

No Protection staying indoors during pesticide spraying

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Articles - Environmental Health Perspectives Volume 109, Number 1, January 2001

Spatial and Temporal Distribution of Airborne *Bacillus thuringiensis* var. *kurstaki* during an Aerial Spray Program for Gypsy Moth Eradication - Kay Teschke,^{1,2} Yat Chow,² Karen Bartlett,² Andrew Ross,² and Chris van Netten^{1,2} - ¹Department of Health Care and Epidemiology, University of British Columbia, Vancouver, British Columbia, Canada ²School of Occupational and Environmental Hygiene, University of British Columbia, Vancouver, British Columbia, Canada

Abstract

We measured airborne exposures to the biological insecticide *Bacillus thuringiensis* var. *kurstaki* (Btk) during an aerial spray program to eradicate gypsy moths on the west coast of Canada. We aimed to determine whether staying indoors during spraying reduced exposures, to determine the rate of temporal decay of airborne concentrations, and to determine whether drift occurred outside the spray zone. During spraying, the average culturable airborne Btk concentration measured outdoors within the spray zone was 739 colony-forming units (CFU)/m³ of air. Outdoor air concentrations decreased over time, quickly in an initial phase with a half time of 3.3 hr, and then more slowly over the following 9 days, with an overall half-time of about 2.4 days. Inside residences during spraying, average concentrations were initially 2-5 times lower than outdoors, but at 5-6 hr after spraying began, indoor concentrations exceeded those outdoors, with an average of 244 CFU/m³ vs. 77 CFU/m³ outdoors, suggesting that the initial benefits of remaining indoors during spraying may not persist as outside air moves indoors with normal daily activities. There was drift of culturable Btk throughout a 125- to 1,000-meter band outside the spray zone where measurements were made, a consequence of the fine aerosol sizes that remained airborne (count median diameters of 4.3 to 7.2 μ m). Btk concentrations outside the spray zone were related to wind speed and direction, but not to distance from the spray zone.

<http://ehpnet1.niehs.nih.gov/docs/2001/109p47-54teschke/abstract.html>

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We thank the study participants for welcoming study personnel into their homes before dawn; M. Pearce and C. Bender for making logistic arrangements; and the sampling personnel for their willingness to change plans according to vicissitudes of aerial spray schedules. This study was funded in part by the Capital Health Region.