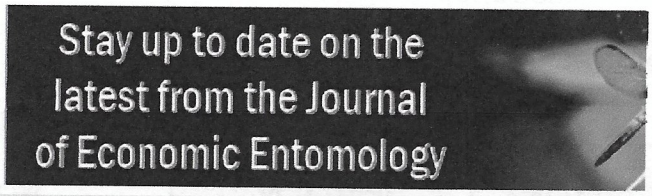

Article Navigation

Emerald Ash Borer (Coleoptera: Buprestidae) Densities Over a 6-yr Period on Untreated Trees and Trees Treated With Systemic Insecticides at 1-, 2-, and 3-yr Intervals in a Central Michigan Forest

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Abstract

We assessed density of emerald ash borer (*Agrilus planipennis* Fairmaire) (Coleoptera: Buprestidae) larvae over a 6-yr period by felling and sampling a total of 315 green ash (*Fraxinus pennsylvanica* Marsh.) trees that were left untreated or treated with imidacloprid, dinotefuran, or emamectin benzoate products at 1-yr, 2-yr, or 3-yr intervals. Our study, conducted across a 32-ha forested area, began soon after emerald ash borer became established and continued through the peak and eventual decline of the emerald ash borer population. Less than half of the 96 trees in the pretreatment sample were infested and larval densities were very low. Densities of emerald ash borer remained low for 3 yr, then increased exponentially, eventually resulting in mortality of most untreated overstory ash. Trees treated with either low or moderate rates of emamectin benzoate applied via trunk injection had few or no emerald ash borer galleries, even 3 yr post-treatment. Basal trunk sprays of dinotefuran applied annually were also effective at preventing larval densities from reaching damaging levels. Average larval densities on trees treated with a trunk injection of imidacloprid were lower but did not differ from untreated trees, regardless of treatment frequency. Larval parasitism was rare, while woodpecker predation was common and accounted for nearly all natural larval mortality, even on trees with very low densities of larvae.

(ha = hectare
1 hectare = ± 2½ acres ∴ 32-ha = ± 78 acres)

Keywords: invasive forest pest, emamectin benzoate, woodpecker predation, dinotefuran, imidacloprid

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