growth surge in 2014. Don't couple LSF with traditional spring nitrogen fertilization rates - this defeats the purpose of the LSF strategy. Finally, remember the best agronomic duo in the late fall is LSF and late fall core aeration.

(2) Compaction Relief Through Core Aerification: Late fall core aeration provides many benefits. Above all, soil compaction is reduced by coring and this encourages increased root length and mass. In addition, returning the soil cores to the grass surface helps to reduce thatch. The soil cores, which naturally contain microbes, mix with the thatch layer resulting in greater microbial activity and rapid thatch disintegration. A reduced thatch layer reduces plant stress because the soil holds more moisture than thatch plus fertilizers and pesticides applied are more available to the grass roots. Ideally, the core holes should impact about 8 - 10% of the turf surface, which is around 10 - 15 holes per ft2. Done in conjunction with LSF, this operation will have a major effect on turf health next spring.

(3) Dormant Overseeding: Late fall coring can be followed by dormant over-seeding. The time has passed for the best probability of successful fall seeding (August 15th to September 15th), so the seed should be applied later in the fall (Thanksgiving & beyond) as a "dormant" seeding. This means that the seed will not germinate until spring 2014.

B. JUST KEEP MOWING! There is an age-old suggestion to lower mowing heights in the fall to avoid turf diseases developing during the winter. This is not necessarily accurate. Ohio State University turfgrass specialists say that it is more important to KEEP MOWING until the grass stops growing for the season. Often grass requires mowing late into October-November in Ohio and the mowing height should be maintained at 2.5 - 3" until snow cover.

Snow mold is more likely to develop on turfgrass buried under fallen leaves and where objects laid for several days than from a higher cut, or in areas that did not receive many hours of sunshine in the afternoon. Grass not mown going into the winter may slump over and mat down creating the perfect environment for snow mold. Some professional turfgrass managers may lower mowing heights 1/2" at the end of the season, but the advice to most turf managers is to just to keep mowing!

C. BROADLEAF WEED CONTROL. Although proper turfgrass maintenance programs can greatly reduce the invasive pressures of the various turfgrass weeds, even the highest quality turfgrass areas will occasionally be invaded by one or more weed species. While a few weeds can be physically removed, considerable weed encroachment may require chemical controls. Fall is the best time of year to control many of the perennial broadleaf weeds (e.g. dandelions, violets, ground ivy). Fall applications of herbicides are more effective than applications made in other seasons because of the natural direction of movement of materials within the plants in the fall. At this time of the year, materials are primarily being translocated downward into the roots and underground storage system of the plant. Fall applied herbicides go with the "flow" and are carried along with the other materials. Herbicides such as 2,4-D, dicamba, MCPP, and combinations of these products function very well in managing perennial broadleaf weeds in the fall.

Fall is also the ideal time to control other problematic weeds around landscapes, parking lots and roadsides such as poison hemlock, wild carrot, common and cut-leaf teasel, and common burdock. The targets for fall herbicide treatments are the low-growing, rosettes of biennial plants that are at the end of their first year of growth. These weeds are much more easily controlled when in this stage, compared with next spring/summer when plants are large with a well-established root.
6. INDUSTRY INSIGHTS.

A. HIGHLIGHTS FROM THE 16th ANNUAL BLUEGRASS-BUCKEYE BYGLIVE! Joe Boggs provided highlights from the 16th Annual Bluegrass-Buckeye BYGLive! held at Equus Run Vineyards in Midway (just northwest of Lexington), KY. At the top of the highlight list was recognition for the program's host, Larry Hanks (Pampered Properties, Lexington, KY). All agreed that the program's success was directly related to Larry's planning and dedication to providing a truly memorable educational experience. Kudos to Larry!

* Joe Boggs provided an update on ASIAN LONGHORNED BEETLE (ALB) (*Anoplophora glabripennis*) and THOUSAND CANKERS DISEASE (TCD) of walnut in Ohio. The ALB eradication program in Clermont County continues despite all of the USDA APHIS personnel being furloughed. The Ohio Department of Agriculture (ODA) is providing leadership and management of the program. The ODA is also conducting trapping on a grid layout in Butler, Warren, and Hamilton Counties using a pheromone that attracts the WALNUT TWIG BEETLE (*Pityophthorus juglandis*), the vector of the fungus (*Geosmithia* sp.) responsible for TCD. Thus far, it appears that the beetles have not spread far beyond their original point of discovery.

* An annual highlight of every Bluegrass-Buckeye BYGLive! is a research overview provided by Dan Potter (UK Entomology) and his graduate students. Jonathan Larsin (Ph.D. Candidate) recapped his research on the ecotoxicology of the insecticide chlorantraniliprole (e.g. Acelepryn). The insecticide represents a relatively new class of pesticide chemistry, the anthranilic diamides. Many compounds in this class are considered "reduced risk" insecticides because of their extremely low mammalian toxicity. For example, Acelepryn does not require a signal word on the label to describe the acute toxicity of the formulated product (e.g. danger, warning, or caution).

Anthranilic diamides have an unusual mode of action. The chemical binds to one of the receptors (the ryanodine receptor) that regulates the movement of calcium during muscle contractions and locks the calcium channel in a partially opened state. This results in an uncontrolled release of calcium and the subsequent disruption of muscle contractions. Dan described the overall effect as the muscles acting like a drained battery; they are no longer functional.

Jonathan found that if chlorantraniliprole is sprayed onto flowering clover while bumble bees are present, the insecticide had virtually no impact on the bees. In comparison, if the neonicotinoid, clothianidin (e.g. Arena), is applied to flowering clover, the insecticide was toxic to the bees. However, the toxicity declined significantly when the flower heads were mowed off. The bottom line is that both Dan and Jonathan noted that applicators should be very mindful of not making applications to plants while they are flowering; a recommendation currently found on labels, but no doubt be further emphasized on future insecticide labels.

* Emily Dobbs, another of Dan's outstanding graduate students (M.S. candidate), could not attend; however, Samantha Marksburry, who has worked closely with Emily presented a fascinating summary of the "Operation Pollinator" program. The program focuses on addressing habit loss to pollinators by planting native plants to establish "pollinator sanctuaries." The program has focused research on determining which mix of plants will provide the greatest support to pollinators. Samantha noted that they are about to release three types of seed mixes that are highly effective in attracting and supporting pollinators. She and Dan noted that the golf course industry has been an early supporter and adopter of Operation Pollinator.

* Diana Miller, a new graduate student (M.S. candidate) described her research project which will focus on endophyte enhanced tall fescue cultivars. Certain cultivars of turf-type tall fescue are known to harbor endophytic fungi. These fungi reside between plant cells within the turfgrass blades (= endo) where they enjoy a symbiotic relationship with the turfgrass plants. The fungi live off waste products exuded by plant cells. In return, the fungi protect turf plants by producing alkaloid compounds that are toxic to top-feeding insects. The alkaloids also affect grazing animals, but the toxicity is sub-lethal. Diana is going to assess whether or not endophyte enhanced tall fescue will reduce Canadian geese populations on airports; the geese have presented a considerable hazard to commercial aviation.
* Dan reported that he has initiated a fascinating research project with Carl Redmond (Post Doc) focused on learning about the spread and management of the notorious non-native invasive earthworm known as the GREEN STINK WORM (a.k.a. Crazy Worm, Alabama Jumper) (*Amynthas agrestis*) on golf courses. This Asian invader has wreaked havoc on ecosystems in the Great Smokey Mountains as well as other North American forests.

Unlike our more subdued native earthworms and even many non-native European earthworms, the green stinker operates like an earthworm on crack! It is constantly active and its non-stop activity produces huge piles of earthworm castings that can render golf course greens un-playable. Dan suspects the worms may be getting introduced to golf courses in sand harvested from rivers; the sand is spread in top dressing or used in the construction of sand-based tees and greens. He hopes to establish the sources of the worms as well as methods to reduce their populations on golf courses.

* Sarah Vanek, (Extension Associate for Nursery Crop Production, University of Kentucky) presented her program she is developing to increase the efficiency of nursery production. She noted that early interviews with nursery producers revealed that since the economic down-turn has reduced overall nursery sales, increased profitability must focus on increased efficiency in production. She has worked closely with Oregon Association of Nurseries to bring their "Lean" program to Kentucky. The program is designed to enhance profitability by bringing nursery products to market at a lower cost, in a shorter time, with fewer defects and with less human effort. Participants at the Bluegrass-Buckeye BYGLive! remembered Sarah from her M.S. research on two "soft scales": the OAK LECANIUM SCALE (*Parthenolecanium quercifex*); and the MAGNOLIA SCALE (*Neolecanium cornuparvum*).

* Joe Collins with the Office of the Kentucky State Entomologist presented an update on EMERALD ASH BORER (EAB) (*Agrilus planipennis*) and HEMLOCK WOOLLY ADELgid (HWA) (*Adelges tsugae*) in Kentucky. Thus far, EAB can be found in 28 counties; 4 more counties were added this season. Kentucky is involved in the release of EAB parasitoids and they will be monitoring for recovery of these beneficials next season. HWA has only been found in the extreme eastern counties and Joe reported on efforts to utilize a small lady beetle, *Laricobius nigrinus*, that is native to the Pacific Northwest to manage HWA. The beetle was originally imported from British Columbia, Canada, to manage HWA in North Carolina. It has become established in North Carolina and has now been released in Kentucky (as well as Ohio). Thus far, predation rates as high as 90% have been observed on HWA in eastern Kentucky. Joe also noted that he and others are monitoring for TCD in Kentucky. Thankfully, the disease has not been detected in the state.

On a final note, he reported that several populations of the RED IMPORTED FIRE ANT (*Solenopsis invicta*) were discovered this past season in the Land Between the Lakes (LBL) region in western Kentucky. The ants practice an unusual method of distribution in connection to river flooding; they are capable for forming "ant rafts" consisting of balls of ants that float of the surface of flood waters. The balls constantly rotate to allow all the ant passengers to get a breath of air now and then. Once the ant rafts encounter dry soil, the ants unlink and move onto dry ground to establish new colonies. The LBL National Recreation Area is bounded by two rivers, the Cumberland and Tennessee, that flow north out of fire ant quarantine areas.

* Julie Beale (Plant Diagnostician/Research Specialist, UK Department of Plant Pathology, UK Plant Disease Diagnostic Laboratories) provided an overview of some top landscape plant diseases produced by PHYTOPLASMAS. 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 and are naturally spread from plant to plant by sucking insects, particularly leafhoppers. Indeed, Julie focused on the tree-killing disease ELM YELLOWS that is produced by an unnamed phytoplasma that is spread from tree to tree by WHITE-BANDED ELM LEAFHOPPER (*Scaphoideus luteolus*). The phytoplasma is also spread from infected to healthy trees by root grafts.

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

Julie also showed samples of broadly flattened, elongated stems; a symptom known as "fasciation," that is caused by a phytoplasma infecting roses. She noted that while field diagnostics can provide some direction pointing to a phytoplasma infection, the only sure-fired way to confirm the presence of the pathogen on roses, elms, or other trees or shrubs is by sending samples to the Clinic where they can perform a DNA analysis known as a polymerase chain reaction (PCR) assay.

Next year's 16th Annual Bluegrass-Buckeye BYGLive! will be held on Monday, October 6, 2014, in the Lexington, KY, region. So, mark your calendars!

7. WEATHERWATCH.

A. WEATHER UPDATE. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from January 1 - October 15, 2013, with the exception of the soil temperatures which are readings from Tuesday, October 15, 2013 at 5:05 p.m.

<table>
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<tbody>
<tr>
<td>Ashtabula</td>
<td>NE</td>
<td>60.0</td>
<td>42.9</td>
<td>32.26&quot;</td>
<td>31.1&quot;</td>
<td>65.74/69.22</td>
</tr>
<tr>
<td>Wooster</td>
<td>NE</td>
<td>63.4</td>
<td>43.5</td>
<td>29.48&quot;</td>
<td>32.1&quot;</td>
<td>69.50/69.09</td>
</tr>
<tr>
<td>Hoytville</td>
<td>NW</td>
<td>64.1</td>
<td>43.4</td>
<td>30.29&quot;</td>
<td>26.9&quot;</td>
<td>65.89/67.03</td>
</tr>
<tr>
<td>Columbus</td>
<td>Central</td>
<td>66.1</td>
<td>46.7</td>
<td>30.61&quot;</td>
<td>34.8&quot;</td>
<td>72.73/71.27</td>
</tr>
<tr>
<td>Piketon</td>
<td>South</td>
<td>67.4</td>
<td>45.6</td>
<td>27.21&quot;</td>
<td>30.8&quot;</td>
<td>76.12/74.28</td>
</tr>
</tbody>
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For a link to the OARDC Weather Stations, visit: [http://www.oardc.ohio-state.edu/centernet/weather.htm].

8. COMING ATTRACTIONS.

A. EMERALD ASH BORER UNIVERSITY. Emerald Ash Borer University (EABU) has some online web-based sessions on the calendar. The following sessions will begin at 11:00 a.m. EST and will last approximately one hour. Participants can access each live session, or any of the recorded sessions from the past, through the regional EAB website at [http://emeraldashborer.info].

* October 24, 2013; US Regulatory Measures to Control Invasives and Limit Introductions Using the Case Study of ALB in Massachusetts; Presenter - Clint McFarland, USA APHIS Federal Project Manager, ALB Eradication Program.

* November 7, 2013; Building an EAB Management Program From the Ground Up: Milwaukee's Perspective; Presenter - Randy Krouse, City of Milwaukee.

* December 5, 2013; Economic Impact and Management of EAB in Woodlots, Classic Wood Utilization; Presenter - Eric McConnell, PhD., The Ohio State University, School of Environment and Natural Resources.

Questions about EABU, contact Amy Stone at [stone.91@osu.edu].

B. 2014 TRI-STATE GREEN INDUSTRY CONFERENCE. Save the date for the 2014 Tri-State Green Industry Conference to be held on February 6, 2014 at the Sharonville Convention Center, 11355 Chester Rd., Cincinnati, OH 45246. The Tri-State Green Industry Conference is a collaborative effort between the Extension Services of Ohio State and Purdue, and the Cincinnati Flower Growers Association (CFGA). It features a variety of high quality education and training for professionals in the areas of Annuals & Perennials, Greenhouse Management,
Tree & Shrub Care, Turfgrass Management, Green Infrastructure and General Pest & Disease Management and also features a vendor trade show. Pesticide recertification credits for Ohio, Indiana and Kentucky will be given, OCNT training credit is available, ASLA CEUs are available and CEUs will be available for ISA Certified Arborists.

For more information visit http://hamilton.osu.edu/topics/horticulture/2014-Tri-State-Green-Industry-Conference

9. BYGLOSOPHY.
October gave a party;
The leaves by hundreds came -
The Chestnuts, Oaks, and Maples,
And leaves of every name.
The Sunshine spread a carpet,
And everything was grand,
Miss Weather led the dancing,
Professor Wind the band.
- George Cooper, "October's Party"

APPENDIX - ADDITIONAL WEBSITE RESOURCES:
Ask a Master Gardener Volunteer (Consumer Gardening Questions)
http://mastergardener.osu.edu/ask

Buckeye Turf
http://buckeyeturf.osu.edu

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

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

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

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

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

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

USDA APHIS Asian Longhorned Beetle Website
http://www.asianlonghornedbeetle.com/

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

Following are the participants in the October 14th conference call: Pam Bennett (Clark); Joe Boggs (Hamilton); Julie Crook (Hamilton); Denise Johnson (State Master Gardener Volunteer Program); Ashley Kulhanek (Medina); Tim Malinich (Erie); Cindy Meyer (Butler); Any Stone (Lucas); Nancy Taylor (C. Wayne Elliot Plant and Pest
Diagnostic Clinic); Marne Titchenell (School of Environment and Natural Resources); and Curtis Young (Van Wert).

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

BYGL is a service of OSU Extension and is aided by support from the ONLA (Ohio Nursery and Landscape Association) [http://onla.org / http://buckeyegardening.com] to the OSU Extension Nursery, Landscape and Turf Team (ENLTT). Any materials in this newsletter may be reproduced for educational purposes providing the source is credited.

BYGL is available online at: [http://bygl.osu.edu], a website sponsored by the Ohio State University Department of Horticulture and Crop Sciences (HCS) as part of the "Horticulture in Virtual Perspective." The online version of BYGL has images associated with the articles and links to additional information.

Where trade names are used, no discrimination is intended and no endorsement by Ohio State University Extension is implied. Although every attempt is made to produce information that is complete, timely, and accurate, the pesticide user bears responsibility of consulting the pesticide label and adhering to those directions.

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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. TDD No. 800-589-8292 (Ohio only) or 614-292-6181.