

DISSIPATION OF CHLORPYRIFOS FROM DRY SOIL SURFACES

L. W. Getzin

Western Washington Research and Extension Center, Puyallup, WA 98371

At the 1980 Pacific Northwest Vegetable Insect Conference I reported that chlorpyrifos degrades via a temperature dependent, clay-catalyzed hydrolysis process on dry soil surfaces. In subsequent studies it has been found that volatility is also important in the loss of chlorpyrifos from dry soil surfaces. The relative importance of volatility and clay-catalyzed hydrolysis depends upon the amount of sorbed moisture present in the soil. For example, when dry soil moisture contents are in equilibrium with the moisture in ambient air at 30% relative humidity, clay-catalyzed degradation accounts for ca. 75% of the insecticide loss. The converse is true when dry soil moisture contents are in equilibrium with air moisture at 90% RH. Under field conditions chlorpyrifos dissipates faster with soil-surface applications than with incorporated treatments because volatility and clay-catalyzed proceed less rapidly beneath the surface.