

Monitoring Human Exposure During Pesticide Application in the Forest

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The extent to which exposure to pesticides may be hazardous to applicators depends upon exposure levels and the toxicity of the compounds. The phenoxy herbicides have been used for nearly 40 years, and no injury to workers properly using these herbicides has been clearly established.

In spite of their record of producing no detectable harm to humans, the phenoxy herbicides 2,4-dichlorophenoxy acetic acid (2,4-D) and 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) have acquired a less than desirable reputation. This reputation has been the result of their association with low levels of impurities. They have commonly been used as a mixture, which contains trace amounts of highly toxic 2,3,7,8-tetrachlorodibenzo-p-dioxin, a minor product in the manufacturing of 2,4,5-T. In early production of 2,4,5-T a low level of dioxin was retained. Today's manufacturing process produces 2,4,5-T with no more than 0.1 ppm of the 2,3,7,8 tetrachlorodibenzo-p-dioxin. This association with toxic dioxin and confusion of the public and the media regarding these issues have led to public distrust in the safety of using phenoxys and to the need to establish clearly the extent of human exposure to these compounds as well as the resulting effects of this exposure.

The phenoxys have become a major tool in silviculture. They have allowed the forest industries to eliminate more economically the competing vegetation which impedes the rapid growth and harvest of conifer forests.

Until recently little data had been gathered on human exposure to these compounds. To evaluate their safety, the exposure received and dose absorbed must be considered in relation to their toxicity. Since restrictions were placed on the use of 2,4,5-T by the EPA in 1978, several exposure studies have been conducted with 2,4,5-T and also with 2,4-D and other compounds used in forest operations. Recent interest in evaluating human