

The Latest On The Emerald Ash Borer

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Hopefully by now you have heard about or are familiar with the emerald ash borer (EAB), *Agrilus planipennis* Fairmaire. EAB is an exotic, invasive insect that is native to Asia. It was first discovered in the United State in the summer of 2002 in the Detroit metropolitan area, and it has been theorized that it had been there for about a decade before it was found. The initial discovery in Wisconsin was in August 2008 near Newburg, WI, it is thought to have been here since early 2000. Since then, EAB has been found in over 20 other counties in Wisconsin. The primary culprit for the movement/distribution of EAB is by way of the movement of EAB infested firewood, this is not to say that EAB can not moved by other means such as adult flight, infested nursery stock or other ash products.

The larval stage is the most destructive life stage, EAB larvae feed in the cambial area destroying conductive tissues such as xylem and phloem that are critical for the movement of water and nutrients within trees. EAB larval feeding typically occurs from June-October. Ash trees are initially attacked by EAB adult females in mid-to-late May through early June, they lay their eggs in the upper canopy of the tree, as the population density increases over time, the trees are colonized lower on the trunk in the bole of the tree. EAB is predominantly host specific, it prefers ash tree from the *Fraxinus* genus. Unlike the bronzed birch borer and the two-lined chestnut borer (two closely related metallic wood boring beetles that are native to the U.S.) EAB does not have a preference for stressed over healthy trees, and tree size does not influence the likelihood of attack; EAB will attack ash trees ranging in size from ½- >50 inch DBH.

Numerous insecticide efficacy (performance) trials have been conducted since EAB was first discovered in the United States. Several research scientists from Michigan, Ohio, Indiana, Illinois and Wisconsin have evaluated various in-

secticide chemistries to determine their performance under a variety of situations including various tree sizes, different ash tree species, insecticide rates, application timing, application technologies (i.e., trunk injections, soil drenches, soil injections and basal bark sprays) and tree settings (i.e., urban landscapes, golf courses, city terraces, woodlots and forests).

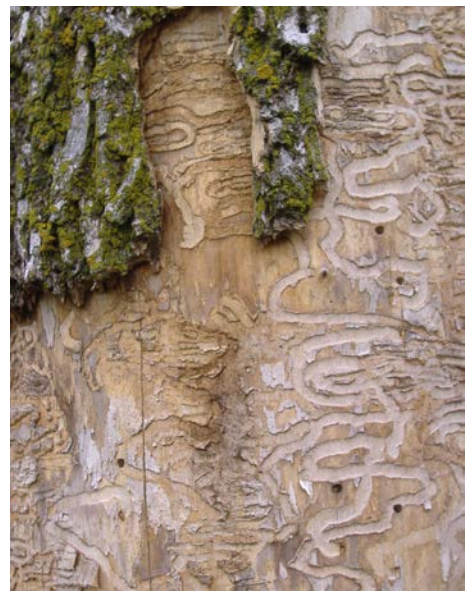
To this end, there are currently three active ingredients of insecticides that are labeled for control of EAB, they include: 1) dinotefuran (Safari) applied as a basal bark spray or a soil drench or injection; 2) emamectin benzoate (Treeäge) applied as a trunk injection; and 3) imidacloprid (Merit, Xytect and others) applied as a soil drench or injection or as a trunk injection. The various trunk injection application technologies that exist include: 1) ArboJet Tree IV, Quik-Jet and Viper hydraulic; 2) ArborSystems Wedgle; 3) Mauget; and 4) Rainbow Scientific IQ Tree Infuser.

Research results indicate that insecticide treatments are effective when applied at the appropriate application rate and timing! Spring insecticide treatments of imidacloprid performed better than fall applications at the 1X rate. However, a 2X rate of imidacloprid will provide comparable control to the 1X rate in the spring. Also, level of EAB infestation and tree size play a critical role in the success of an insecticide treatment. Ash trees with > 40-50% upper canopy decline should NOT be treated with an insecticide as the likelihood of survival is quite low.

Safari (dinotefuran) provides good control when applied as a basal bark spray or soil drench when applied in May through mid-June. Imidacloprid soil drenches and Treeäge trunk injections are more effective on larger ash trees (i.e., > 15 inch DBH).

Annual treatment applications of the neonicotinoids (imidacloprid and dinotefuran) are necessary, Treeäge at the low

label rate will provide two years control and up to four years control at the highest label rate. The bottom line is that ash trees that are not treated with an insecticide will succumb to EAB feeding damage and ultimately die. For more information regarding EAB insecticide treatments, visit the following website: www.entomology.wisc.edu/emeraldashborer.



Above: Damage from EAB larvae interferes with water and nutrient movement.

Below: Adult Beetle

