BUCKEYE YARD AND GARDEN LINE 2014-21
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This is the 21st 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 - HELIOTROPE (*Heliotropium arborescens*). Native to Peru, heliotrope is grown as a summer annual bedding or container plant in Ohio. In its native habitat heliotrope grows 2 - 6' tall but in Ohio it typically grows 12 - 18" tall in a growing season. Heliotrope flowers are known for their delicate vanilla-like fragrance. The colors can be blue, violet or white and grow in large showy clusters that bloom from summer to fall. The flowers should be deadheaded to encourage additional blooms. The leaves are a deep green that are rough and prominently veined. Heliotrope prefers a moist, organically rich and well-drained soil and grows best in full sun. However these plants appreciate some shade from the hot afternoon sun. Plants may be grown indoors if kept moist in a sunny location with cool (50 - 55F) nights. Heliotrope attracts butterflies and is deer resistant.

Author: Julie S. Crook

PERENNIAL - HIBISCUS, ROSE MALLOW (*Hibiscus moscheutos*). In Central Ohio, butterflies can be seen visiting this dramatic summer-blooming plant with its large, funnel-form blossoms. The hardy Hibiscus is easy to grow in organically rich, medium to wet soils, but will tolerate average garden soil. Full sun is optimal; they will tolerate some shade. Numerous cultivars provide a variety of colors from deep pink or red to pure white and other variations. Height and size of flowers vary greatly, thus use of this plant in the landscape is diverse. It can be used in a group as an accent plant, in borders, as a temporary hedge, or as a specimen plant. Each flower opens for one day and then dies; but flowers continue to bloom from July through September. Deadheading is recommended to maintain a good appearance. To decide on the best selection for your yard, check out the Chicago Botanical Garden Plant Evaluation Notes on hibiscus reporting their observations of 21 taxa from 1989 - 1992. Some of the highest rated cultivars in this study included: ‘Candy Stick’, a red flowered plant with reddish stems and deep green leaves reaching a height of 24 - 44"; the deep rose colored *H. moscheutos* ‘Crimson Wonder’ with a height of 48 - 67"; and the pink and white flower of the *H. moscheutos* ‘Pink Giant’ which grows between 70 - 95" in height.

No serious insect or disease problems are another reason to include the hardy hibiscus in your landscape. However, beware of Japanese beetles. Determine the size of the beetle population attacking your Hibiscus to determine if you need to use an insecticide or if hand-picking the beetles will be sufficient.

Author: Denise M. Johnson

WOODY - SWAMP WHITE OAK (*Quercus bicolor*). Mighty oaks from little acorns grow. Such mighty oaks are not for every Ohio landscape or streetscape, but where the space is available we should not forget the majesty of oaks. A native medium to large-sized oak (50 - 70') with a wonderfully broad rounded growth habit is swamp white oak. Swamp white oak thrives in moist, acid soils but is more tolerant of alkaline sites than the red oak group. Swamp white oaks have attractive, lustrous, oblong green leaves with rounded lobes. The bark is fissured and flaky and is an excellent ornamental asset. And don't forget those acorns. Here is a little ditty from Erasmus Darwin:

"Each pregnant Oak ten thousand acorns forms
Profusely scatter'd by autumnal storms…
...All these, increasing by successive birth,
Could each o'er people, ocean, air and earth."
Swamp white oaks are becoming more popular as people note their wonderfully glossy leaves, strong forms, and their big-time ecological services.

**Author: Jim Chatfield**

*VEGETABLE - SPAGHETTI SQUASH* (*Curcurbita pepo*). This winter squash has recently gained notoriety as a healthy alternative to pasta. It is vitamin rich and low in carbohydrates. Winter squash, including spaghetti, butternut and acorn, are cucurbits in the Cucurbitaceae family. They are harvested in September and October when the seeds are mature and the rind is hard. Winter squash can be stored for several weeks if kept in a dry, cool, well-ventilated room. In contrast, summer squash are eaten when the fruit and skin are immature and tender; they do not store well.

Spaghetti squash are easy to grow in full sun, well-drained soil with 5.8 - 6.8 pH. Each plant produces male and female flowers and depends on bees and other insects for pollination. The fruit is 8 - 10" long and the rind is smooth skinned. Most winter squash varieties grow long vines spreading to 6' or more. For limited space select bush or compact varieties such as Hasta La Pasta or Tivoli. The time to maturity varies between 70 - 100 days depending on the variety.

Insect pests for squash include squash bug, squash vine borer, aphids, and cucumber beetle. Bacterial wilt may be reduced by controlling cucumber beetles. Other diseases include: powdery mildew, downy mildew, scab, and viral diseases. To avoid the spread of disease, remove and dispose of all plant material after harvest in compost piles or refuse collections.

**Author: Denise M. Johnson**

*WEED - GIANT RAGWEED* (*Ambrosia trifida*). Giant ragweed is a common and problematic weed in agricultural fields, and can be a problem in nurseries and landscapes as well. Management can be a challenge because giant ragweed is adapted to an array of environments, including wastelands, roadsides, fencerows, floodplains, and fertile agricultural soils.

Giant ragweed seedlings initially emerge in late March. Seedlings can be identified by their spatulate or spoon-shaped cotyledons, which are fairly large ranging from 1 - 1.75" long. Cotyledons unfold from a hairless hypocotyl and have an indentation at the base of the cotyledons. The first true leaves are entire and ovate with deep lobes. Leaves have stiff hairs that point toward the tip. Only after the second pair of true leaves appear do the leaves show the lobes that are a typical, familiar characteristic of giant ragweed. In most cases, leaves are opposite and always simple. Giant ragweed leaves generally have 3 distinct lobes, but can have as many as five.

When mature, giant ragweed can reach up to 17' tall, but height often depends on whether giant ragweed must compete with other plants for sunlight. Giant ragweed in the field is often 1 - 5' taller than the crop with which it is competing.

Giant ragweed plants can bloom from July through October. Giant ragweed plants are monoecious, meaning that separate male and female flowers are found on the same plant. The male flowers are in terminal racemes at the top of the plants and the female flowers are found in clusters at the axils below the male flowers.
Giant ragweed pollen is a major trigger for allergies. The male flower produces considerably more pollen grains than the female flowers need to pollinate on a single plant. A single plant can produce an estimated 10 million pollen grains daily and more than a billion pollen grains during its life cycle. By comparison, a single corn plant produces approximately 4.5 million pollen grains during its life cycle. This excessive pollen production allows giant ragweed plants to cross-pollinate, leading to much variation in its physical appearance and genetic diversity.

A single giant ragweed plant in an agricultural field situation can produce up to 5,100 seeds. That is a lot of seeds!

Information for this article was taken from the "Biology and Management of Giant Ragweed" publication geared towards the agronomic side of things, but a valuable resource for others outside the traditional row crops as well. You can check out the entire publication online at [http://u.osu.edu/osuweeds/files/2014/04/GWC-12-xgs6e7.pdf].

Author: Amy Stone

2. HORT SHORTS.

A. MEET THE EDUCATOR - ERIK DRAPER. Although Erik Draper's favorite job title was "Extension [Secret] Agent", he is currently an Agriculture and Natural Resources (Ag&NR) Extension Educator with an emphasis in Commercial Horticulture. Erik started his career in 1992 in Mahoning County as an Ohio State University Cooperative Extension Agent and was one of the founding members of the Extension, Nursery, Landscape, and Turf (ENLT) Team. He has been involved as an author for the Buckeye Yard and Garden Line (BYGL) from the genesis of the team writing approach to creating the weekly electronic newsletter. In 1998, Erik was hired in Geauga County as the Ag&NR Educator with a focus on Commercial Horticulture.

Erik's training and background was in Plant Science with an ornamental horticulture emphasis so he is fluent and comfortable with vegetable and fruit crops, as well as trees, shrubs, greenhouse crops and even some aspects of maple syrup production. He continues to evaluate with Jim Chatfield, 87 different crabapple taxa to determine their disease, insect and aesthetic profiles to use in Ohio's landscapes. As a member of the "Tree Amigos", Erik has an incredible opportunity to challenge his knowledge of plants, diseases, insects and horticulture by being involved in every aspect of plant diagnostics.

Erik enjoys the knowledge challenges of the job, working with plants and loving the fact that no two days are ever alike with Ohio State University Extension. Often, he can be found out in the crabapple fields of Wooster, just oohing and aahing as he strolls along discovering the nuances and subtleties of glorious trees, the incredible crabapple!

Author: Erik Draper

3. BUGBYTES.

A. DUSKY BIRCH SAWFLY. Populations of second generation dusky birch sawfly (Croesus latitarsus) larvae are unusually high in southwest Ohio this season. The sawfly shows such a distinct preference for river birch that an alternate common name is "river birch sawfly." Joe Boggs reported that the noticeable defoliation caused by the caterpillar-like larvae has made
this sawfly the most frequently reported pest over the past few weeks by arborists and landscape managers in his part of the state.

Unfortunately, the sawfly larvae are sometimes being mistaken for caterpillars and targeted with the biological insecticide *Bacillus thuringiensis* (Bt). There are strains of Bt that will control moth caterpillars (order = Lepidoptera); however, sawflies belong to the order Hymenoptera (e.g. wasps, bees, and ants). Thus far, no Bt strains have been discovered that will kill hymenopteran insects.

The simple way to tell the difference between lepidopteran caterpillars and hymenopteran sawfly larvae is to count the number of prolegs. These are the fleshy "extra" legs that do not occur on adult insects. Counting from front to back, the first 3 pairs of legs just behind the head are the hardened "thoracic legs;" these legs will also be found in the same position on the adults. The following pairs of legs are the prolegs. Sawfly larvae have 6 or more pairs of prolegs; caterpillars have 5 or less pairs of prolegs. A handy way to remember this identification tip is to compare the number of prolegs to the number of fingers on your hand.

Dusky birch sawfly larvae feed in groups, or "colonies," that may number 10 - 20 individuals. All instars have shiny black head capsules and distinct black spots on their bodies. When disturbed, the larvae form their bodies into an "S" shape (S for sawfly?). Early instar larvae are dark gray, middle-instars are greenish-gray, and late instars are yellowish-green in color. Early instars consume all of the leaf except for the mid-vein and main lateral veins; late instars consume entire leaves.

This sawfly only has two generations per season and we are coming to the end of the second generation; thus, most of the damage caused by this sawfly has already occurred lessening the justification for making an insecticide application. However, the second generation can be brought to a speedy end by knocking colonies off the leaves into a bucket of soapy water, or onto the ground where they can be dispatched by performing the "sawfly dance."

Author: Joe Boggs

B. YELLOWNECKED CATERPILLARS. Jim Chatfield reported observing late instar yellownecked caterpillars (*Datana ministra*) on oak. The caterpillars are general defoliators and may be found consuming the leaves of a wide variety of trees and shrubs including: beech; boxwoods; elms; honeylocust; maples; elms; crabapples and other flowering ornamental fruit trees; and various nut trees. Yellownecked caterpillars have black heads and a yellowish-orange "neck," or prothorax, which gives them their common name.

The caterpillars pass through three distinct color phases during their development. "Color phases" means the caterpillars change their colors and markings as they mature through different larval instar stages. The first instars are usually described as copper colored with no distinct lines. Middle instar caterpillars have distinct alternating longitudinal yellow and orangish-red lines. The final color phase is observed on last instar caterpillars which have alternating longitudinal black and yellow lines. Although all instars have hairs, the hairs are most evident during the last instar stage.

Yellownecked caterpillars feed in groups, or "colonies," throughout their development. Colonies may include 10 - 30 caterpillars. When disturbed, colonies of caterpillars have the interesting habit of rearing their front and tail ends in unison presumably to ward off predators. First instar caterpillars often go unnoticed since they only skeletonize the leaf epidermis. Damage
becomes more apparent when the caterpillars reach the second instar stage and consume most of the leaf, except for the midvein. Later instar caterpillars devour whole leaves, often including the petiole. Since the caterpillars are gregarious feeders, defoliation tends to occur one branch at a time, unless populations are high and multiple colonies are feeding on many branches. There are normally two, and sometimes three generations in Ohio.

Author: Joe Boggs

C. ALONG CAME A SPIDER. While some parts of Ohio have enjoyed consistent rainfall throughout much of the season, other areas of had less frequent rain events, particularly in the northwest and southwest parts of the state. Although heavy rains have little impact on the spiders themselves, it does wreak havoc on their webs making the handiwork of these silk spinners less evident. There are over 600 species of spiders found in Ohio and most feed almost exclusively on insects. In the drier areas of the state, Ohioans may be surprised at the large number of spiders living in their landscaping when heavy morning dews reveal the gossamer creations of these important predators. A few of the more obvious webs currently being seen in Ohio landscapes are those created by FUNNEL WEAVERS (Family: Agelenidae); SHEETWEB WEAVERS (Family: Linyphiidae); and ORBWEAVERS (Family: Araneidae).

Funnel weavers produce large, flat, sheet-like webs spun across grass, under rocks or boards, or over the branches of shrubs such as yews and junipers. The webs slope gently towards a narrow funnel or tube where the spider resides, awaiting its next victim. The spiders are medium-sized and resemble small wolf spiders. Funnel webs may measure more than 1' across and can become very evident when covered by dew, or when they snare dust during droughty conditions.

Sheetweb weavers construct several types of webs depending upon the spider species. Some species spin flat or slightly curved webs that overlay vegetation and rival the sizes of webs spun by funnel weavers. However, there is no funnel in the web. The spiders hide beneath one edge of the web, or in plant foliage along the edge of the web, to await their prey.

One of the more interesting sheetweb weavers appearing on plants in the southwest part of the state is known as the BOWL AND DOILY WEAVER (Frontinella communis). This spider constructs a distinctly bowl-shaped web suspended from plant stems by a crisscrossing array of silk threads and anchored below by interweaving threads. Flying insects drop into the web-bowl after bouncing in pin-ball fashion off the interlacing silk threads used to suspend the web. Of course, when they drop into the web-bowl, they fall into the "arms" (and fangs!) of the awaiting spider!

Orb weavers create circular webs, as their common name describes. Web construction involves sticky and non-sticky silk. Non-sticky silk is used for "radial threads" which radiate from a central point in a bicycle spoke-like pattern. The non-sticky silk is also used for "frame threads" which encircle the web like a bicycle wheel to hold the radial threads in place and to attach the web to support structures such as plant stems or grass blades. "Spiral threads" are composed of sticky silk arranged in a spiral pattern emanating from the center of the web; it’s sticky silk that captures the spider’s prey. Orb webs range in size from more than 1’ to only a few inches in diameter, depending upon the spider species. While some orb weavers create vertical webs, others spin horizontal webs and are often found in home lawns.

Although there are several insecticides labeled for spider control, this is not a recommended practice. Homeowners are urged to practice restraint, appreciation, and understanding.
Spiders are very important in reducing insect pest populations; they provide a great service free-of-charge by reducing the need for controlling more significant pests.

Author: Joe Boggs

D. ANTLIONS ROAR. Dry conditions in various parts of Ohio have also been beneficial for "pitfall-type" antlions (Myrmeleon spp.). Females of the "pitfall-type" antlions insert their eggs into dry, powdery soil. Favored locations include loose soil near building foundations or around the base of large trees.

Once the eggs hatch, the true "antlion" portion of the life cycle appears on the scene. The grayish-brown, slightly hairy larvae are heavily plated, almost armor-like, and they sport impressive out-sized, sickle-shaped mandibles; necessary equipment for a predator. The pitfall-type antlions excavate their pits by moving backwards in the loose soil in a spiral pattern and using their mandibles like tiny shovels to flip away soil. Eventually, a funnel-shaped pit, measuring around 0.75 - 2" wide and 0.5" deep is created with the antlion buried at the bottom; only their wicked looking mandibles are exposed.

The loose dry soil particles provide no traction for escape when a hapless victim blunders into the pit-fall trap. The antlion uses its sharp-pointed mandibles to seize its trapped prey and to pierce the victim's body allowing the essence-of-insect to drain into the antlions mouth. Their dining menu includes their namesake prey as well as any other arthropod the antlion can skewer with its mandibles.

Antlions belong to the insect order Neuroptera (neuro = nerve, optera = wing). Adults have long, thin bodies that measure around 1" in length. They superficially resemble damselflies; however, antlions have conspicuous antennae that are clubbed at the front and about as long as the combined length of their head and thorax. Their finely veined wings ("nerve wings"), which are held tent-like over their body, are transparent with a dappling of black markings. Damselflies have very short, bristle-like antennae and their wings are held vertically, almost flag-like above their body.

Antlions are sometimes called "doodlebugs;" however, as with many common names for insects, geography plays a role in exactly which insect is attached to the doodlebug moniker. In some parts of the U.S., the doodlebug name is attached to dung beetles (Order Coleoptera; Family Scarabaeidae) while in other locations the name refers to the larvae of tiger beetles (Family Carabidae). Of course, an antlion by any other name is still a ferocious and fascinating predator!

Author: Joe Boggs

E. HAVE YOU SEEN ANY BAGWORMS? There was some hope that the extreme cold temperatures of the polar vortexes of this past winter were going to be devastating to the bagworm (Thyridopteryx ephemeraeformis). Results reported from past research indicated that temperatures below -10F should have caused death in the overwintering eggs. It has also been suggested that the northern migration of bagworm populations through Ohio into Michigan was aided by the mild winter temperatures experienced in the past several Ohio winters. So, now the question is, how devastating were the polar vortexes of the 2013 - 2014 winter? Are you seeing any bagworm damage and/or populations? Where are they located? And on what host plants are you seeing them? Have you looked lately?
Curtis Young reported seeing a couple bagworm infested plants in Allen County along State Route 30. The bagworms are on Colorado blue spruce trees and are causing a fair amount of damage. One small tree has already been totally defoliated. One thing that Curtis also noted is that the bagworms are much smaller than usual for this time of the year. Apparently the cold to cool temperatures of the spring and early summer delay egg hatch and growth of the bagworm. His first question about bagworms, their damage and how to control them just came in this week (August 20, 2014).

BYGL writers are asking for your help and observations. What you seen of the bagworm this summer? Let us know by sending an email to Curtis Young at [young.2@osu.edu]. Tell us where in the state you are seeing them, what host plant they are on and whether the population is small or large. Thanks in advance for your responses.

Author: Curtis E. Young

4. DISEASE DIGEST.

A. WALNUT LEAVES TO START FALLING. With everything seemingly delayed this year, the group of BYGLers expect WALNUT ANTHRACNOSE, pathogen Gnomonia leptostyla, lesions to begin appear on BLACK WALNUT (Juglans nigra) trees. Leaflets infected by this fungus will turn yellow and then begin drop from the tree. This disease of black walnut occurs wherever these trees are grown. Black walnut is very susceptible to this fungus; although, walnut anthracnose will also infect butternut, Persian walnut, and the first generation hybrids of Persian X black walnut. Like most anthracnose diseases, cool, wet, spring weather is ideal for infection and development of symptoms of the disease; however, unlike other anthracnoses, walnut anthracnose symptoms appear and impact black walnut foliage in mid- to late summer.

Symptoms appear as dark-brown, circular lesions and are often surrounded by a yellow margin. Lesion may range in size, from a tiny pinprick to 0.5" diameter on fully expanded, mature leaves; however, note that this fungus may also infect petioles, rachises, twigs, and the fruit (nuts). These lesions can be seen from both the upper and lower leaf surfaces. The severity of walnut anthracnose lesions tends to increase as the summer progresses; obnoxiously, due to the cyclic nature of this fungus, which continues to infect leaf tissue during the growing season, especially if rainfall is frequent. Severely affected trees may also affect the quality of the nut meat and cause the nuts to drop prematurely or produce nuts with dark, shriveled meat. Anthracnose infections on the nut husks may also appear as dark, sunken spots.

Black walnut leaves and leaflets, which are highly infected by walnut anthracnose, begin to turn yellow and then drop off; furthermore, the tree may be completely defoliated by the end of August. While overall tree growth during a growing season may possibly be reduced by this seemingly extreme leaf loss, trees are not typically harmed by walnut anthracnose. Because the leaf loss occurs late in the growing season, most of the tree’s carbohydrate reserves and needs have already been produced. However, trees repeatedly experiencing consecutive years of early, extreme defoliation, may be seriously weakened by the leaf loss.

Whether black walnut is used as shade, ornamental, or nut-producing trees, one of the best and simplest ways to minimize the effect of this fungus is to eliminate any overwintering leaf fungus. This can be achieved by raking up the infected leaves and either burning them or properly composting them. This will reduce the amount of ascospore inoculum released in the spring,
which causes the primary infection of the leaves. Overall, this horticultural technique of sanitation will help keep those nuts where they belong...in the trees!

Author: Erik Draper

5. TURF TIPS.

A. IDEAL TIME FOR LAWN RENOVATION NEARING - ARE YOU READY? Joe Rimelspach and Todd Hicks, both with the OSU Department of Plant Pathology provided some excellent tips to ensure a successful establishment of renovation of a lawn in the buckeye state. The first consideration should be site preparation and includes the following bullet points:

*Control perennial weeds - such as undesirable grasses and broadleaf weeds. If herbicide(s) will be used, check the label for any restrictions and guidelines for future seeding.

*Complete the rough grade and then remove any stones or debris.

*Don't Guess - Soil Test! Based upon the results provided, apply corrective fertilizer, lime, and/or sulfur.

*Amend soil with top soil or compost. It is important that this be incorporated into existing soil and not just spread over the top of existing soil.

*Prepare the final grade at the site.

*Apply starter fertilizer to improve the maximum seed germination.

Next you will need to decide what grass seed you will be selecting for the project. There are many grass combinations available to both the professional and the homeowner. A blend in a combination of the same species (i.e. - 3 Kentucky bluegrass varieties combined). A mix or mixture is a combination of different species (i.e. - a combination of Ky. bluegrass and ryegrass or tall fescue and Kentucky bluegrass).

Considerations for selection of seed should the following:

* To match already existing grass on the site.

* For desired features of the grass plant.

* Use quality seed – You do get what you pay for.

* Discussion about seed vs. sod – what is best for the situation.

Have you ever heard, a "bad" fall seeding is usually better than a "good" spring seeding? It is often very true! Weather conditions are usually more conducive to a fall planting or seeding. Here are some hints from Joe and Todd.

* Apply starter fertilizer with high Phosphorous. Phosphorous (P) is very important for successful seed germination and establishment of new grass.
* Use a drill or slice seeder, seeding in several directions, unless you like the row-look.

* Lightly rake seed into soil if a drill seeder is not used. Seed soil contact is a must. Lightly rolling will also ensure that good seed soil contact.

* Mulching will help maintain soil moisture needed for seed germination.

* And don’t forget to irrigate if Mother-Nature does not provide ample precipitation. The surface should be kept moist until seedlings become established.

If you choose to sod, here are a few pointers from the experts. Sodding can be done anytime the soil is not frozen and the site can adequately be watered. Here are some important considerations:

* Select grass appropriate for the site.

* Lay sod without stretch it and keeping it tight together.

* Lightly roll for good root soil contact.

* Irrigate to keep sod moist until well rooted and established.

**Author: Amy Stone**

6. INDUSTRY INSIGHTS.

A. REDHEADED PINE SAWFLY. Joe Boggs reported that redheaded pine sawfly (*Neodiprion lecontei*) was a frequent topic of conversation at the 2014 Ohio Christmas Tree Association Summer Meeting held last week at Carl and Dorothy’s Cut Your Own Christmas Trees just north of Yellow Springs (Greene County). The sawfly has two generations per season in Ohio. Second generation redheaded pine sawfly larvae remain in full swing in the northern part of the state while the larvae are nearing the completion of their development in southern Ohio.

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

Redheaded pine sawfly spends the winter in the soil or duff beneath host trees as pre-pupae inside cocoons. Pupation and adult emergence occurs in the spring. Sawflies are so named because adults resemble flies and the females have saw-like ovipositors. The females use their ovipositors to insert eggs into needles. After that eggs hatch, the first instar larvae begin feeding on needles, but they are too small to consume the entire needle. Instead, they feed along the needle’s edges producing clusters of dead, curled, straw-colored needles. Later instars consume entire needles. This feeding behavior and symptomology is characteristic of several of the “pine sawflies” including EUROPEAN PINE SAWFLY (*N. sertifer*).
The significance of this sawfly having two generations is that their conifer hosts are subjected to defoliation throughout much of the growing season with both the current and previous year’s needles consumed. Once larvae have totally stripped the needles, they often feed on stem tissue with heavy feeding damage killing the affected branches. Several Christmas tree growers reported that they have trees so severely disfigured that the trees cannot be sold this year.

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

*Author: Joe Boggs*

**B. ZIMMERMAN PINE MOTH.** Zimmerman pine moth (*Dioryctria zimmermani*, Family: Pyralidae) was also highlighted during the Christmas tree meeting. This native pest has gradually moved from being only an occasional pest found in various parts of Ohio, particularly in the northeast and northwest parts of the state, to becoming a frequent pest found throughout the state. The caterpillars attack susceptible conifers in landscapes and nurseries as well as in Christmas tree plantations. Hosts have traditionally been "hard pines" such as Scotch and Austrian. However, in recent years, the caterpillars have been found causing significant damage to eastern white pine where they often bore into the upper part of the main stems of small trees. It has been speculated that the expanding host range may represent different species of moths rather than an expansion of the species’ palate. However, this has not been confirmed through taxonomic investigations.

The most obvious indication that a tree is under attack by Zimmerman pine moth is the appearance on main stems of hard resin nodules. The nodules often appear in branch whorls and the viscid off-white pitch masses are characteristically laden with deep reddish-brown sawdust-like frass (excrement). Caterpillar feeding damage can weaken trees and cause significant dieback of main stems and lateral branches. Severely damaged trees in nurseries and Christmas tree plantations are unsalable. The phloem-feeding caterpillars are considered borers; however, their tunnels consist of feeding grooves in the phloem that are capped by matching grooves in the pitch mass. The dark grayish-red caterpillars will be revealed by carefully peeling away the pitch mass from the tree.

Zimmerman pine moths lay eggs in late-summer to early fall in terminal buds, flaps of bark, and cracks and crevices of the trunks where the branches meet. Upon hatching, the caterpillars may feed a little, and then they form a silken tent-like overwintering structure called a hibernaculum. These first instar caterpillars are targeted with insecticides in some control strategies; however, achieving effective application timing is difficult because of the prolonged period for egg deposition and the resulting egg hatch.

The overwintered larvae leave their hibernaculum in the spring to resume feeding and complete their development. These larvae may be controlled by making two applications 14 - 21 days apart of insecticides formulated as long-residual borer sprays, such as Onyx (bifenthrin) or Astro (permethrin). The first application should occur as serviceberry (*Amelanchier* spp.) blooms are beginning to fade, or as forsythia is just beginning to bloom.
A Zimmerman pine moth control program should also include sanitation. Heavily infested trees should be removed from nurseries or Christmas tree plantations and destroyed. Where trees only have a few pitch masses, the pitch should be excavated in mid-summer and the caterpillars killed. Since female moths often lay their eggs on or near the pitch masses created by previous generations, eliminating the masses will lessen re-infestation. Also, removing the pitch masses will speed wound closure lessening the destructive impact of this conifer pest.

Author: Joe Boggs

C. LATEST: 87th OHIO STATE UNIVERSITY GREEN INDUSTRY SHORT COURSE. This year's event will be held in conjunction with the 48th Annual Ohio Turfgrass Foundation Conference and Show on December 9 - 11, 2014 at the Kalahari Resort and Convention Center in Sandusky, Ohio.

Janna Beckerman of Purdue joined the roster this past week for the program, speaking about proper fungicide use and chemistry and ornamental diseases of import. Remember that this broad-based OSU green industry program will be coupled with the great Ohio Turfgrass Foundation Conference program that covers all aspects of the world of turfgrass and their additional partnerships with the Ohio Landscape Association and the Ohio Lawn Care Association.

Naturally, the programs will cover a wide range of pesticide applicator and professional certification credits.

Updates will occur throughout the summer and fall as we approach the Conference and Short Course. Look for information on the website at [http://www.osushortcourse.com] and here in the Buckeye Yard and Garden Line (BYGL).

Author: Jim Chatfield

7. WEATHERWATCH. The following weather information summarizes data collected at various Ohio Agricultural Research Development Center (OARDC) Weather Stations spanning the dates from August 1 - 20, 2014, with the exception of the soil temperatures which are readings from Wednesday, August 20, 2014 at 11:05 a.m.

Temperatures are beginning to feel a bit more summer-like; what do we expect - it is still August. While many areas have received rainfall recently, others remain dry and wishing for the wet weather. After a dry summer, the Toledo area has been on the receiving end of some recent substantial rains according to Amy Stone. Erik Draper and Curtis Young reported that adequate rainfall continues to fall in their areas respectively, just as it has all season long (braggers). Joe Rimelspach mentioned that central Ohio could use a little rain, as did Joe Boggs in northern Cincinnati.

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<td>2.0</td>
<td>74.15/69.96</td>
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For a link to the OARDC Weather Stations, visit: [ http://www.oardc.ohio-state.edu/centernet/weather.htm ]

Author: Amy Stone

8. COMING ATTRACTIONS.

A. 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://pested.osu.edu ].

B. PLANT TRIALS DAY AT THE CINCINNATI ZOO & BOTANICAL GARDEN. This all day symposium will take place August 28, 2014. Speakers include legendary plantsmen/nurserymen 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 [ https://tickets.cincinnatizoo.org/mainstore.asp?vid=2#cat1199 ].

C. OHIO PLANT DIAGNOSTIC WORKSHOP: THIRD NOTICE - SEPTEMBER 5. PESTICIDE CREDITS. The Ohio Department of Agriculture will be offering 5 hours of pesticide credits for this workshop. There are a great number of interesting samples and photographic diagnostic case studies we will be featuring this year, so don’t miss the 82nd Ohio Plant Diagnostic Clinic, open to all interested plant diagnosticians.

This 10:00 a.m. - 4:00 p.m. hands-on workshop held at OSU’s Secrest Arboretum in Wooster, OH includes diagnostic samples, walks and updates by OSU’s Tree Amigos (Joe Boggs, Erik Draper, and Jim Chatfield), and all the assembled experts covering plant pathology, entomology, and horticulture with all the assembled attendee-experts. Two added bonuses will be identification of herbaceous plants by Cathy Herms of OARDC and updates and tours of Secrest Arboretum by Ken Cochran, Joe Cochran and Paul Snyder. The registration fee of $40.00 includes program materials, lunch and refreshments.

D. FARM SCIENCE REVIEW. This year’s Farm Science Review takes place September 16 - 18, 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 [ http://www.gwynne.osu.edu ] for more information now. Farm Science Review pre-show tickets are $7.00 at all OSU Extension county offices, many local agribusinesses, and also online at [ http://fsr.osu.edu/visitors/tickets ]. Tickets are $10.00 at the gate. Children 5 and younger are admitted free. Hours are 8:00 a.m. - 5:00 p.m., September 16 - 17 and 8:00 a.m. - 4:00 p.m. September 18, 2014.
E. 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://pested.osu.edu].

F. ARBOREATUM FEAST, PART DEUX: MAPLE SYRUP TASTING IS ADDED TO THE MIX! The 2nd annual ArborEatum edible landscape feast and sharing will be held on Wednesday, October 8, 2014 at OSU's Secrest Arboretum at the Ohio Agricultural Research and Development Center in Wooster. More details to come, but start planning your menu items. Last year's hits were legion, from over 30 entries from Cleveland's Lois Rose (from bitter orange marmalade to medlar jelly) to ramps soup to controlling invasives one-bite-at-a-time Autumn olive pate de fruits. Lambsquarter omelettes anyone?

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://pested.osu.edu].

H. THE 87th OHIO STATE UNIVERSITY GREEN INDUSTRY SHORT COURSE. Mark your calendars! The 87th OSU Green Industry Short Course, formerly the OSU Nursery Short Course, will be held in conjunction with the 48th Annual Ohio Turfgrass Foundation Conference and Show on December 9 - 11, 2014 at the Kalahari Resort and Convention Center in Sandusky, Ohio. For more information, visit the Short Course website at: [http://www.osushortcourse.com].

I. TRI-STATE GREEN INDUSTRY CONFERENCE. Save the Date - 2015 Tri-State Green Industry Conference on February 5, 2015 at the Sharonville Convention Center, 11355 Chester Rd., Cincinnati, OH 45246. The Tri-State Green Industry Conference is a collaborative effort between Ohio State University Extension, Purdue Extension, Cincinnati State Technical and Community College, and the Cincinnati Zoo and Botanical Garden. It features a variety of high quality education and training for professionals in the areas of Annuals & Perennials, Garden Center & Greenhouse Innovation, 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].

8. BYGYLOSOPHY. "Rest is not idleness, and to lie sometimes on the grass under trees on a summer's day, listening to the murmur of the water, or watching the clouds float across the sky, is by no means a waste of time." - John Lubbock

APPENDIX
ADDITIONAL WEBSITE RESOURCES:
Ask a Master Gardener Volunteer
http://mastergardener.osu.edu/ask

Buckeye Turf
http://buckeyeturf.osu.edu

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

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 August 19th conference call:  Joe Boggs (Hamilton); Jim Chatfield (Hort and Crop Science and Plant Pathology); Julie Crook (Hamilton); Erik Draper (Geauga); Denise Johnson (Master Gardener Volunteer Program); Joe Rimelspach (Plant Pathology); Amy Stone (Lucas); and Curtis E. Young (Van Wert).

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 a service of the OSU Extension Nursery, Landscape, and Turf Team (ENLTT). 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.