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## CONTRIBUTED ABSTRACT

POTTER, D.A., G.M. TIMMONS, and F.C. GORDON. 1988. **Flatheaded apple tree borer in nursery-grown red maples: phenology of emergence, treatment timing, and response to stressed trees**. J. Environ. Hort. 6(1): 18-22.

The flatheaded apple tree borer, *Chrysobothris femorata* is a common and destructive pest of many species of deciduous shade, fruit, and nut trees, especially those that are newly transplanted or otherwise under stress. The adult borers are flattened metallic-colored beetles that emerge in spring and summer, mate, and lay eggs on the bark, often around wounds. The larvae burrow and feed beneath the bark, making winding tunnels that are tightly packed with yellowish, sawdust-like frass and damaging to the cambium, phloem and outer sapwood. Nurserymen often suffer severe losses due to infestation of young maple trees, especially *Acer rubrum*. Infestations in nursery-grown maples nearly always occur in the main trunk, within 3 feet of the g round.

Research in Kentucky showed that a single, properly-timed application of lindane or chlorpyrifos (Dursban®) at labeled rates will protect young maples from infestation by the flatheaded apple tree borer. Bark sprays should be applied soon after the adults begin to emerge to mate and lay eggs, so that a lethal residue will be present to kill the newly-hatched larvae as they chew through the bark at the point of egg attachment. The date of first emergence of adult borers ranged from

May 8 to June 6 (avg. date: May 18), depending upon spring temperatures, or about three weeks after the first red maple leaves were fully expanded and about the time that American holly (*Ilex opaca*) began to bloom. A predictive model based on accumulated degree-days was developed which can be used to estimate optimum treatment date, even in years with unseasonable temperatures (degree-day records are available from most local Cooperative Extension offices). Borer emergence began after an average accumulation of 742 degree days (Fahrenheit) calculated from a base temperature of 50°F. The borer emergence period lasts about three weeks, but adults may be present in the nursery from May until August. Consequently, a second application, 3-4 weeks after the first treatment, may possibly provide additional protection. Experiments showed that red maples that had been stressed by root-pruning, transplanting, wounding, or defoliating were generally more attractive to flatheaded apple tree borer and other flatheaded borers than were non-stressed trees.

This work was supported in part by a grant from the International Society of Arboriculture Research Trust.