

Pesticide Options for Emerald Ash Borer

You can find more information about emerald ash borer (EAB), the current state of the known infestation in Boulder, and what the city is doing to address this pest at www.EABBoulder.org.

Before making a decision to treat an ash tree, keep in mind that not every tree can or should be saved. Trees that are in poor condition, have structural defects or previous insect damage, are in a undesirable location (under power lines, causing hardscape damage, etc), or trees that are not in a site that receives adequate irrigation should not be treated. Because pesticide treatments must continue for an indefinite period, smaller trees (less than 10 inches in diameter) should be considered for removal and replanting with other types of trees to increase diversity.

Damage to trees occurs from the larval or immature stage of EAB. The larvae tunnel under the bark and feed on the conductive tissues of the tree. The most effective method to treat trees is with systemic insecticides, which travel throughout the tree into all tissues. These insecticides tend to be potent and small concentrations may have impacts to non-target organisms who feed on the tree, including its leaves, pollen, seeds and wood. Insecticides have the potential to be carried off site from fallen leaves. Different compounds have different amounts of persistence. Some products can last for years in the tree’s tissues or in soils.

The following products are the most commonly used for EAB. Take your time to gather all the information available to determine if treating your ash trees is the right decision and if you do choose to treat your trees, choose the best product for your particular situation. Information below is compiled from available EAB research and resources.

Product Name	Pros	Cons	Comments
TREE-äge (emamectin benzoate)	<ul style="list-style-type: none"> • Most effective product on the market for EAB control. • Most effective control option for larger diameter trees (trees >18” diameter). • One application works well for at least two years and studies indicate it may last for three years. • May provide protection to nearby trees that are not treated. 	<ul style="list-style-type: none"> • Highly toxic to bees and other animals. • Actual exposure potential for bees and other non-target animals is not understood. Studies are lacking. • Must be injected into trunk of tree; injection process wounds the tree. Impacts of wounding of ash via injection in Colorado not documented. The city and CSU will conduct trials to determine impacts. • Product may only be applied by State of Colorado licensed pesticide applicator. 	<p>The city is pursuing additional information to better understand the environmental impacts from this product.</p> <p>Excellent efficacy may allow fewer trees to be treated. The city is using targeted treatment with trap trees (attract beetles to specific area with adjacent trees treated).</p>
TreeAzin (azadirachtin – a neem seed oil derivative)	<ul style="list-style-type: none"> • OMRI (Organic Materials Research Institute) certified. • Well-studied, showing minimal environmental impacts. • Provides good control for first year and reasonably good control for second year. 	<ul style="list-style-type: none"> • Somewhat toxic to bees. • Product may only be applied by professional treecare company. • Injection process wounds the tree. Impacts of wounding of ash via injection in Colorado not documented. The city and CSU will conduct trials to determine impacts. • May be effective for two years under low-level infestations, but will likely need to be applied every year under heavy infestation. 	<p>The city and CU will be conducting trials to determine the product’s effectiveness for two year control.</p>

<p>Safari (dinotefuran)</p>	<ul style="list-style-type: none"> • Applied as trunk spray to lower 4' of trunk; no wounding of tree in application. • Effective EAB control, particularly in trees up to 18" diameter. • Less expensive than trunk injected products on a per application basis. 	<ul style="list-style-type: none"> • Highly toxic to bees and other non-target animals. • Effective for only one year. • Highly mobile in water. 	<p>If this product is used, it is *crucial* to apply after the tree is leafing out to avoid contamination of pollen. The product is expected to be out of the tree by the following spring during pollen production, but studies confirming are lacking. The city is pursuing additional information to clarify the risks. It is *crucial* to avoid applications when other flowering plants are nearby to avoid contamination of pollen and toxicity to honeybees.</p>
<p>Merit and many others* (imidacloprid)</p>	<ul style="list-style-type: none"> • Least expensive option. • Available as consumer product (see list below). 	<ul style="list-style-type: none"> • Inconsistent results with some studies showing poor effectiveness. • Consumer products ineffective at labeled rates at high EAB populations. • Only lasts one year. • Some products are injected or poured into soil – where it may persist for years. • Highly toxic to bees and other animals. • Toxic to earthworms and other soil organisms. • Resistance problems in other insects. • Some professional products are applied through tree injection. 	<p><u>The city has prohibited the use of imidacloprid for EAB on city properties, including trees in public streets rights-of-way.</u></p> <p>The city of Boulder does not recommend this pesticide for EAB control on private property.</p>
<p>* Commerical imidacloprid products (not recommended due to bee/non-target toxicity):</p> <ul style="list-style-type: none"> • Merit® • Criterion® • Lesco Bandit® • Xytect® • Ima-Jet® • Imicide® • Pointer® • <p>Homeowner imidacloprid products (not recommended due to bee/non-target toxicity):</p> <ul style="list-style-type: none"> • Bayer Advanced Tree and Shrub Insect Control (imidacloprid) • Bayer Advanced Tree and Shrub Protect & Feed (imidacloprid) • Bayer Advanced Tree and Shrub Protect & Feed II (imidacloprid + clothianidin) • Bonide Annual Tree and Shrub Insect Control (imidacloprid) • Ferti-lome Tree and Shrub Systemic Drench (imidacloprid) • Optrol (imidacloprid) • Ortho- Bug-B-Gon Year-Long Tree & Shrub Insect Control (imidacloprid) 			