INSECTICIDE OPTIONS FOR MANAGEMENT OF EMERALD ASH BORER

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There are many different active ingredients, formulations and application methods available for managing emerald ash borer. Some are available for homeowners to use but the most effective are restricted to commercial applicators. Regardless, treatments are not advised until emerald ash borer has been detected within 15 miles of a tree's location.

Soil treatments

There are insecticides available to homeowners as soil trenches, commercial applications may also use soil injections. Insecticides delivered as a soil drench should be applied at the base of the trunk, within a foot, with the sod or mulch pulled away before making the application. The sod or mulch can be put back in place after the insecticide solution soaks into the soil. Soil injections should be placed within 18 inches of the base of the trunk and injected to a depth of 2 to 4 inches. Injections made farther from the trunk and deeper into the soil are less effective.

The amount of chemical for soil drenches and injections is based upon trunk diameter and since trunk area expands as a higher rate than trunk diameter, these treatments become less effective for tree larger than 15 inches dbh[1] and are best limited to trees less than 10 inches. There is a specific label for Xytect that it can be applied at twice the label rate for tree between 15 and 22 inch dbh and this should be followed. However, also be aware of the amount of imidacloprid that can be applied to the soil annually on a per acre bases.

Soil applications of imidacloprid formulations should be made in mid spring, between April 15 and May 1, after the tree has leafed out, but several weeks or more before emerald ash borer eggs have hatched. Soil applications of dinotefuran formulations move faster up into the tree and can be made from mid to late spring, between April 15 and May 15, after the tree has leafed out but a couple of weeks before the emerald ash borer eggs have hatched. All soil treatments need to be applied annually and at the highest labelled rate to protect an ash tree from becoming infested. They are not effective in trees that are already infested by the emerald ash borer. Formulations available to homeowners have provide inconsistent management of emerald ash borer.

Soil application should only be made in moist soils, preferable soils that have been watered the day or evening before application. They should not be made to soils that are dry or water-soaked. Soil applications can also result in contamination of ponds, lakes and streams and should not be made on trees within 100 feet of these water features. Insecticides delivered via soil applications can also be absorbed by other plants so should

not be used if flowers, which may be attractive to pollinators, are beneath the canopy of the tree.

Soil insecticides

Active ingredient	Formulation
Dinotefuran	Transect™ (70WSP)
	Safari™ (20 SG)
Imidacloprid	Bayer Advanced™ Tree and Shrub Insect Control[2]
	Ferti-lome Tree & Shrub Systemic Drench[2]
	Merit® (5WP, 75WSP)
	Ortho Bug B Gone Tree & Shrub Insect Control[2]
	Xytect™ (2F, 75WSP)

Systemic bark sprays

Insecticides can also be sprayed on the lower trunk of the tree (the lower 6 feet). These are absorbed through the bark and are carried up in the vascular tissue to kill the larvae as they feed in the inner bark and the adult beetles as they feed on the leaves. There is one active ingredient that can be delivered via trunk spray. The spray is a drench and does not need to be made a high pressure (the water pressure coming from a garden hose is sufficient). Surfactants can be used to improve absorption through the bark, but are not necessary.

Systemic bark sprays should be applied to protect trees from becoming infested. They are not effective in trees that are already infested by the emerald ash borer. They need to be applied annually and are best applied between April 15 and May 15, after the tree has leafed out but a couple of weeks before emerald ash borer eggs have hatched.

Systemic bark sprays

Active ingredient	Formulation
Dinotefuran	Safari™ (20SG)
	Transect™ (70WSP)
	Zylam®

Trunk injection

Insecticides can be delivered by directly injecting into the trunk. This is the preferred method when there are concerns about soil applications. Trunk injections do create wounds in the tree, but if the injections are done low on the trunk, at the flare and not adjacent to a previous injection site, then the injury is minimal. The uptake and distribution of the insecticide is quicker than that delivered via the soil. However, the same requirements apply. The soil should be moist, not dry or wet. The application should be made in the morning as cooler conditions improve uptake.

Trunk injections should be made between April 15 and May 31, after the ash tree has leafed out but before the emerald ash borer eggs have hatched. Emamectin benzoate

injections can generally provide two years of protection for a tree becoming infested. They can also be used on trees that have only been infested for a year or two. Trees that have less than 25% canopy decline can still be injected. Other active ingredients generally provide only a year of protection and are best suited to trees that are not already infested.

Trunk insecticides

Active ingredient	Formulation	Injection System
Azadirachtin	Azasol™	Arborject™
	TreeAzin®	Ecoject System™
Emamectin benzoate	TREE-age™	Arborject™

There are also injectable or implantable formulations and delivery systems that have provided poor or inconsistent management of emerald ash borer.

Acephate	ACECAP 97®	Implant capsule[2]
Bidrin	Inject-A-cide®	Mauget® capsules
Imidacloprid	Imicide®	Mauget® capsules
	Pointer™	Wedgle™ Direct Injection System

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[1] diameter of the tree at 4.5 feet above the ground

[2] available to homeowners

SG – soluble granules

WP – wettable powder

WSP – water-soluble packets

Any treatment recommendations, including those identifying specific active ingredients, are for the convenience of the reader. The active ingredients mentioned in this publication are generally those that are most commonly available in pesticides used in South Dakota for Turf & Ornamentals and the inclusion of an active ingredient shall not be taken as an endorsement or the exclusion of one labeled for use a criticism regarding effectiveness. Please read and follow all label instructions and the label is the final authority for a product's use on a particular pest or plant.