

BEAUVERIA BASSIANA FOR CONTROL OF THE BROWN SPRUCE LONGHORN BEETLE, *TETROPIUM FUSCUM* (FABR.) (COLEOPTERA: CERAMBYCIDAE).

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Abstract

Beauveria bassiana is a soil-borne fungus that occurs naturally throughout the world and infects a wide variety of insects but is not toxic to mammals, birds, or plants. *Beauveria*-based pest control products are commercially available in the U.S. and other parts of the world, but not Canada. We are investigating *B. bassiana* as a means of suppressing populations of the brown spruce longhorn beetle, *Tetropium fuscum* (Fabr.), an exotic wood boring beetle discovered in Halifax, Nova Scotia, in 1999. In laboratory bioassays, adult *Tetropium* spp. were susceptible to *B. bassiana* isolates from both Quebec and Nova Scotia. Field trials were conducted in 2004 to test the efficacy of *B. bassiana* for infecting foraging adult beetles. Two methods were used to infect foraging adult *T. fuscum*: 1) polyester bands impregnated with *B. bassiana* conidiospores wrapped around the stems of live spruce trees; and 2) application of concentrated conidiospore suspensions

directly to spruce bait logs once per week for four weeks during the peak flight season (June). The tree bands captured 24 *T. fuscum* and 93 nontarget beetle species. Percent infection of pooled beetle species (*T. fuscum* plus nontarget species) was significantly greater on treated bands (37%) than untreated bands (7%); percent infection of *T. fuscum* was not significantly greater on treated bands (67%) than on untreated bands (33%), likely due to the small total (n=24) captured. Application of *B. bassiana* to the spruce logs did not significantly suppress brood production in the logs: the mean number of *T. fuscum* pupal cells per 1 m log did not differ between untreated logs (7.4) and logs treated with *B. bassiana* isolates from Quebec (6.8) or Nova Scotia (2.5). Our results indicate that *T. fuscum* is susceptible to *B. bassiana* under field conditions and that tree bands, and not bait log applications, may be a better strategy for further tests.