Emerald Ash Borer (EAB) Discovered in Wisconsin: What Does This Mean for You?

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As many people have anticipated and feared, unfortunately the official confirmation of the emerald ash borer (EAB) occurred on August 1, 2008 in Ozaukee and Washington counties. EAB is an exotic, invasive insect (beetle) that is native to Asia. EAB was first discovered in the Detroit, MI metropolitan area in June 2002, it was thought to have been accidentally introduced into the United States via importation of EAB infested wood packing materials used to transport goods or products. To date, EAB has been found in several other states including Indiana, Illinois, Maryland, Missouri, Ohio, Pennsylvania, West Virginia, and Ontario, Canada. Various detection methods including visual surveys, detection/trap trees, and adult traps have been employed in an effort to detect EAB. However, at low population densities or early or initial stages of infestation, EAB is very difficult to detect regardless of survey strategy. Even those experienced with EAB often have struggles finding early infestations. EAB larvae mine (feed) in the cambial area just beneath the bark creating S-shaped/serpentine feeding galleries that are typically packed with frass (fecal matter and sawdust). This larval feeding activity disrupts or destroys the internal plumbing of the tree resulting in the inability of trees to transport vital nutrients and water, typically resulting in tree decline and eventual death. Tree death can occur in less than two to three years at high population densities if left untreated, while some trees can survive for more than five years at low population densities. Unlike the bronzed birch borer and the two-lined chestnut borer, two closely related boring insects that mainly attack stressed trees, EAB does not discriminate between healthy (vigorous) or stressed trees, nor does EAB have a preference for tree size (EAB attacks trees from 1/2 to >40 inches diameter at breast height). So far in North America, EAB has only reported to attack ash (Fraxinus spp.) trees including green white, blue, black, velvet, pumpkin as well as other horticultural varieties. It is estimated that there are more than 765 million ash trees in Wisconsin, of which about 5 million are horticultural varieties. For this reason, EAB poses a serious to Wisconsin's ash resources.

So what does this mean for you and what can you do to protect your ash trees from the eminent threat of EAB? Unfortunately, this question does not have a simple answer! There are numerous factors that can influence your decision making process. First and foremost, until EAB is found within 10-12 miles of your ash tree(s) or you are in an EAB quarantined area, it is not suggested that you begin treating your ash trees with insecticides. The rational for this suggestion is that the likelihood or probability of an EAB infestation outside of this area is low. Secondly, due to the relatively high cost (labor and insecticide) associated with treating multiple ash trees such as in woodlots or forested areas, high-value or specimen ash trees may be more likely considered for an insecticide treatment. Also, it is important to understand that insecticides are **not** always successful due to variability or inconsistent control, nor is it fully understood if insecticides are enhancing tree survival or merely prolonging tree death. Since EAB was first dis-

The adult beetle is dark metallic green in color, 1/2 inch-long and 1/8 inch wide.

S-shaped feeding gallery in the cambrial area of a infected ash tree.

covered in the United States (Detroit, Michigan 2002), numerous insecticide research trials have investigated the performance (efficacy) of various insecticide treatments. Currently, there are several insecticides and application technologies that are suggested, they include: 1) imidacloprid (Merit) applied as a soil drench or soil injection and as a trunk injection using specialized application equipment such as the ArborJet Tree IV (IMA-Jet), Maguet (Imicide) and Wedgle (Pointer) application systems; 2) dinotefuran (Safari) + PentraBark applied as a bark spray to basal area of the trunk from the soil level up about 4.5 feet; 3) emamectin benzoate (Tree-age) applied exclusively through the Arborjet Tree I.V. and QUIK-jet application systems; 4) carbaryl (Sevin) applied as a trunk implant using the ACECAP 97 Systemic Insecticide Implants or Bonide Systemic Insecticide Bullets application technologies; and 5) bifenthrin (Onyx), cyfluthrin (Tempo), permethrin (Astro), or carbaryl (Sevin) applied as a foliar or bark spray application to control EAB adults and hatching larvae. Certified pesticide applicators are necessary for the application of the specialized application equipment such as the ArborJet Tree I.V. and QUIK-jet, Maguet, and Wedgle. When considering an insecticide treatment option, be sure to: 1) determine if the respective ash tree has an EAB infestation or if it is within 10-12 miles of an EAB infestation and/or an EAB quarantined zone, 2) determine the overall health and vigor (ash trees with > 40% thinning or dieback are dramatically less likely to overcome an EAB infestation even when treated with an insecticide); and 3) measure the size (diameter at breast height; DBH). All of these factors will influence your decision in terms of weather to treat or not as well as the time of year (i.e., spring or fall) that is optimal. For example, ash trees smaller than 8 inches DBH (about 25 inches circumference) that do not have an EAB infestation and are within 10-12 miles of a confirmed EAB infestation or are in an EAB quarantined area should be treated with either a soil drench, soil injection, or trunk injection beginning in mid-May. An ash tree greater than 8 inches DBH should be treated about one month earlier to allow the insecticide to move within the plant to the target area (cambium) where the EAB larvae feed. Whereas, EAB infested ash trees can be treated with an insecticide from June through early-October to control actively feeding EAB larvae. When using pesticides, ALWAYS read and follow label directions. Should you suspect an EAB infestation, contact your County Extension Agriculture or Horticulture Agent and/or Educator. For additional information regarding insecticide management options for EAB, visit www.emeraldashborer.info.