

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

The Emerald Ash Borer

The problem: Emerald ash borers attack and kill 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 Infestations



D-shaped exit holes



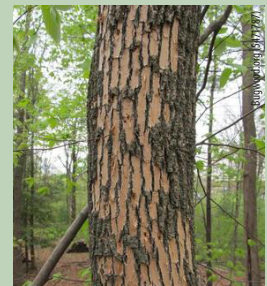
Galleries



Dieback



Bark splitting



Woodpecker activity

JAN

FEB

MAR

APR

MAY

Adults Active

JUN

JUL

AUG

SEPT

OCT

NOV

DEC



REPORT INFESTED TREES: extension.umd.edu/hgic

For more identification tips and look-a-likes, visit mda.maryland.gov/plants-pests/Documents/e-2939.pdf

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



Maryland Forest Service
Tawes State Office Building
580 Taylor Avenue, E-1
Annapolis, Maryland 21401

410-260-8531 • 877-620-8DNR • TTY: 800-735-2258
dnr.maryland.gov/forests

Do You Have an Ash Tree?

Extension Bulletin E-2942

Ash Tree Identification

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

To properly identify ash trees, use the following criteria:



Ash tree

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. Therefore, not every single branch will have an opposite mate.



Buds



Diane Brown, Dftmsvtd
Michigan State University

White ash

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.



Green ash



*Paul Wiley,
Iowa State University

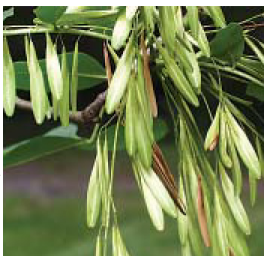
Mature tree

Bark

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



Young tree



*Paul Wiley,
Iowa State University

Seeds

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.

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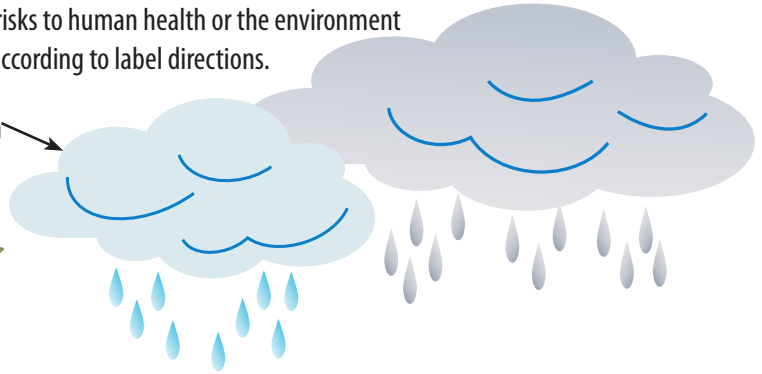
**Emerald
Ash Borer**

Ensure that you treat your trees properly

Follow these recommendations to Protect Water Quality

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

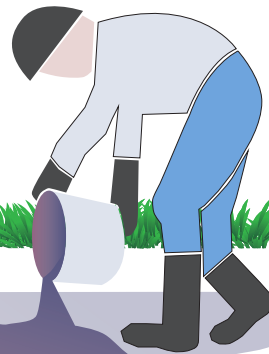
Avoid applications when heavy rainfall is expected.



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 groundwater—use only recommended amounts to treat trees.

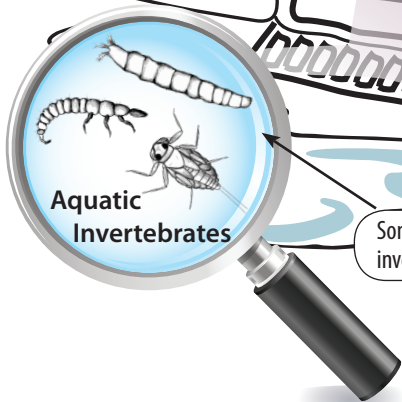


Do not use products when soil is frozen or saturated.

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

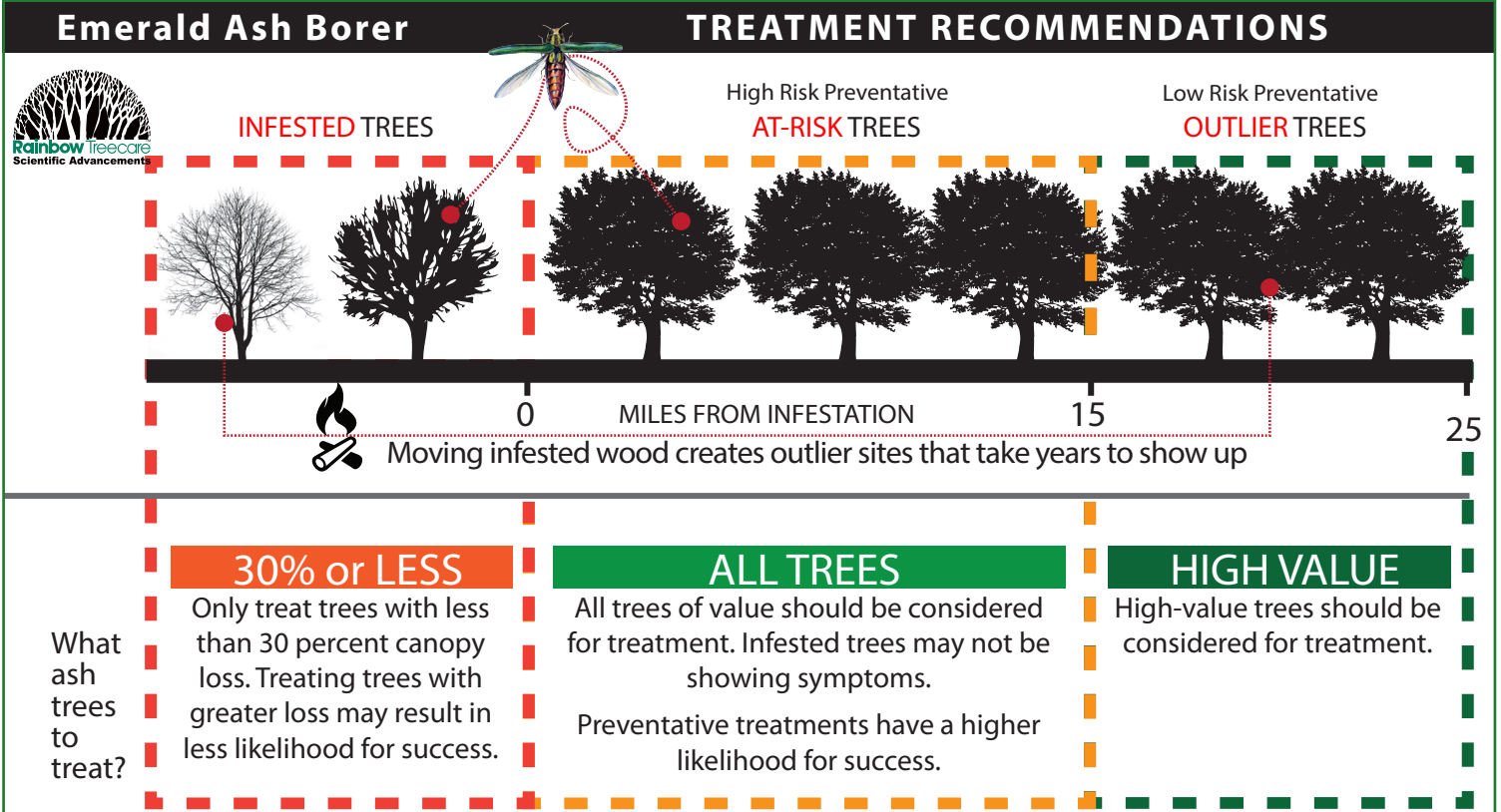
Avoid use when closer than 25 feet from a street curb or storm drain.

Some products are highly toxic to aquatic invertebrates.



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

When should you think about insecticide 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

- Storm water reduction
- Electricity and energy cost reduction
- Air quality improvement
- Increase in property value and aesthetics
- Atmospheric carbon dioxide reduction

EXAMPLE:

For a single family residential area: a 12-inch 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

- 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 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 the spring



Products Marketed to Professionals and Arborists

Insecticide Active Ingredient	Examples of Products	Treatment Frequency and Suggested Optimal Timing ¹	Application Methods
Eamectin 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
	ArborMectin		
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 Injections: Spring (Late April-late May) Soil Treatment: Spring/Fall (Leaves out/ground not frozen)	Trunk injection (T), soil injection and soil-applied drench (S)
	Xytect (S)		
	Ima-jet (T)		
	Imicide (T)		

Products Marketed to Homeowners

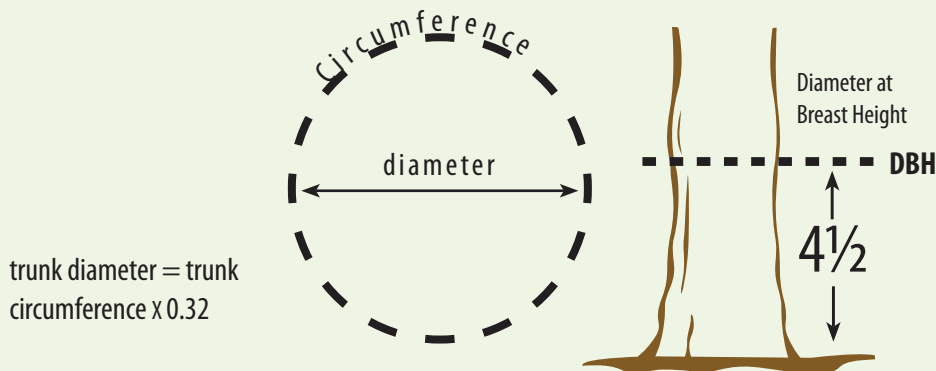
Insecticide Active Ingredient	Examples of Products	Treatment Frequency and Suggested Optimal Timing	Application Methods
Dinotefuran	Green Light Emerald Ash Borer Killer	Once per year Spring (Late April-late May)	Granular soil-applied product
Imidacloprid	Optrol	Once per year ² Spring/Fall (Late April-late 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.

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 Emerald Ash Borer 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:

emeraldashborer.info—Emerald Ash Borer Information
mda.maryland.gov—Maryland Department of Agriculture
aphis.usda.gov—National Quarantine Information

For information referenced in this publication please contact the Maryland Forest Service
 Colleen Kenny, Emerald Ash Borer Forester • 410-260-8531 • colleen.kenny@maryland.gov

