

Pest Management News

Dr. John D. Hopkins, Associate Professor and Extension Entomologist – Coeditor
Dr. Kelly M. Loftin, Professor and Extension Entomologist – Coeditor

Contributors

Dr. Becky McPeake, Professor and Wildlife Extension Specialist
Dr. Bob Scott, Director, Rice Research & Extension Center
Sherrie Smith, Plant Pathology Instructor, Plant Health Clinic Diagnostician
Dr. Tamara Walkingstick, Associate Professor and Associate Center Director-AFRC

Letter #1

May 31, 2017

Emerald Ash Borer Treatment in Landscape Ash Trees

John D. Hopkins and Tamara Walkingstick

Emerald ash borer, *Agrilus planipennis* Fairmaire, an invasive insect native to Asia, has killed tens of millions of ash trees in urban, rural and forested settings. The emerald ash borer, (EAB) was found in Arkansas in the summer of 2014 and is now a permanent resident in Arkansas. Home owners in Arkansas will have to make a decision about protecting their ash trees. Control is possible but will have to be maintained for the life of the tree.

Decision Making Steps:

Homeowners can decide if treatment is necessary and what treatment options best suit their situation by asking themselves a few simple questions.

Question 1: Is it an ash tree? If it is not an ash tree, then it is not EAB.



**Does your
tree have
opposite,
compound
leaves? If
so, then it
is an ash
tree.**

If it's not an ash, then there might be some other issue but it's not EAB!

Question 2: Is your tree already infested with EAB?

NO. If not, then you must decide to either keep or remove the tree.

YES. If so, what percent or proportion of the tree canopy is still alive?

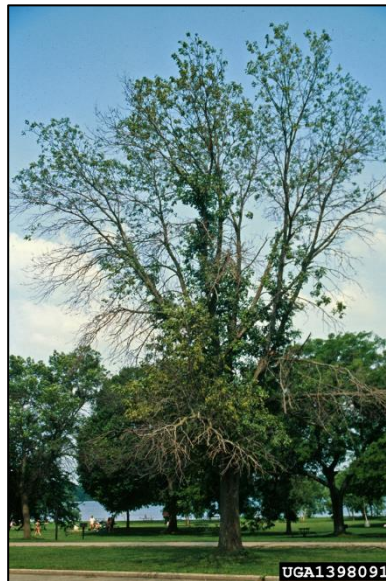
Take a look at the photos below. Which one best describes your tree?



100% Crown Healthy: no tree damage



**Determine your risk.
Where is EAB**



30 to 50% Crown damage



Treat in early spring or remove



More than 80% crown damage



Remove tree

If your tree has less than 30% crown damage, here are your options:

- 1) **Remove the tree:** Homeowners need to understand the costs of treating their ash trees for the foreseeable future versus the cost of removing the tree. If you remove the tree, please pay attention to requirements of the Arkansas EAB Quarantine. **DO NOT MOVE** the wood outside of any quarantined area! **Due to the expanded range of Emerald Ash Borer (EAB) infestation sites within Arkansas, the Arkansas Agriculture Department's State Plant Board (ASPB) has approved a statewide quarantine for ash items as of March 27, 2018. Regulated articles can be moved within the state, but cannot move outside of the state without complying with the federal EAB regulations.** Link to Arkansas EAB Quarantine: <http://www.aad.arkansas.gov/quarantines>

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

- 2) **Protective Cover Sprays:** The first type of insecticide treatment targets the adults. Insecticides that serve as a protective cover sprays are applied to the trunk, main branches, and (depending on the label) foliage and kill the adults as they feed on the ash leaves. These treatments are best timed during the peak period of adult activity which is usually just after the adults emerge in the spring. Permethrin, bifenthrin, cyfluthrin, and carbaryl are all preventive trunk, branch, and foliage cover sprays.
- 3) **Systemic insecticides:** Early stage larvae that tunnel under the bark can be killed with insecticides that move systemically in the tree. These treatments work best when timed to be present when the young larvae are present and before there has been extensive injury.

There are three types of systemic insecticide applications used for control of EAB falling into three categories:

- 1) Systemic insecticides: Applied as soil injections or drenches
- 2) Systemic insecticides: Applied as trunk injections or trunk implants
- 3) Systemic insecticides: Applied as a trunk spray

Insecticide formulations and application methods that have been evaluated for control of EAB are listed in the **Table on the next page**. Some products can be purchased and applied by homeowners while other can only be applied by professional applicators. Strategies for their effective use are described below.

Please note that pesticide labels and registrations may change. It is YOUR legal responsibility as the pesticide applicator, to read, clearly understand, and follow all current label directions for the specific pesticide product being used.



Emerald Ash Borer Adult
Howard Russell, Michigan State University, Bugwood.org



Emerald Ash Borer Larvae
David Cappaert, Bugwood.org



Emerald Ash Borer Symptoms - Serpentine Larval Galleries
Kelly Oten, North Carolina Forest Service, Bugwood.org

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

Insecticide Options for Professionals and Homeowners for Controlling Emerald Ash Borer in Arkansas*

Insecticide Formulation	Active Ingredient	Application Method	Recommended Timing
Products Intended for Sale to Professional Applicators			
Merit® (75WP, 75WSP, 2F)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Safari™ (20 SG)	Dinotefuran	Soil injection or drench	Mid- to late spring
Xytect™ (2F, 75WSP)	Imidacloprid	Soil injection or drench	Early to mid-spring or mid-fall
Zylam® Liquid Systemic Insecticide	Dinotefuran	Soil injection or drench	Mid- to late spring
Imicide®	Imidacloprid	Trunk injection	Mid- to late spring after trees have leafed out
TREE-äge™	Emamectin benzoate	Trunk injection	Mid- to late spring after trees have leafed out
TreeAzin®	Azadirachtin	Trunk injection	Mid- to late spring after trees have leafed out
Safari™ (20 SG)	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Zylam® Liquid Systemic Insecticide	Dinotefuran	Systemic bark spray	Mid- to late spring after trees have leafed out
Astro®	Permethrin	Preventive trunk, branch, and foliage cover sprays	Two applications at 4-week intervals; first spray should occur at 450-550 degree days (50°F, Jan.1); coincides with black locust blooming
Onyx™	Bifenthrin		
Tempo®	Cyfluthrin		
Sevin® SL	Carbaryl		
Products Intended for Sale to Homeowners			
Bayer Advanced™ Tree & Shrub Insect Control	Imidacloprid	Soil drench	Early to mid-spring
Optrol™	Imidacloprid	Soil drench	Early to mid-spring
Ortho Tree and Shrub Insect Control Granules®	Dinotefuran	Granules	Mid- to late spring
All chemical information provided above is given with the understanding that no endorsement of named products is intended, nor is criticism implied of similar products that are not mentioned. Individuals who use pesticides are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Before purchasing or using any pesticide, always read and carefully follow the label directions.			
*from Herms DA, McCullough DG, Smitley DR, Clifford CS, Cranshaw W. 2014. Insecticide options for protecting ash trees from emerald ash borer. North Central IPM Center Bulletin. 2nd Edition. 16 pp.			

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

Face Flies Abundant on Horses and Cattle

Kelly M. Loftin

We are beginning late spring/early summer with face fly populations (*Musca autumnalis*) in north Arkansas well above the economic injury level. This is not a big surprise considering the number of complaints received and investigated this past winter. The complaints were from homeowners and others with tremendous numbers of flies inside homes and other structures, especially following warm periods. In nearly all of these complaints, the culprits were face flies. Why? Face fly winter survival is unique in that they overwinter as adults in protected areas such as attics, cracks and crevices and even church steeples.



Face flies overwintering in a farmhouse attic.

During May we have observed cattle with face fly populations well above the treatment threshold of ten flies per animal, and so far, the population is still on the rise. When face fly abundance is high, disrupted grazing occurs, resulting in reduced weight gain and milk production. This fly is a potential mechanical vector of *Moraxella bovis*, a principal pinkeye (infectious bovine keratoconjunctivitis) bacterium. Because face flies spend little time on the animal and intermittently feed, they can feed on multiple animals in a day thus potentially spreading the pathogen to several animals.

The face fly life cycle requires fresh bovine manure for egg laying and larval development. Even though cattle are essential for face fly populations to develop, this fly readily feeds on horses and can cause serious problems. With the horse being a companion animal, it is more difficult to establish a treatment threshold. In some horses, presence of just a few flies can cause extreme annoyance making the animal very difficult to work with. More importantly, face flies can also transmit the bacterium responsible for pinkeye in horses.



Face flies gathered around the eyes of a horse.

In cattle, an average of ten flies per face can cause economic loss. At this population control is necessary.

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

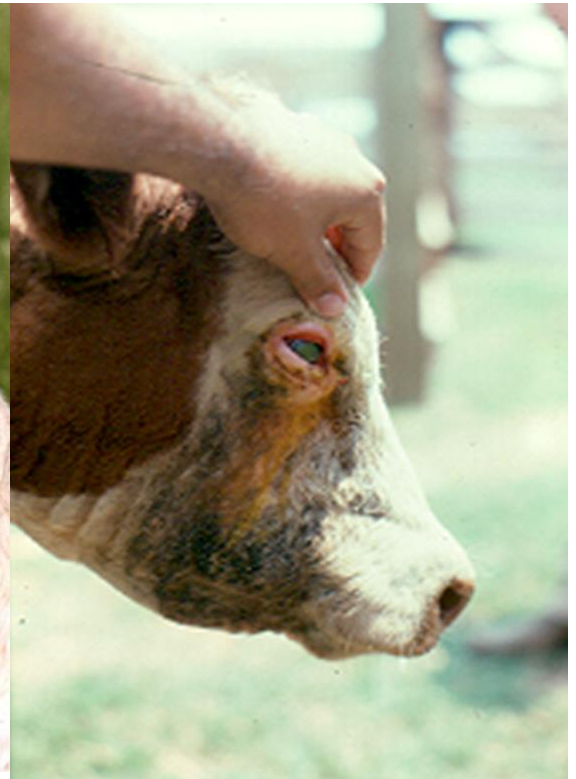
The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

To monitor face flies, count the number of flies on the face of 10-15 animals. If average number per animal begins to approach ten flies per face, treatment is justified. Face flies can be difficult to control because: 1) they primarily occur on the hard-to-treat animal's face; 2) only a very small percentage of the population will be on the host at any given time; and 3) face flies are intermittent feeders and spend little time on the animal.



Calf with face flies well above treatment threshold.



Pinkeye infected calf.

Face flies are usually controlled with self-treatment devices or insecticide impregnated ear tags. A few pour-on insecticides that allow for application to the face are effective. Forced-use back rubbers equipped with Face Flyps charged with a pyrethroid insecticide such as permethrin or an organophosphate insecticide such as coumaphos are effective. Paired insecticide dust bags will also provide control when hung properly. Some of the insecticide impregnated ear tags cattle will provide control while others simply reduce the population. Be certain to read the ear tag label. Label statements that read "controls face flies" are generally more effective than ear tags with labels that read "reduces face flies". Because face flies only develop in cattle manure, feed-through larvicides/IGRs (insect growth regulators) such as ClariFly® will prevent new flies from emerging. However, proximity to untreated herds and the longer flight range of face flies can reduce the level of control.

Generally, face flies are less difficult to treat in horses than cattle simply because horses are more accustomed to routine grooming, which makes frequent treatment possible. Wipe-ons, pastes, ointments and roll-on insecticides containing permethrin, pyrethrins and/or piperonyl butoxide are effective at repelling face flies from around the eyes. Examples of products used to spot treat for face flies around the eyes of horses include War Paint insecticide paste, Pyranna Equine Roll-on, Swat

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

Clear ointment and Fly Rid ointment. Be careful during application to avoid applying the product directly into the eye. Products registered for use against insect pests of cattle and horses are listed in the 2018 Insecticide Recommendations for Arkansas (<http://www.uaex.edu/publications/mp-144.aspx>).

Rosette or Double Blossom of Blackberry

Sherrie Smith

Rosette or Double Blossom, caused by the fungus *Cercospora rubi*, is a serious disease of many cultivars of blackberries. Infection causes reduced yields, poor quality fruit, and cane death. Buds on primocanes become infected in early summer, but there are no symptoms until next spring. At that time a proliferation (witches-broom) of shoots occurs at the infected bud site. These shoots are usually smaller than normal and have pale green foliage that later turns bronze. Unopened flower buds are elongated, coarser, and often redder than uninfected buds. Sepals enlarge and sometimes differentiate into leaves. The petals of unfolding flowers are usually pinkish, wrinkled, and twisted, giving the appearance of a double bloom. Berries do not develop from infected flowers. Double Blossom can be controlled in areas where it is not severe with sanitation. Infected rosettes and blossom clusters should be removed before they open, to prevent dispersal of the spores. Old floricanes should be removed and destroyed immediately after harvest. The removal of all wild blackberries and dewberries around the planting is also recommended. In areas where disease pressure is more severe both primocanes and floricanes may be cut to the ground immediately after harvest. The primocanes are then allowed to regrow from buds at the base. Chemical control starts at first bloom. Abound, Cabrio, and Pristine are labeled for Double blossom. Homeowners must rely on sanitation.

Rosette or Double Blossom of Blackberry



Photos by Sherrie Smith

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

Fence Designs for Excluding Deer

Becky McPeake (Reprinted from PMN#1 053112)

Hundreds if not thousands of fence designs have been tested to keep deer from gardens, landscapes, orchards, and crops. Fencing, when combined with deer population management, habitat alteration, and repellents, is part of an IPM strategy for reducing damage. Listed below are some examples of fence designs.

1. Thin, low-visibility fencing is sold in most home and garden centers. These types of fences need to be drawn tight to prevent songbirds and other non-target species from becoming entangled. The material should be high enough that deer aren't tempted to jump over, and secured close to ground level so deer can't crawl under. Typically 8 foot high fencing is recommended, though deer are known to jump the 14 foot fence surrounding the Clarksville Fruit Research Station. Fencing a small area, such as a 6 foot x 8 foot space, decreases the chance that deer will jump even if fencing is only 6 feet high.
2. Double fencing with 5 foot high fences can deter deer from jumping. The two five-foot fences should be placed 4 feet apart.
3. Single strands of electric fencing can be effective if deer populations are low. A single strand can be placed about 30 inches off the ground. Place peanut butter on foil and drape over the fence for deer to receive a shock and associate the fence as something to avoid. More strands are needed where deer populations are high. Multiple strands need to be placed about 12 inches apart. One study suggested that using a combination of electric fencing and repellents was more effective than using the peanut butter trick at keeping deer away.
4. A few demonstrations have reported success with stringing monofilament fishing line of 50 pound test or greater. The line was drawn between posts at 6 inch intervals from just above ground level to 2 feet. An Arkansas Master Gardener reported success using monofilament, and suggested using flagging to make sure people and pets don't accidentally walk through the invisible fence. Place flagging on middle or lower strands to reduce the chance of alerting deer to jumping clearance.
5. Slanted fence designs have proven effective for excluding deer and when combined with electricity, this fence design is very formidable. A slanted fence is believed to confuse deer which have poor depth perception and therefore difficulty seeing the three-dimensional effect of the slanted fence. A particular design reported by the [Virginia Cooperative Extension](#) is a 7-strand fence angled about 45 degrees. Posts were driven every 30 feet with 4 to 5 feet remaining above ground. Eight-foot posts with 7 strands of electrified wire were slanted and attached to the top of the posts. The 7th or top wire protruded about 1 ½ feet beyond the supporting post. The slanted fence faces outward, such that the lowest strand is closest to the plants being protected, and the top strand is toward the deer. The lowest electrified wire was just a few inches off the ground to repel groundhogs and other small animals.

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.



Slope Deer Fence: 7-Wire High-Tensile Electric

illustration by Gallagher Corporation

In certain circumstances, fencing can be an option for excluding deer. Safety considerations should be considered when using any fence. Efforts should be made to warn people of invisible or electrified fencing. Some homeowner associations may disallow electric fencing or fencing in any form. Always check state and local ordinances before implementing these and other wildlife damage practices.

Name That Weed

Bob Scott

I'm mixing it up a bit this month. Other than being poisonous this plant is really not a weed. It's the first plant I ever keyed out in Botany class way back when and is the only species in the genus ***Podophyllum*** and is an herbaceous perennial plant in the family Berberidaceae. It is widespread across most of the eastern United States and southeastern Canada. It's a woodland plant typically growing in colonies derived from a single root. The stems grow to 30–40 cm tall, with palmately lobed umbrella-like leaves up to 20-40 cm diameter with 3-9 shallowly to deeply cut lobes. The plants produce several stems from a creeping underground rhizome; some stems bear a single leaf and do not produce any flower or fruit, while flowering stems produce a pair or more leaves with 1-8 flowers in the axil between the apical leaves. The flowers are white, yellow or red, 2-6 cm diameter with 6-9 petals, and mature into a green, yellow or red fleshy fruit 2-5 cm long. All parts of the plant are poisonous, including the green fruit, but once the fruit has turned yellow, it can be safely eaten with the seeds removed. Although I would not. The substance they contain (podophyllotoxin or podophyllin) is used as a purgative and as a cytostatic. Posalfilin is a drug containing podophyllin and salicylic acid that is used to treat the plantar wart. They are also grown as ornamental plants for their attractive foliage and flowers. These plants are considered obligate or dependent on mycorrhizae.

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.

Be the first to email me at bscott@uaex.edu (**use this link**) with the most commonly used common name, which is appropriate for this newsletter, and win a prize. Do not hit reply or reply all to this email as your answer will not go to Bob Scott.



Flower



Leaves

To The Readers

Please offer any suggestions for Urban or Livestock Integrated Pest Management topics (insect pests, plant diseases, weed problems, wildlife control problems) that you would like to see – ***OR*** – feel free to submit an article that you have prepared. Kelly and I will be glad to include it (subject to editing). Send feedback to jhopkins@uaex.edu or kloftin@uaex.edu

University of Arkansas, United States Department of Agriculture and County Governments Cooperating.

The University of Arkansas System Division of Agriculture offers all its Extension and Research programs and services without regard to race, color, sex, gender identity, sexual orientation, national origin, religion, age, disability, marital or veteran status, genetic information, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer

The mention of any commercial product in this publication does not imply its endorsement by the University of Arkansas Cooperative Extension Service over other products not named, nor does the omission imply that they are not satisfactory.