

Saving your Ash Trees from the Emerald Ash Borer Beetle: *A Homeowner's Guide*

The Emerald Ash Borer

The Problem: The Emerald Ash Borer attacks and kills all ash tree species native to North America

Emerald Ash Borer



Emerald Ash Borer

Adults are about 1/2 inch long. They are bright metallic green with purple abdominal segments under the wing covers.



Unprotected Ash Tree



Cut Down Dead Trees



[Ash trees not protected with insecticides typically die 4–6 years after initial infestation.]

Signs and Symptoms of EAB Infestations



D-Shaped Exit Holes



Galleries



Dieback



Bark Splitting



Woodpecker Activity

JAN

FEB

MAR

APR

MAY

Adults Active

JUN

JUL

AUG

SEPT

OCT

NOV

DEC



REPORT INFESTED TREES: 1-800-342-2507

For more EAB Identification Tips and its Look-a-Likes, visit: <http://mda.maryland.gov/plants-pests/Documents/e-2939.pdf>

Cover Photo: Green Ash, *Fraxinus pennsylvanica*/William Jacobi, Colorado State University, Bugwood.org



Martin O'Malley, Governor • Joseph P. Gill, Secretary



Maryland Forest Service
General Information:
1-877-620-8DNR • 410-260-8531
TTY: 1-800-735-2258
www.dnr.maryland.gov

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Do You Have an Ash Tree?

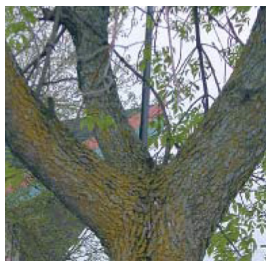
Extension Bulletin E-2942

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Ash Tree Identification

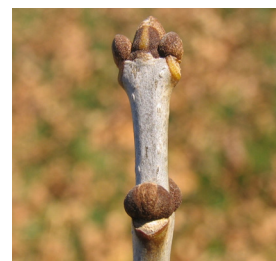
All North American ash species (*Fraxinus* species) are vulnerable to the emerald ash borer. Mountainash and pricklyash are not true ash, and therefore, will not be susceptible to attack.

To properly identify ash trees, use the following criteria:



Branches and Bud Arrangement—

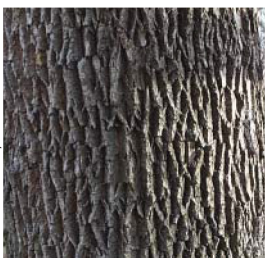
Branches and buds are directly across from each other and not staggered. When looking for opposite branching in trees, please consider that buds or limbs may die; hence not every single branch will have an opposite mate.



Diane Brown-Ryllewski
Michigan State University

Leaves—

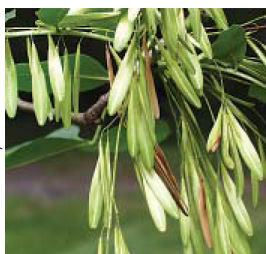
Leaves are compound and composed of 5-11 leaflets. Leaflet margins may be smooth or toothed. The only other oppositely branched tree with compound leaves is boxelder (*Acer negundo*), which almost always has three to five leaflets. *White ash (on left) and green ash (on right)*



*Paul Wray
Iowa State University

Bark—

On mature trees (left), the bark is tight with a distinct pattern of diamond-shaped ridges. On young trees (right), bark is relatively smooth.



*Paul Wray
Iowa State University

Seeds—

When present on trees, seeds are dry, oar-shaped samaras. They usually occur in clusters and typically hang on the tree until late fall, early winter.

MICHIGAN STATE
UNIVERSITY
EXTENSION



Insecticides are the only way you can protect your ash tree from EAB—

When should you think about insecticide treatment?

Emerald Ash Borer

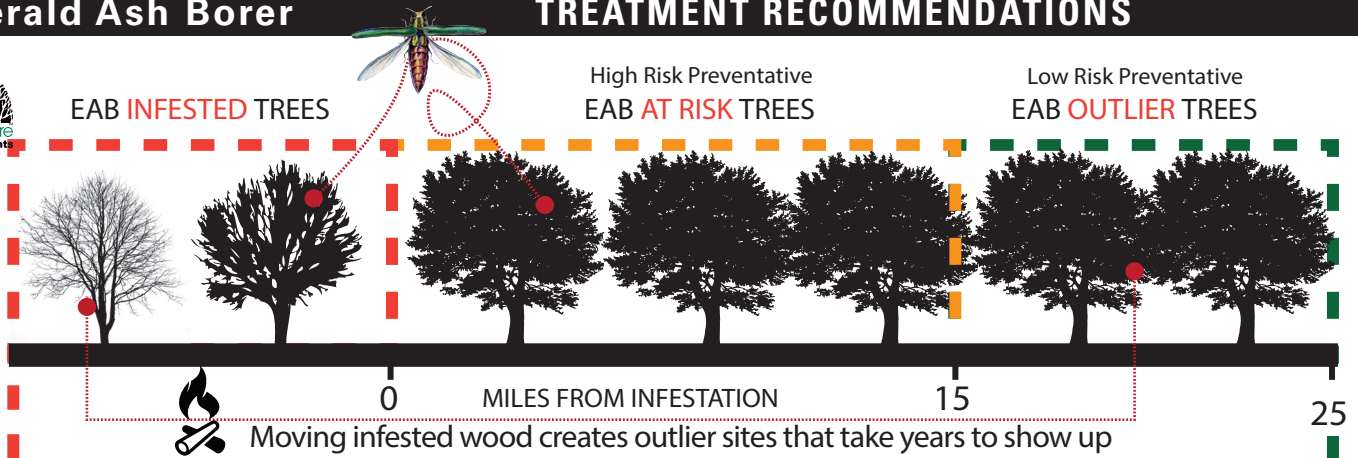
TREATMENT RECOMMENDATIONS



EAB **INFESTED** TREES

High Risk Preventative
EAB **AT RISK** TREES

Low Risk Preventative
EAB **OUTLIER** TREES



What ash trees to treat?

30% or LESS

Only treat trees with less than 30% canopy loss.
Treating trees with greater than 30% canopy loss may result in less likelihood for success.

ALL TREES

All trees of value should be considered for treatment. Trees may be infested but not showing symptoms.
Preventative treatments have a higher likelihood for success.

HIGH VALUE

High value trees should be considered for treatment.

EMERALD ASH BORER INSECTICIDE TREATMENT: BENEFITS vs. COSTS

Is it worth it to treat your trees?

BENEFITS

Trees provide multiple benefits to the Ecosystem and Community

BENEFITS INCLUDE:

- Storm Water Reduction
- Reduction in Electricity and Energy Costs
- Improving Air Quality
- Increasing Property Value and Aesthetics
- Reduction in Atmospheric CO₂

EXAMPLE:

For a single family residential area: a 12" diameter ash will provide **\$101–110 of benefits per year** (*Depending on the area of the state in which you reside*)

COST

Treatment options include soil drenches/injections, basal sprays, or trunk injections

POTENTIAL COSTS INCLUDE:

- Soil Drench with Imidacloprid: \$3–8/diameter inch, (annual treatment)
- Trunk Injection with TREE-äge: \$8–17/diameter inch, (effective for two years)

EXAMPLE:

- Soil Drench with Imidacloprid on a 12" diameter tree is \$36–\$96 per year
- Trunk Injection with TREE-äge on a 12" diameter tree is \$48–\$102 per year

Tree Benefits Can Outweigh the Cost of Treatment!

See how much value your tree provides to the community at: www.treebenefits.com

INSECTICIDE OPTIONS AND APPLICATION METHODS

Always read and follow current label directions for the specific pesticide product being used.

Homeowners do not have access to some of the products marketed to professionals and arborists. This document does not endorse the listed insecticide products over other options, and includes only the most common treatments. For product efficacy questions, consult an arborist.

For best results, apply insecticides in Spring



Products Marketed to Professionals and Arborists

Insecticide Active Ingredient	Examples of Products	Treatment Frequency and Suggested Optimal Timing ¹	Application Methods
Eemectin benzoate	TREE-äge Restricted Use Pesticide Any person using this product is required to be a licensed or certified pesticide applicator	Every 2-3 years Spring/Fall (Late April-Late May, August-September)	Trunk Injection
Azadirachtin (neem tree seed oil)	TreeAzin	Every 1-2 years Spring (Late April-Late May)	Trunk Injection
Dinotefuran	Safari (B and S)	Once per year Spring (Late April-Late May)	Bark Spray (B), soil injection and soil-applied drench (S)
	Transect (B and S)		
Imidacloprid	Merit Products (S)	Once per year	Trunk Injection (T), soil injection and soil-applied drench (S)
	Xylect (S)	Trunk Injections: Spring (Late April-Late May)	
	Ima-jet (T)	Soil Treatment: Spring/Fall (Leaves out/ground not frozen)	
	Imicide (T)		

Products Marketed to Homeowners

Insecticide Active Ingredient	Examples of Products	Treatment Frequency and Suggested Optimal Timing	Application Methods
Dinotefuran	Green Light Emerald Ash Borer Killer	Once per year Spring (Late April-Late May)	Granular soil-applied product
Imidacloprid	Optrol	Once per year ² Spring/Fall (Late April-Late May, Fall application usually requires a higher rate)	Soil applied drench
	Bayer Advanced Tree and Shrub Insect Control		
	Bonide Tree and Shrub Insect Control		
	Ferti-lome Systemic Insect Drench		
	Ortho Max Tree and Shrub Insect Control		

¹ Application timing will vary depending on location and seasonal temperature fluctuations. Treatments should be done while trees are transpiring (after leaf-out/before leaf drop). In most cases, **optimal timing is in Spring**.

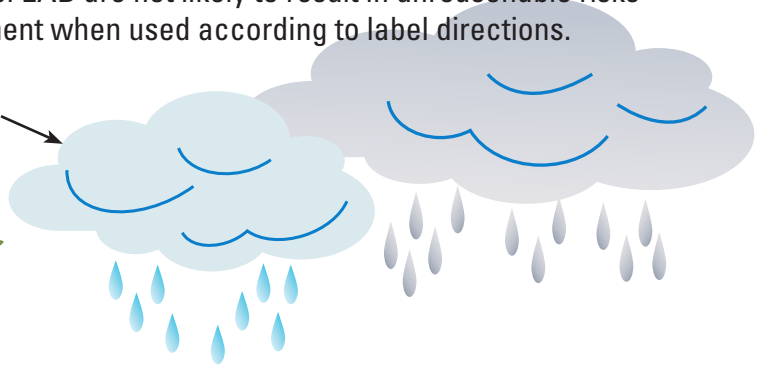
² Recommended only for trees less than 48 inches in circumference or 15 inches DBH (as measured 4.5' above ground level); for exceptions, check specific pesticide product labels.

Ensure that you treat your trees properly

Follow these recommendations to Protect Water Quality

Insecticides commonly used to control EAB are not likely to result in unreasonable risks to human health or the environment when used according to label directions.

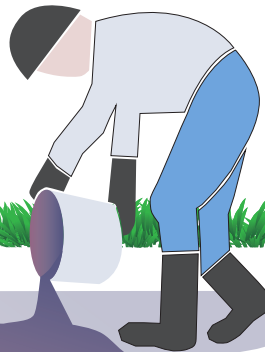
Avoid applications when heavy rainfall is expected.



For soil-applied products and bark sprays, the following considerations are important:

- Properly prepare application site and apply product according to label instructions.
- Consider avoiding use within 25 feet of water bodies. This includes: streams, lakes, ponds, wetlands or conduits to surface water or groundwater (street curbs, storm drains, sumps or well heads).
- Do not apply when heavy rainfall is expected within 24 hours of the planned treatment.

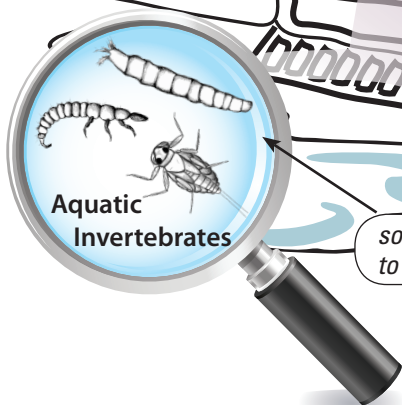
Product can leach to ground-water—use only recommended amounts to treat trees.



Do not use products when soil is frozen or saturated.

Sweep-up granular products from sidewalks back onto treatment area around tree.

Avoid use when closer than 25 feet from a street curb or storm drain.

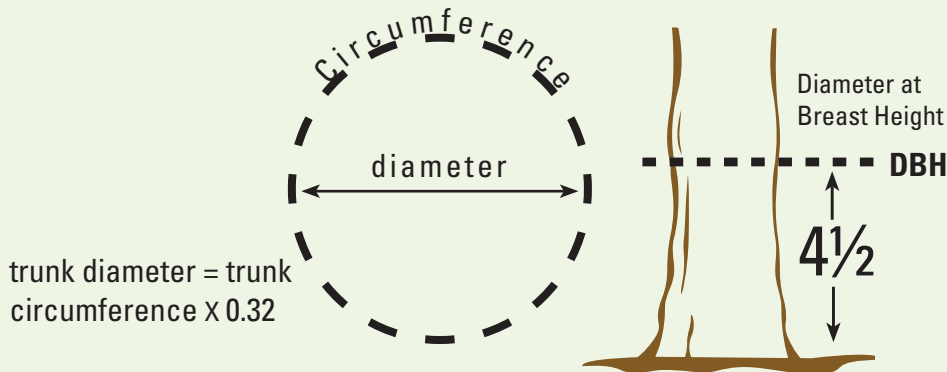


some products are highly toxic to aquatic invertebrates.



The information on "Protecting Water Quality" was borrowed from

Measure Your Ash Trees

It is important to measure your ash trees to determine the appropriate treatment and to accurately follow the use instructions on insecticide labels.



CONVERSION TABLE: Tree Measurements at 4½ Feet Above Ground Level

Circumference—Inches	Diameter at Breast Height (DBH)—Inches
15	5
20	6
25	8
30	9.5
35	11
40	13
45	14
> 48 inches 	> 15 inches 
In general, large trees are best treated by a professional. For exceptions, check specific pesticide product labels.	

Borrowed from Minnesota Department of Agriculture EAB Homeowner Guide

DO NOT move firewood • Burn it where you buy it • SPREAD THE WORD

This publication was produced in collaboration with the following State, US government and other organizations:



Other Resources:

www.emeraldashborer.info—EAB Information

www.mda.maryland.gov/plants-pests/Pages/eab.aspx—Maryland EAB Information/Maryland

Quarantine:

www.aphis.usda.gov—EAB Information/national quarantine information

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