

Growing Degree-Day Requirements and Biorational Control of Viburnum Leaf Beetle

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BACKGROUND AND OBJECTIVES

Viburnum leaf beetle, *Pyrrhalta viburni* (Paykull), is a relatively new landscape pest in New York State. As its common name suggests, this pest has a host range that is restricted primarily to plants in the genus *Viburnum*. This insect is very destructive to its host plant because the larvae feed extensively on new foliage in the spring, and adults resulting from this first generation consume considerable portions of the second flush of foliage produced by the plant following defoliation by the larvae. The first record of the insect in New York State was from a planting of native viburnums along the shore of Lake Ontario in 1996 (Rick Hoebecke, personal communication), and the species has spread quickly through counties bordering the lake. As of 1999, the insect had been detected in 26 counties of New York State. Given the rapid spread and the extent of damage observed to date, it seems likely that viburnum leaf beetle will soon pose a serious threat to viburnums throughout the Northeast and beyond.

In order to effectively manage a pest such as viburnum leaf beetle, it is very helpful to know when to expect emergence of damaging life stages of the insect. The species overwinters as eggs within twigs of *Viburnum* spp., and larvae hatch (during May in upstate New York) and proceed to quickly defoliate susceptible varieties. Pruning infested twigs is one means of limiting pest populations, but this tactic may be difficult to foster because it is rarely thorough and would be difficult to implement in large plantings. Controlling larvae with well-timed applications of insecticide in the spring is an alternative management practice, but the key to success of this tactic is to spray the plant shortly after larval emergence because the larvae are such voracious feeders; knowledge of degree-day requirements for egg hatch would provide such warning. It is likely that good control can be achieved with a formulation of *Bacillus thuringiensis* var. *tenebrionis* (*Btt*) because this material has been used to successfully control populations of elm leaf beetle, *Pyrrhalta luteola* (Müller), congeneric with viburnum leaf beetle. Del Bene and Landi (1993) reported 60% mortality of 3rd instar viburnum leaf beetle larvae with *Btt*; it is likely that even greater mortality would be observed with younger larvae because susceptibility to *Bt* generally decreases with insect size/age.

The objectives of this project were to 1) calculate degree-day requirements for hatch of overwintering eggs of viburnum leaf beetle, and 2) measure mortality of viburnum leaf beetle larvae and adults to a number of commonly used and biorational insecticides.

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