BUCKEYE YARD AND GARDEN LINE 2012-03
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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/OSUEBYGL ] or follow the BYGL on Twitter at [ http://www.twitter.com/OSUBYGL ].

This is the 3rd 2012 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 - SNAPDRAGON (Antirrhinum spp.). Gardeners who are chomping at the bit should realize it's still too early to plant impatiens and other warm-season annuals, and be successful! However, those anxious to get color in the garden should consider planting snapdragons. These cold-tolerant annuals can be planted early in the spring because they tolerate cool soil temperatures and light frosts. In fact, they thrive in cooler temperatures.

   Snapdragons bloom and grow best in full sun. They tolerate light shade but bloom production decreases. The flowers get their common name from the fact that when one squeezes or pinches the flowers, the "dragon mouth" opens. Flowers are faintly fragrant and taller varieties make excellent cut flowers. Shorter varieties are used for bedding plants or in borders. Deadhead on a regular basis to keep them fresh and blooming all season. There may be a period during the heat of summer where they just "sit there and do nothing," but be patient as they return to full glory with cooler fall temperatures.

   *PERENNIAL - WILD COLUMBINE (Aquilegia canadensis). This native North American plant is in full bloom in central Ohio nature preserves and is a great plant for shady woodland and natural areas as well as the perennial garden. Wild columbine grows around 1-3’ tall (top of the bloom stems) and have red and yellow bell-like flowers that are attractive to hummingbirds. The plants grow on a range of soils (dry to moist) and are adaptive to a variety of conditions including full sun to part shade. They are excellent in areas that one wants to naturalize as they spread prolifically under good growing conditions. However, on the other hand, in the garden where one might want to maintain control, columbine can re-seed and become a problem. Therefore, deadhead the flowers before the seeds develop.

   The foliage is soft and somewhat frilly and quite attractive after flowering, as long as soils aren't completely dry. In addition, wild columbine appears to be less susceptible to leafminer feeding which devastates other species and hybrids.

   *WOODY - DOUBLEFILE VIBURNUM (Viburnum plicatum var. tomentosum). This shrub, which reaches heights of 6-10’, is great used as a border or screen in the landscape. Doublefile viburnum grows well in moist, well-drained soil and prefers a full to partially sunny site. This shrub blooms in the spring and forms bright-red fruit in late summer. In the fall, the foliage turns red to purple. A
few other cultivars to take a look at are: 'Fireworks', 'Pink Beauty', and 'Popcorn'. This plant has a few pest and disease problems including, canker, verticillium wilt, and borers. It is important to note that doublefile viburnum is less preferred by viburnum leaf beetle, which is known to cause severe damage and possible death to other ornamental viburnums.

**VEGETABLE - BROCCOLI** (*Brassica oleracea* var. *botrytis*). Broccoli is a cool season vegetable that is in the cabbage or cole family. It grows best when the daytime temperatures are between 65°F and 80°F. Broccoli needs a fertile, well drained, moist soil with lots of added organic matter. The soil pH should be between 6.0 and 7.0 for best growth. Have your garden soil tested and adjust the pH according to the recommendations.

Transplants are best for spring plantings because they get the plants established more quickly and they can produce the crop with minimal interference from the early summer heat. The transplants should be planted 16-18” apart with 24” inches between rows. A liquid starter fertilizer applied at the time of transplanting helps get the plants off to a good start. Adding an organic mulch will help to keep the soil cool and moist and keep the weeds to a minimum.

Harvest the broccoli when the center flower head is dark green and fully formed but before any yellow petals begin to show. Any sign of yellow in the buds indicates the head is overripe. Cut the head free from the stalk 5-6” down from the head. Many varieties will continue to produce smaller side shoots as long as there are a few leaves on the plant which can extend your harvest for several weeks.

**WEED - CRESSLEAF GROUNDSEL** (*Senecio glabellus*). This week’s weed is once again gracing landscapes and farm fields in southern Ohio with a smattering of canary yellow. However, like many plants this spring, it is appearing 3-4 weeks earlier than last year. Cressleaf groundsel, which is also known as BUTTERWEED, is a member of the aster family (*Asteraceae*; a.k.a. *Compositae*), thus the weed sports flowers that are daisy-like and seed heads that look like miniature dandelion puff-balls. The flowers are borne at the ends of thick, erect, stems that are green with reddish-purple streaks. The plant's "cress-like" leaves are responsible for the common name.

Cressleaf groundsel is a native winter annual found in the northern United States. It is a heavy seed producer, and the seed can remain viable in the soil for a number of years. For reasons that are not clearly understood, this weed has become unusually common in Ohio in recent years in cultivated fields, nurseries, and landscapes. Past reports indicate the weed may have some tolerance for 2,4-D and may require high rates of glyphosate to be controlled. Hand-pulling is an effective option in landscapes, but plants must be destroyed prior to seed maturation. Cultivation prior to flower production is also effective. Both approaches will reduce future infestations.

2. HORT SHORTS.

A. GROWING DEGREE DAYS (GDD). GDD is a measure of the daily maximum and minimum temperature and directly relates to growth and development of plants and insects. The GDD of any zip code location in Ohio is estimated using the GDD of ten OARDC weather stations and available on the web at: [http://www.oardc.ohio-state.edu/gdd/].

The range of GDD accumulations in Ohio from north to south is 254 to 457. Following is a report of GDD for several locations around Ohio as of April 18, 2012: Painesville, 254; Cleveland, 264; Toledo, 311; Canfield, 278; Findlay, 309; Van Wert, 316; Wooster, 290; Coshocton, 335; Columbus, 383; Springfield, 365; Dayton, 371; Cincinnati, 427; Ironton, 456; Portsmouth, 457; and Piketon, 421.

To put these GDD accumulations into perspective, the following is an abbreviated listing of plant and insect species with their respective phenological event and average GDD accumulations at which these events occur. Due to variations in weather, temperature, humidity, etc., these events may occur a few days earlier or later than predicted by the average GDD. By looking at a city, town, or village nearby on the above list, or visiting the above website, one can see what is taking place in the landscape.

Ohio buckeye, first bloom, 245; common horsechestnut, first bloom, 251; *hawthorn lace bug, adult emergence, 253; hawthorn leafminer, adult emergence, 260*; flowering dogwood, first bloom, 263; red buckeye, first bloom, 265; blackhawk viburnum, first bloom, 269; *imported willow leaf beetle, adult emergence, 274*; Sargent crabapple, full bloom, 298; red horsechestnut, first bloom, 304; *pine needle scale, egg hatch - 1st generation, 305; cooley spruce gall adelgid, egg hatch, 308; eastern spruce gall adelgid, egg hatch, 308*; common lilac, full bloom, 315; ‘Pink Princess’ weigela, first bloom, 316; blackhawk viburnum, full bloom, 322; redosier dogwood, first bloom, 323; dwarf fothergilla, full bloom, 325; ‘Winter King’ hawthorn, first bloom, 328; *lilac borer, adult emergence, 330*; slender deutzia, first bloom, 338; Japanese kerria, full bloom, 342; common horsechestnut, full bloom, 344; red chokeberry, full bloom, 351; doublefile viburnum, first bloom, 353; Pagoda dogwood, first bloom, 363; red Java weigela, first bloom, 365; black cherry, first bloom, 368; common sweetsrub, first bloom, 371; *lesser peach tree borer, adult emergence, 372*; Ohio buckeye, full bloom, 374; *holy leafminer, adult emergence, 375*; Vanhoutte spirea, full bloom, 406; *eucryphon scale (first generation), egg hatch, 406*; black cherry, full bloom, 419; Miss Kim Manchurian lilac, first bloom, 422; *locust leafminer, adult emergence, 437*; doublefile viburnum, full bloom, 444; and black locust, first bloom, 467.
B. ROADSIDE AND OTHER INVASIVES. This prolonged spring weather provides quite a spectacle along interstate highways as you notice which plant species have volunteered along fence lines. Drive-by plant identification is made easy when early-leafing and early-flowering trees and shrubs stand out in abundance. Earlier large numbers of Callery pear volunteers, sometimes in the thousands and in populations engulfing whole fields along highways were noticed. Amur honeysuckles are also quite evident in roadside and woodland sites in which they leaf out before other vegetation. Large numbers of Russian olives are flowering now in many areas of Ohio and along roadsides are quite prolific. Even crabapples have escaped cultivation and though in some areas they are few and far between, along some roadsides there are areas in which they are quite abundant, such as an area near SR 18 and SR 21 in northeast Ohio shown here.

C. FROSTY NIGHTS CREATE HAVOC. Scattered frosts continue to create havoc on plants in Ohio landscapes. Randy Zondag and Erik Draper reported a heavy frost occurred this past Thursday in northeast Ohio and then temperatures dropped below freezing the next night also. Jim Chatfield shared with the group his experience of driving by a field of blueberries, encased in ice in southern Ohio, where overhead irrigation had been used as frost protection for the blooms! Certain areas of the state have been severely affected, while other areas have remained relatively unaffected.

Frost damage can be very difficult to determine and predict its impact on the plant. Confusion arises from the variability in damage caused to blooms, leaves and young, expanding twig tissue on the same plants side by side! Frost may or may not damage the entire flower bud or it may just burn the tender petal tissues. On the other hand, it may not damage the petal tissues at all but it may burn off just the pistils or stamens or just damage the ovary so that no fruit develops. The flowers may not even be affected but the young, expanding twig, which is very succulent tissue, may freeze, causing the cells to rupture, leak and then turn brown. This damage may occur on all, some or a just a few or none of the newly expanding tips. It is this inconsistency and variability in plant damage from frost that creates either an exquisite diagnostic challenge or a full-fledged frustration! The best answer for the question of "What will be the impact on the plant?" still remains… just wait and see.

3. BUG BYTES.

A. CORRUGATED BIRCH LEAVES. Jim Chatfield and Joe Boggs reported that the unusual leaf damage caused by the SPINY WITCHHAZEL GALL APHID (Hamamelistes spinosus) is beginning to appear on river birch in central and southwest Ohio, respectively. The aphid produces raised ribs or "corrugations" on the upper leaf surface that match deep furrows between the veins where the aphids live on the lower leaf surface. The aphid has a complex life cycle that involves two hosts: witchhazel (Hamamelis spp.) and birch (Betula spp.). Winter is spent either as eggs on witchhazel bark or as immature female aphids under birch bark.

The aphid is sometimes called the "river birch aphid" owing to its affinity for B. nigra. On birch, the females move to newly expanding leaves in the spring where they feed, mature, and give birth to a new crop of aphids. Aphid numbers expand quickly with each succeeding generation contributing to an ever-expanding aphid population. The feeding damage on birch causes the expanding leaves to pucker and bulge length-wise producing the characteristic leaf corrugations. The aphids cover themselves in a waxy, white, flocculent material and live on the underside of the leaves within the corrugations. The affected leaves will usually turn yellow and may prematurely fall off of the tree.

Eventually, the aphids on birch produce winged females that fly to witchhazel. They lay eggs on the bark that will hatch into "stem mothers" the following spring. The stem mothers feed on newly expanding buds and inject chemicals that cause the buds to form a hollow, spiny, globular gall around their progeny. The winged aphids arising from the witchhazel galls fly back to birch.

Damage to both plant hosts is usually not severe enough to warrant treatment, particularly on witchhazel where the galls have little impact on plant health. Frequently, numerous predators will destroy aphid populations on the birch leaves. However, if heavy infestations on birch occur on highly visible plants, aphid populations can be reduced with a fall soil drench application of imidacloprid, or a spring topical application of acephate or insecticidal soap.

B. FOURLINED PLANT BUGS. Joe Boggs reported seeing early fourlined plant bug (Poecilocapsus lineatus) damage on annuals and herbaceous perennials in southwest Ohio. This sucking insect feeds on over 250 herbaceous plant species including some woody ornamentals. The quick-moving nymphs are reddish-orange with black wing pads. The appropriately named adults vary from yellow to green in color and have four black stripes down the wings.

Like many plant-feeding Hemipterans, the fourlined plant bug injects enzymes into the plant causing cells to collapse. The bugs then feed on the resulting "slurry." The damage appears as small, round, black sunken spots which may coalesce into extensive blackened areas on infested leaves. The symptoms are commonly mistaken for a plant leaf disease.

The plant bug has only one generation per year. However, both the adults and nymphs are heavy feeders and high populations can produce significant plant injury. Targeting the early instar nymphs for control reduces the overall damage caused by this insect, thus control measures need to be applied now to prevent much of the damage that will occur for the season.
C. GREEN TIGERS ON THE PROWL. Erik Draper reported observing SIX-SPOTTED TIGER BEETLES (*Cicindela sexguttata*) on the prowl in Clifton Gorge (Greene County). This native beetle has a curious affinity for darting about on woodland trails. The shiny beetle is actually more emerald green in color than the emerald ash borer causing it to sometimes be mistaken for the borer. The tiger has excellent eyesight, quick speed, and it is an agile flyer. These traits make it difficult for people to get a close look for identification.

As the common name implies, the six-spotted green tiger beetle has white spots that are arranged along the trailing edge of the wing covers, three spots per side. The spots are small and sometimes obscured by light bouncing off their highly reflective shiny green bodies. The beetles have elongated bodies with the thorax about half the width of the front wings and abdomen. They have long legs and their bulging black eyes make them look like they are wearing dark goggles.

As with all tiger beetles (family Cicindelidae), this is a ferocious predator and it sports powerful sickle-shaped mandibles that are used to grab and dispatch hapless arthropod prey. A word of caution: these carnivores can also use their impressive mandibles to deliver a painful bite to the hand of the overly curious. So, keep your eyes peeled and hands away from these tigers prowling woodland trails ... and don't kill them since they are good guys!

D. BUZZ-BUMBLING BEETLES. BYGLers noted that the familiar "bzzzzzz...thud!" sound made by MAY/JUNE BEETLES as they fly around porch lights at night and bounce off walls, doors, windows, startled homeowners, etc., is now being heard in southwest Ohio. There are five species of beetles in the genus *Phyllophaga* in Ohio that share the general common name of May or June Beetles. The 1/2-1" long adults are slightly oblong, and reddish-brown to black in color. Their obnoxious evening behavior often causes them to be dismissed as nuisance pests. In most cases, this is true. Although adults of most of these species feed at night on flowers or tree and shrub foliage, they seldom cause significant damage.

However, large numbers of these beetles occasionally produce noticeable leaf damage, and their nocturnal life-style makes them a deceptive defoliator. In 2000 and again in 2011, conspicuous defoliation of oaks and maples caused by these beetles was reported in Ohio and Kentucky. In a few cases, heavy damage literally occurred overnight. The defoliation involved the removal of all of the leaf tissue with the exception of the main veins. Since the beetles are night feeders, casual observers were left in the dark trying to explain the damage. Although damage may appear severe, the beetles only fly for a few weeks, leaving plenty of time for defoliated trees to produce new leaves.

Larvae of these beetles are white grubs with feeding habits similar to JAPANESE BEETLE (*Popillia japonica*) and MASKED CHAFER (*Cyclocephala* spp.) grubs; however, May/June beetle grubs prefer pasture grasses. Hence, damage to trees most often occurs near pastures. Likewise, significant May/June beetle grub populations are seldom found beneath older lawns, but are sometimes observed where new homes occupy ground which was recently in pasture. Larvae require anywhere from 1 to 5 years to complete their development, depending upon the species.

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

*Curtis Young reported observing a couple more species of overwintered adult butterflies flitting through woodlots and landscapes. These butterflies include the QUESTION MARK (*Polygonia interrogationis*) and/or EASTERN COMMA BUTTERFLIES (*Polygonia comma*). COMMON CHECKERED SKIPPERS (*Pyrgus communis*) were also observed. This species overwinters as a late instar larva.

4. DISEASE DIGEST.

A. BLACK ROT CONTROL IN GRAPES. Now is time to get ready for black rot control in grapes. A good fungicide spray program is extremely important for black rot control. Good timing and right fungicide are all critical. Early season control must be emphasized. The most critical period to control black rot with fungicides is during the period from early bloom through 3-4 weeks after bloom. Captan, a common fungicide, is only slightly effective against black rot. Mancozeb, on the other hand, is highly effective. However, mancozeb is not widely available. Backyard fruit producers may need to ask a garden center or a retailer to special order mancozeb. Another excellent product is myclobutanil (e.g. Immunoxy) which more readily available in many retail outlets. For the most current spray recommendations, commercial growers are referred to OSUE Bulletin 506-B2, "Midwest Commercial Small Fruit and Grape Spray Guide," and backyard growers are referred to OSUE Bulletin 780, "Controlling Diseases and Insects in Home Fruit Plantings."

B. DOWNY MILDEW OF IMPATIENS. Nancy Taylor and the Ohio Plant Diagnostic Network: have just released information on IMPATIENS Downy MILDEW, a plant disease new to Ohio.

Impatiens are widely planted providing landscapes with brilliant color displays and the crop comprises a significant part of Ohio's spring bedding plant production market. There have been 4 confirmed samples of impatiens downy mildew in Ohio over the last few days (Delaware, Wayne (2) and Holmes Counties). It is apparent that Ohio's greenhouse industry and perhaps in a few weeks, the
landscape industry should be alert for and taking proactive measures in regard to managing this disease.

There have been outbreaks of the disease in Europe in recent years and late in the 2011 season it was observed in landscape locations as diverse as California, New York and the mid-West. Concern increased when it was found in Florida landscapes in December, 2011. Over the winter months there have been numerous articles about this disease in the ornamental trade journals, at least two national webinars for growers and educators as well as discussion about the disease in meetings and workshops.

Impatiens downy mildew is caused by \textit{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. There is concern that the pathogen will be able to survive in plant debris in the landscape.

The American Floral Endowment has gathered information from specialists and industry representatives from across the United States at a single web site: [http://www.endowment.org/](http://www.endowment.org/). There you can find guidelines for identification, prevention and/or management of this disease in the greenhouse and/or landscape. If you work with greenhouses or landscapers you should make a note of this site and its information.

Check out the website for specific schedules for preventive fungicide application that have been developed for growers who have not experienced the disease in their operations; specialists recommend that impatiens producers should be following this preventive treatment program and the cultural/environmental management suggestions. Those growers for whom the disease has been confirmed should be on a responsive treatment program in addition to practicing the recommended sanitation and cultural controls.

Quoting from the American Floral Endowment site, symptoms of the disease and signs of the pathogen for impatiens downy mildew include: "Impatiens downy mildew symptoms begin as a light-green yellowing or stippling of infected leaves. Very subtle gray lines or markings are sometimes observed on the top of the leaf. Infected leaves may curl downward at the edges, but generally this is a more advanced symptom of infection. Young plants and immature plant tissues are especially susceptible to infection. As such, leaf symptoms are often first observed on the younger or terminal growth. Seedling cotyledons are also highly susceptible to infection. Plants infected at an early stage of development may be stunted in both height and leaf size, yet may show no visible signs of sporulation if environmental conditions are not favorable for disease expression.

A white, downy-like growth composed of spores may be visible on the underside of infected leaves under cool temperatures (about 60-73F) and moist or humid conditions. When scouting, it is very important to turn leaves over to observe the undersides for this white growth. The time from infection to the appearance of symptoms varies from about five to 14 days depending on the age of plant tissue, temperature and humidity. The latent period between infection and visible plant symptoms is of concern because infected plants could potentially be shipped or moved without even knowing there is a disease problem. This highlights the importance of preventive control at both the production and young plant producer level to ensure cuttings and seed-produced plugs are kept free of this disease.

If the disease continues to progress, eventually the leaves and flowers will drop, resulting in bare stems with only a few tiny, yellow leaves remaining. This symptom is more likely to be observed in a landscape setting where symptoms and early signs of infection are more likely to go unnoticed, in comparison to a greenhouse setting where plants are frequently scouted and suspect plants would be quickly rogued."

The Ohio Plant Diagnostic Network is working to determine how widespread the disease is in Ohio. Please encourage your producers to send suspect samples for confirmation to the C. Wayne Ellett Plant & Pest Diagnostic Clinic, 8995 E. Main St., Bldg. 23, Reynoldsburg, OH 43068. Northeast Ohio producers may send samples to the attention of Dr. Sally Miller, Plant Pathology, OARDC, Wooster, OH 44691.

Sampling suggestions: Impatiens deteriorate rapidly. If small plants are being shipped, wrap the roots and media in foil or plastic wrap to prevent media contamination of the foliage and to maintain the plant in transit. Pack in a box so the plants with sufficient packing material to prevent stems from breaking and use overnight delivery service. Ship samples Monday through Wednesday to avoid weekend layovers while samples are in transit.

C. FIREBLIGHT ON CALLERY PEAR. Students in Plant Pathology 501, "Diseases of Ornamentals" on the OSU Main Campus spend a good amount of their class time outside, checking out plants and infectious and non-infectious diseases in the Chadwick Arboretum and its environs. Last week, the class talked of bacterial fireblight of pears and the fact that years in which it is especially bad are years in which infections really get started with warm (60F and above), wet weather during bloom. Of course, in many areas of Ohio this year, including Columbus, pears were in full bloom during the mid-March period of 70s and 80s in which heat units were accumulating rapidly. So, these were seemingly ideal conditions for bloom infections, presaging a big year for fireblight incidence.

With that reality, as the class walked on one field trip on campus last Thursday, noting a line of pears with clean foliage, the class discussed why the class did not see any symptoms of fireblight. No "shepherd's crook" of curled shoots with blackened leaf petioles. No greasy brown to black foliage hanging on to the twigs. Did we get the "environment conducive to disease" aspect of the Disease...
hundreds of fireblight strikes on the trees noted this Tuesday. This is a reminder of the latent nature of disease infections. The bacterium entered the blooms and leaves of the plants through wounds earlier, as splashing water and pollinating bees spread the bacteria, but the results of these infections, the damage to leaf and stem tissue from the growth of the bacteria, did not result in symptoms until now. Because infections by microscopic pathogenic inoculum is invisible to the naked eye and symptoms lag behind infections for days and weeks, it is often a surprise for observers to see what seemed like completely healthy tissue suddenly show symptoms of disease from infections that occurred much earlier.

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Triangle wrong? Were these all fireblight-resistant cultivars of Callery pears? Not so, since we had seen fireblight on these pears in previous years. So, why no symptoms of fireblight on these susceptible plants, with such conducive environmental conditions, with the presumed presence of the pathogen from overwintering stem cankers?

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D. FASCINATING FUNGUS - DRYAD'S SADDLE (*Polyporus squamosus*). Dryad's Saddle is also known as Pheasant's-back Polypore and is a fairly common mushroom that grows on decaying hardwood logs and stumps, especially elm, silver maple and box elder. On dead trees, it is classified as a saprobe, but on living trees, it would be considered a parasite causing a white heartrot of the trunk.

Dryad's saddle is a real stand out mushroom, not because it is favored by mushroom hunters, but because it is usually big and easily seen by individuals walking through woodlots. It can also be easily seen from a moving car. Curtis Young reported having seen this mushroom growing from wounds on street trees, sometimes many feet above the ground. The mushroom may grow singularly or in clusters of overlapping shelves.

For beginner mushroom hunters, Dryad's saddle may be one of the easiest specimens to find and identify. This mushroom primarily sprouts early in the spring, but is known to also arise at different times in the summer and fall and sometimes in the winter. Most grow as a shelf-shaped or fan-shaped structure with a thick stem. Occasionally they grow as a complete circular, funnel-shaped mushroom. The body of the mushroom can be 2-12" or more in size and the thick stalk can be up to 2" in diameter. The mushroom also has a fairly distinctive color pattern with mostly a creamy-white background covered with tan to brown colored scales that are somewhat radially arranged from which its second common name is derived, Pheasant's-back Polypore because to some it looks like the back of a pheasant. The base of the thick stem may become black and velvety as it ages. The underside of the shelf has large, irregularly-shaped, angular pores instead of gills. If a sample is taken to produce a spore print or if one finds the mushroom close to the ground where spores may accumulate, it produces white spores.

5. TURF TIPS.

A. THE BENEFITS OF GROWING TURFGRASS (article by Pamela Sherratt & Dr. John Street). Turfgrass offers many environmental benefits that have been identified and studied over the last 50 years (Table 1). The environmental benefits of turfgrass are not promoted as much as they should be, and in many cases turf gets blamed for such things as nutrient leaching and overuse of chemicals when science has proven that not to be the case. Nevertheless, each facility should strive to minimize its carbon footprint, particularly when it comes to inputs like mowing, fertilizer applications and irrigation. Water conservation is especially important, not only in arid regions of the US, but also in the urban environment. Water usage in the US breaks down as follows: 43% used by industry, 47% use by agriculture, and the remaining 10% used by households (bathing, cooking, sanitation, drinking) and landscape irrigation. One comment we might hear is that golf courses and homeowners are water hogs, but in fact only 9% of golf courses use public water (the rest is supplied by wells and other on-site sources) and most homeowners in the US don't apply any water or fertilizer to their lawn. Approaches to minimizing irrigation include using bermudagrass (low water use rate) or tall fescue (drought tolerance), or allowing certain grasses to go dormant during the summer if fields are not in use, as well as auditing the irrigation system and apply water to fields (natural and synthetic) through best management practices (BMPs).

<table>
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<tr>
<th>Benefit</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Soil Erosion and Dust Control</td>
<td>High shoot density and root mass of turf grasses limit/prevent sediment and nutrient loss during and after a rainfall event. Contrary to public perception, nutrient leaching is not common on turf grass areas. Applied correctly, fertilizers are held in the soil and utilized by the turf plants.</td>
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<tr>
<td>Ground Water Recharge and Surface Water Quality</td>
<td>Turf grasses have a superior ability to trap and hold runoff water and to filter out pollutants like heavy metals, hydrocarbon compounds, hazardous wastes and solvents.</td>
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<tr>
<td>The Cooling Effect</td>
<td>Transpirational cooling can lower urban heat sinks by as much as 10 degrees Fahrenheit. Turf grass is considerably cooler than other common surfaces. For example, on an 80 degree day, it can be 20 degrees cooler than bare soil and concrete and 40 degrees cooler than synthetic turf.</td>
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<tr>
<td>Carbon Footprint</td>
<td>With 66 percent of the turf plant below ground, turf is a significant source of carbon.</td>
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storage, capturing carbon dioxide from the atmosphere. Well-managed athletic fields can capture more carbon than they use. As such they are "positive carbon sinks."

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<tr>
<th>Soil Improvement and Restoration</th>
<th>Turf grasses contribute greatly to soil organic matter (a typical annual root turnover rate is 42 percent) and are used to reclaim damaged sites like landfills and mining operations.</th>
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<tr>
<td>Noise Abatement, Glare Reduction and Nuisance Animal Reduction</td>
<td>Turf grasses reflect light, absorb sound and when mowed regularly can reduce populations of varmints, mosquitoes and other insect pests like chiggers.</td>
</tr>
<tr>
<td>Roadside, Airport and Home Use</td>
<td>In addition to soil and dust control on highways and airports, turf is used to serve as a stabilized zone for emergency stoppage, improving line of sight and to lower fire hazard.</td>
</tr>
<tr>
<td>Wildlife Sanctuaries</td>
<td>Parks, golf courses and urban green space can act as bird and wildlife sanctuaries. Audubon International currently has a cooperative sanctuary program for golf courses - a similar program for parks &amp; rec and sports facilities would be welcomed.</td>
</tr>
<tr>
<td>Increased Property Values and Quality of Life</td>
<td>A lawn 1/4 to 1/3 of an acre in size is associated with the greatest effect on selling price. Green space in the urban environment contributes to a person's mental health and social harmony, as well as offering people a place to play sports.</td>
</tr>
</tbody>
</table>

Adapted from Beard & Green (1994) and Sherratt et al (2011)

6. INDUSTRY INSIGHTS.

A. "GREEN INDUSTRY FIX" WEBINARS. As noted last week, starting May 9 and continuing on the second Wednesday of each month through October, there will be a new 50 minute webinar series being launched by the Ohio Nursery and Landscape Association in cooperation with the OSU Extension Nursery Landscape and Turf Team. Participants will learn WHAT one needs to know, and WHEN one needs to know it for hot topic issues for the green industry.

Hosted by speakers from the Ohio State University Extension Nursery, Landscape & Turf Team, one will be given timely and useful information on current and emerging issues critical to green industry businesses: from plant selection to pest management; from weed control to product knowledge; and from invasive species to infectious diseases. In coming weeks ONLA and BYGL will provide further information on how to sign up for subscriptions to these "Get Your Green Industry Fix" webinars.

7. WEATHERWATCH. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from April 1-18, 2012, with the exception of the soil temperatures which are readings from Wednesday, April 18, 2012 at 6:05 p.m.

Dry conditions continue. All five of the weather stations listed below have recorded less than 1" each this month.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ashtabula</td>
<td>NE</td>
<td>56.3</td>
<td>35.8</td>
<td>0.19</td>
<td>2.0</td>
<td>62.29/64.00</td>
</tr>
<tr>
<td>Wooster</td>
<td>NE</td>
<td>59.7</td>
<td>36.4</td>
<td>0.35</td>
<td>2.0</td>
<td>60.31/58.24</td>
</tr>
<tr>
<td>Hoytville</td>
<td>NW</td>
<td>62.0</td>
<td>36.8</td>
<td>0.35</td>
<td>1.9</td>
<td>70.45/64.18</td>
</tr>
<tr>
<td>Columbus</td>
<td>Central</td>
<td>64.3</td>
<td>40.2</td>
<td>0.84</td>
<td>2.3</td>
<td>57.92/56.91</td>
</tr>
<tr>
<td>Piketon</td>
<td>South</td>
<td>66.2</td>
<td>38.7</td>
<td>0.35</td>
<td>1.8</td>
<td>70.28/67.69</td>
</tr>
</tbody>
</table>

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

8. COMING ATTRACTIONS.

A. SECREST ARBORETUM'S GUIDED SPRING WALK. A spring walk through the arboretum is scheduled for Tuesday, April 24, 2012. Participants will stroll through the arboretum and listening to our experts pointing out the signs of spring. Parking and admission is free. Dress for the weather. For additional information contact the Secrest Arboretum at 330-464-2148.

B. 19TH ANNUAL PLANT DISCOVERY DAY - SATURDAY, MAY 5, 2012. Plant Discovery Day is a premier plant and art sale featuring hard-to-find annuals and perennials, herbs, woody plants and art for the home and landscape on the OARDC campus in Wooster, Ohio. The Bug Zoo and lunch will also available. Proceeds support arboretum programs and internships.
Schedule of Events: 9:00 a.m.-12:30 p.m. - Silent Plant & Art Auction; 10:00-11:00 a.m. - Guided Walk 1; 11:00 a.m.-12:00 p.m. - Oral Plant & Art Auction; 11:00 a.m.-12:00 p.m. - Guided Walk 2; and 1:30-2:30 p.m. - Guided Walk 3. Additional information can be found on the Secrest Arboretum website at [http://secrest.osu.edu/].

C. 2012 COMMERCIAL NEW APPLICATOR TRAINING SCHEDULED. The Ohio State University Extension’s Pesticide Safety Education Program has scheduled four training dates for those preparing to take the commercial applicator's exams including Core, 8 (Turf), 5 (Industrial Vegetation); 6c (Ornamental Weed) and 2c (Agricultural Weed). The morning session also qualifies as Trained Serviceperson training. The dates are April 18, 2012; May 9, 2012; August 29, 2012; and September 26, 2012. Registration begins at 8:30 a.m. Additional information, including pre-registration is available on the web at [http://pested.osu.edu/commnewapp.html].

9. BYGLOSOPHY: "Spring is nature's way of saying, "Let's party!" - Robin Williams

APPENDIX - ADDITIONAL WEBSITE RESOURCES:

Buckeye Turf
http://buckeyeturf.osu.edu

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

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

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

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

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

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

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

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

Following were the participants in the April 17th conference call: Pam Bennett (Clark); Joe Boggs (Hamilton); Jim Chatfield (Horticulture and Crop Science); Julie Crook (Hamilton); Erik Draper (Geauga); Dave Dyke (Hamilton); Gary Gao (Piketon Center); Cindy Meyer (Butler); Curtis Young (Van Wert); and Randy Zondag (Lake).

BYGL is available via email, contact Cheryl Fischnich [fischnich.1@cfaes.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/].

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

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

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