

EVALUATION OF IMIDACLOPRID TREATMENT ON HEMLOCK WOOLLY ADELGID IN PENNSYLVANIA

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ABSTRACT

The hemlock woolly adelgid (HWA) (*Adelges tsugae* Annand) has been in Pennsylvania since 1967. Currently found in 47 of 67 counties, this introduced invasive is causing significant dieback and mortality in eastern hemlock (*Tsuga canadensis* L.). The Pennsylvania Department of Conservation and Natural Resources Bureau of Forestry (PA DCNR) recently implemented a chemical suppression program to control this insect, using systemic application of imidacloprid on high-value trees on public land. As part of this program, PA DCNR treated 4,572 eastern hemlocks at 86 sites in 2005 and 7,252 trees at 30 sites in 2006. Nine imidacloprid-treated sites were

selected to evaluate the efficacy of this chemical against HWA. Data were collected before and after treatment on 10 control and 10 treated trees at each site. In preliminary results, decreases of HWA were detected on treated trees relative to controls. Sites where imidacloprid was applied using soil injection had greater decreases than sites where stem injections were used, in spite of stem-injected trees having higher foliar imidacloprid concentrations. Decreases in new growth and increases in dead tips indicate a decline in hemlock health following HWA infestation, regardless of treatment activity.