

OPTIMIZATION OF VISUAL TRAPPING METHODOLOGY FOR THE EMERALD ASH BORER, *AGRILUS PLANIPENNIS*

Joseph A. Francese¹, Damon J. Crook¹, Ivich Fraser², David R. Lance¹,
Alan J. Sawyer¹, and Victor C. Mastro¹

¹USDA APHIS PPQ CPHST, Otis Laboratory, Buzzards Bay, MA 02542

²USDA APHIS PPQ EAB, Brighton, MI, 48116

ABSTRACT

As the emerald ash borer (EAB), *Agrilus planipennis* (Coleoptera: Buprestidae), spreads throughout the range of North American ash species, better tools are needed for the detection and delimitation of new infestations. Two field assays, comparing paints and plastics, were performed to determine the optimal color for EAB traps. A new custom corrugated plastic color based on a light green color previously found to be attractive to EAB was tested in both assays. Among traps of varying green wavelengths (500 to 570 nm) green traps ranging in wavelength from 525 to 540 nm caught significantly more adult *A. planipennis* than traps of other wavelengths. The highest ratio of males to females (2.8 :1) was recorded on traps painted with a green of peak reflectance at 525 nm. Among purple traps, a paint previously shown to be attractive to buprestids caught significantly more EAB adults than blue and red paints as well as purple plastic control, and was not significantly different from green plastic traps.

The current EAB prism trap is large and rather cumbersome. A field assay was also performed to determine if a smaller sized prism trap is as efficient as the current standard prism. While smaller “quarter-sized” traps were comparable to standard prism traps in terms of trap catch per surface area zero-catches were recorded on 20 percent of the quarter-size traps. All standard and double-length narrow traps caught at least one EAB.

We predicted percentage catch as a function of growing-degree days (base 50 °F) for each year in a 3-year period (2006 to 2008) using data from several local weather stations. From the estimated catch we used 5 percent, 50 percent and 95 percent to define the beginning (542.1 ± 3.4), peak (761.1 ± 8.4) and end (1068.7 ± 29.8) of the trap catching season, respectively. Similar results (572, 757, and 942, respectively) were found in the timing of EAB emergence from infested trees felled in West Virginia and held at the Otis laboratory.