DATA EVALUATION RECORD

STUDY IDENTIFICATION:

White, Stephen M. 1988. Field Dissipation Study on Lindane for Terrestrial Uses on Peaches in Donalsonville, Georgia. Centre International d' Etudes du Lindane (CIEL)/Rhone-Poulenc. MRID No. 406225-02.

REVIEWED BY:

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TYPE OF STUDY: Terrestrial Field Dissipation

CONCLUSIONS:

1. EFGWB has reviewed this report and concludes that the study is scientifically valid; however this study only partially satisfies the data requirement for a terrestrial field dissipation study because the study (MRID No. 406225-03) at the other site has been judged to not satisfy the requirements.

2. EFGWB also concludes that lindane dissipates slowly in the loamy sand soil studied with a half-life of between 65 and 107 days. Furthermore, EFGWB concludes that little, if any, lindane will leach below the 5-10 cm soil depth since insignificant amounts of lindane residues were detected in this depth after 360 days in the soil.

MATERIALS AND METHODS:

Lindane (0.61 lb ai/a) was sprayed to two test plots (cropped with peaches and bareground) located in Georgia. The test plots were subdivided into subplots and marked with numbered flags. Soil samples were collected from the treated plots at -1, 0, 1, 7, 14, 28, 60, 90, 120, 185, 270, 360, 450, and 540 days after lindane application. Untreated cropped and bareground plots were also divided into subplots and labeled and sampled at -1, 0, 1, 7, 14, 28, 90, 270, and 540 days after the lindane application to the treated plots. The subplots were randomly sampled to a depth of 30 cm with a stainless steel probe fitted with acetate core liners. Soil samples were taken from three subplots at each designated sampling interval. One soil sample consisted of ten cores taken within each subplot and composited by soil depth prior to analysis. Table 7 lists selected characteristics of the soil used in the study.

All soil samples were frozen prior to shipping. Analysis for lindane residues was performed using AOAC Method 29.013 entitled: "Pesticide and Industrial Chemical Residues." A method validation study was conducted on duplicate samples of an unspecified soil fortified with three rates of lindane (Table 1, p-155).

A storage stability test was conducted on non-treated soil from California fortified with 1.00 ppm lindane and kept in the freezer for six months. At this time the report only presents data for the first three months of the storage stability test (Tables 1, 2, 3, pp. 145-47).

Replicate soil samples were also fortified in the field with 0.20 or 1.00 ppm lindane (Table 10, p. 33).

All lindane residues in soil samples were determined using gas chromatography or HPLC.

REPORTED RESULTS:

The author reported that field spiking each of six 50 g samples of soil with either 0.20 or 1.00 ppm lindane resulted in recoveries ranging from 85.35 to 97.85 % and 71.61 to 93.91 %, respectively (Table 10). Recoveries of lindane from non-treated soil spiked in the laboratory with 0.01 to 1.00 ppm ranged from 64-111 % with an average value based on 26 samples of 90.53%.

The author reported 65 and 107 days as the half-life for lindane in cropped and bareground soils, respectively, based on the average values of lindane in the 0-5 cm soil depth at each sampling date (Tables 13 and 17, Figures 2 and 3).

Small (0.04-0.05 ppm), but insignificant increases in lindane concentrations were reported to have occurred in the 5-10 cm soil depth between days 120-185. The author concluded from this that little, if any, lindane would leach below the 5-10 cm soil depth.

DISCUSSION:

1. EFGWB concludes that lindane dissipates under the conditions of this test with a half-life of between 65 and 107 days, and little, if any, lindane will leach below the 5-10 cm soil depth since insignificant amounts of lindane residues were detected in this depth after 360 days in the soil.

2. The storage stability data mentioned in this report was actually from a parallel study (MRID No. 406225-03) that was conducted in California on a different soil. This report has no affect on the results of this study and it is unclear to EFGWB why the data was included in the report since the subject soil in Georgia was not tested with lindane in relation to storage stability.