Emerald Ash Borer: Homeowner Guide to Insecticide Selection, Use, and Environmental Protection

Before Using an Insecticide Consider the Following

✓ Identify how Close Your Property is to an EAB Infestation

Consider insecticide treatments only when your property is within 15 miles of an EAB infestation, or if you are within a county that is quarantined for EAB. Check MDA's Interactive EAB Survey Map for current infestations in Minnesota.

✓ Remove and Replace Ash Trees on Your Property

It may be more cost effective to replace a small or struggling ash tree than to pay the cost of ongoing treatments. In addition, trees in poor health are not likely to respond well to treatments. Do not treat trees showing more than 50 percent canopy decline; these ash trees are unlikely to recover even if treated. Check with a certified arborist or licensed professional applicator to compare costs and benefits of treatment versus removal.

✓ Treatment Requires a Long-Term Commitment

Once EAB arrives in an area, it is likely to remain a constant threat to ash trees. You can protect your ash trees with insecticide treatments. Periodic treatments may be needed for the rest of the tree's life.

✓ Check Your Calendar – Timing is Everything

To ensure the insecticide is distributed throughout the tree to control EAB, soil-applied insecticides available to homeowners are most effective when applied mid-to late spring or in mid-fall. Do not apply products when the soil is frozen. Refer to the table on page 2 for more information on the timing of different insecticide options. Weather conditions or other factors may alter these recommendations. Read pesticide labels carefully.

✓ Contact a Certified Arborist or City Forester to Evaluate Treatment Options

When contacting a professional, consider the following:

- Your city or township may have requirements or prohibitions related to the treatment of EAB, especially for ash trees located on city property, which may include trees planted on or near boulevards or sidewalks. Check with your city's park and recreation or forestry departments.
- If hiring a professional, ask to see their licensure as a Commercial Pesticide Applicator for category "E: Turf and Ornamentals."

✓ Treatment of Large Ash Trees

While there are homeowner treatment options for small ash trees, these require careful application to avoid unintended environmental impacts. In general, consider having large ash trees (those greater than 48 inches in circumference, as measured $4^{1/2}$ feet above ground level) treated by a professional. For exceptions, check specific pesticide product labels.

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Insecticide Treatment Options

Always read and follow all 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 your local Extension specialist.

Products Marketed to Professionals and Arborists

Insecticide Active Ingredient	Examples of Products	Treatment Frequency and Optimal Timing[1]	Application Methods	Environmental Profile
Emamectin benzoate	• TREE-äge Restricted Use Pesticide *Any person using this product is required to be a licensed or certified pesticide applicator.*	Every 2 years Early May to mid-June	Trunk injection	• Trunk injections have fewer concerns for water quality, unless accidentally spilled. • If spilled, highly toxic to exposed mammals, fish and aquatic invertebrates.
Azadirachtin (neem tree seed oil)	• TreeAzin	Once per year Early May to mid-June	Trunk injection	• Classified as a biopesticide, minimal or no exposure or risk to non-target organisms, habitats or water. • Trunk injections have fewer concerns for water quality, unless accidentally spilled.
Dinotefuran	• Safari • Transtect	Once per year (bark spray) 1 - 2 times per year (other methods) Early May to early June	Bark spray, soil injection, soil-applied drench	• Strong potential to leach to shallow groundwater. • Potential exposure to adjacent water bodies through spray drift and runoff events.
Imidacloprid	• Merit products • Xytect/Optrol products (may also be marketed to homeowners) • Ima-jet	1 - 2 times per year Late April to late May and/or mid-fall (before ground freezes)	Trunk injection, soil injection, soil-applied drench	• Highly toxic to aquatic invertebrates. • Potential to leach to shallow groundwater or be transported in runoff when using soil injection or drench. • Trunk injections have fewer concerns for water quality, unless accidentally spilled.

Products Marketed to Homeowners

Insecticide Active Ingredient	Examples of Products	Treatment Frequency and Optimal Timing[1]	Application Methods	Environmental Profile
Dinotefuran	• Green Light Emerald Ash Borer Killer	Once per year Early May to early June	Granular soil-applied product	• Strong potential to leach to shallow groundwater. • Potential exposure to adjacent water bodies through runoff events.
Imidacloprid	• Optrol • 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	Once per year [2] Late April to late May and/or mid-fall (before ground freezes)	Soil-applied drench	• Highly toxic to aquatic invertebrates. • Potential to leach to shallow groundwater or be transported in runoff.

1. Application timing will vary in Minnesota, depending on location and seasonal temperature fluctuations.
2. Recommended only for trees less than 48 inches in circumference (as measured 4½ feet above ground level); for exceptions, check specific pesticide product labels.

In accordance with the Americans With Disabilities Act, an alternative form of communication is available upon request.
TDD: 1-800-627-3529. The MDA is an equal opportunity employer and provider.

Follow These Recommendations to Protect Water Quality

The MDA conducted a special registration review of EAB insecticides in 2011. The review concluded that 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.

In some cases, the following recommendations may refer to mandatory label use requirements.

Generally, professionally applied trunk injections have fewer concerns for water quality.

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 such as street curbs, storm drains, sumps, or well heads.
- Do not apply when heavy rainfall is expected within 24 hours of the planned treatment.

Situations that could cause soil-applied insecticides to wash away or leach, potentially contaminating water resources.

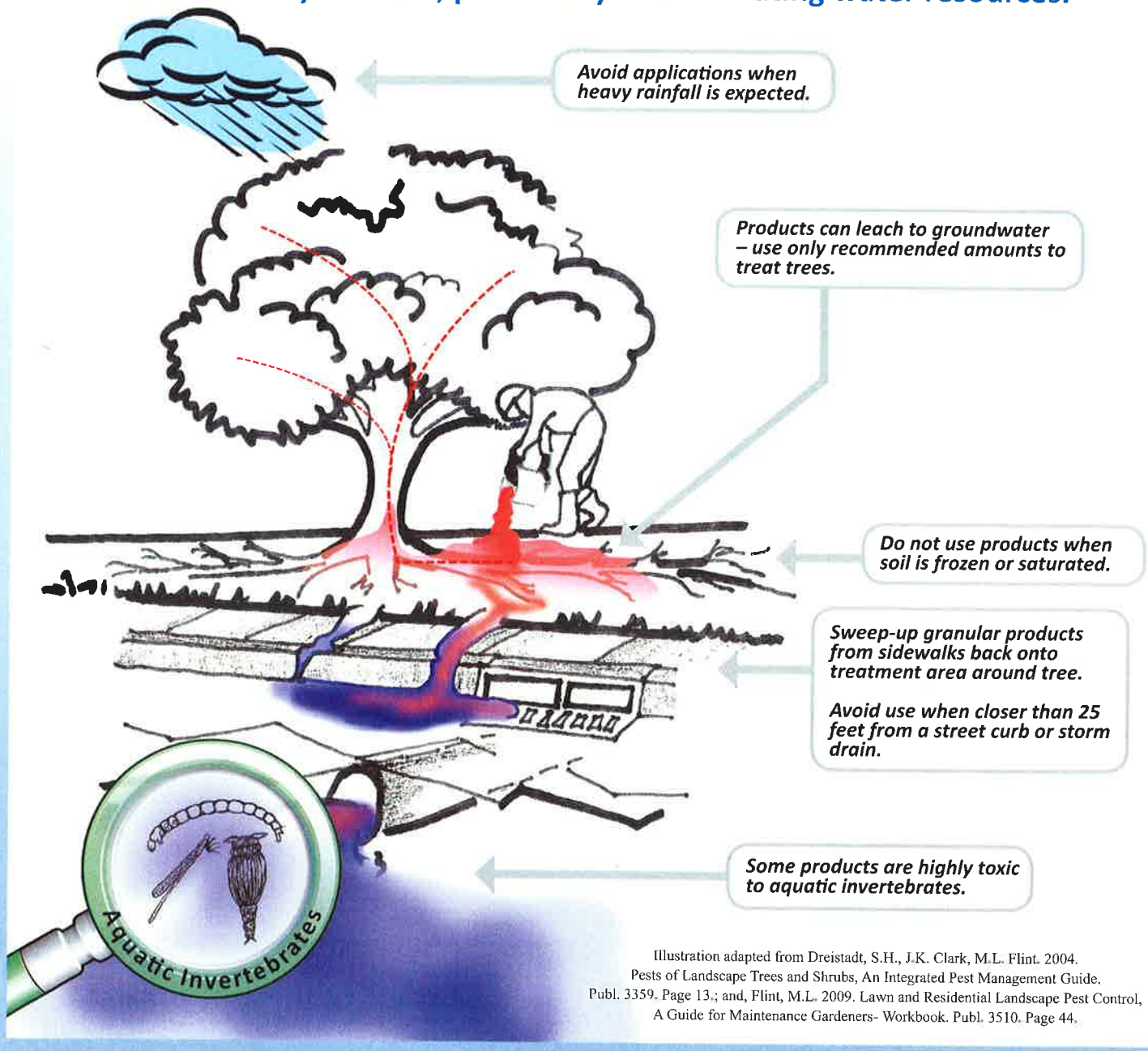


Illustration adapted from Dreistadt, S.H., J.K. Clark, M.L. Flint. 2004. Pests of Landscape Trees and Shrubs, An Integrated Pest Management Guide. Publ. 3359. Page 13.; and, Flint, M.L. 2009. Lawn and Residential Landscape Pest Control, A Guide for Maintenance Gardeners- Workbook. Publ. 3510. Page 44.

Making Sense of EAB Insecticide Labels

The label is the law! Always read, understand, and follow all current label directions for the specific insecticide product being used.

Selecting an Insecticide:

- Look for products marketed to control emerald ash borer (see table on page 2).
- Read the *Environmental Hazard Statements* on the insecticide label.

Using an Insecticide:

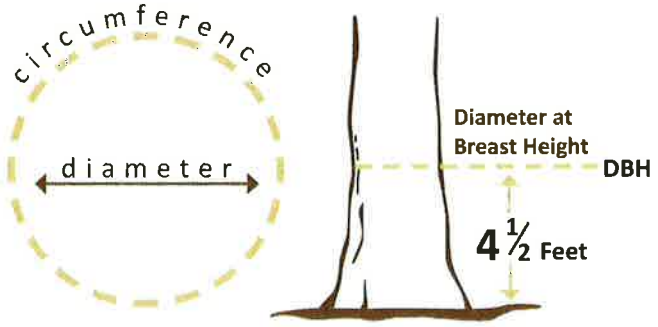
- To facilitate uptake, soil-applied insecticides should be applied when the soil is moist but not saturated or excessively dry.
- For soil drenches remove or rake any mulch or dead leaves, then pour the insecticide solution directly onto soil.
- Do not allow children and pets to re-enter treatment area until sprays or drenches have dried.
- Store insecticides where children cannot reach them.
- Many homeowner products only allow one soil drench application per year.

Disposing an Insecticide:

- When using the last of a liquid insecticide container, triple-rinse before disposal, then apply the rinse water as you would apply the insecticide.
- Unusable and unwanted insecticides must be disposed of according to the label directions, or at a county household hazardous waste disposal event.
- It is illegal to bury or burn a insecticide.

Measure Your Ash Trees

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



trunk diameter = trunk circumference X 0.32

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 YIELD	> 15 inches YIELD

In general, large trees are best treated by a professional. For exceptions, check specific pesticide product labels.

Additional Resources

Emerald Ash Borer Resources

- Minnesota Department of Agriculture – www.mda.state.mn.us/eab
- University of Minnesota Extension – www.extension.umn.edu/issues/eab
- USDA-APHIS – www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b
- Minnesota Department of Natural Resources – www.mndnr.gov/invasives/terrestrialanimals/eab
- City of St. Paul – www.stpaul.gov/index.aspx?NID=2495
- Minneapolis Park and Recreation Board – www.minneapolisparks.org/default.asp?PageID=1059
- EAB Multi-State Site – www.emeraldashborer.info

Pesticide Disposal

For more information about disposing of unusable or unwanted pesticides, visit MDA at www.mda.state.mn.us/chemicals/spills/wastepesticides/schedule.aspx or **651-201-6562**.

Reporting and Investigating Pesticide Spills and Misuse

Complaints can be reported to the Minnesota Duty Officer at **800-422-0798**.
MDA staff will evaluate the information provided and if a pesticide misuse is suspected, an MDA inspector will be assigned.
More information is available at www.mda.state.mn.us/chemicals/pesticides/complaints.aspx