

Exposure of Homeowners and Bystanders to 2,4 Dichlorophenoxyacetic Acid (2,4-D)

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ABSTRACT

Total body dose received in home gardeners applying 2,4-D and bystanders living within the household, but not applying the pesticide was measured. Levels of 2,4-D were monitored in air samples both inside the home and downwind of the application site, Homeowners were divided into protective and non-protective apparel groups and applied both a granular and liquid formulation of 2,4-D on two separate dates. Analyses of urine collected from homeowners for 96 hours following applications found total body doses ranging from non-detectable to 0.0071 mg/kg of body weight. The highest exposures occurred in the non-protected group and were consistently associated with spills of the liquid concentrate or excessive contact with the dilute mixture on the hands or forearms. Residues of 2,4-D were not detected in urine samples supplied by bystanders to home applicators. Residues of 2,4-D were detected in five of the 76 air samples taken during the home applications. Two of these air samples coincided with measurable applicator exposure but it is unlikely that this was a major route of exposure.