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Shaugh. No. 059101

EAB Log Out Date: 01 OCT 1984

Init.:

To: Jay Ellenberger
Product Manager 12
Registration Division (TS-767)

From: Carolyn K. Offutt
Chief, Environmental Processes and Guidelines Section
Exposure Assessment Branch, HED (TS-769)

Attached, please find the estimated environmental concentration review of:

Reg./File No.: 464-448 & 464-523

Chemical: Chlorpyrifos

Type Product: Insecticide

Product Name: LORSBAN 4E

Company Name: DOW Chemical Co.

Submission Purposes: EEC Review of Runoff and Water Quality

ZBB Code: --

Action Code: 575

Date In: 10 SEP 84

EFB#: 4557 & 4558

Date Completed: 21 SEP 84

TAIS (Level II) Days

63 .2

Deferrals To:

XX Ecological Effects Branch

_____ Residue Chemistry Branch

_____ Toxicology Branch

Chlorpyrifos

I. Introduction.

The Ecological Effects Branch requested on 5 September 1984 that the DOW Chemical Co. field study and evalution of chlorpyrifos applied to corn in Kankakee IL in 1982 be evaluated.

II. Chemical/Physical Properties.

Common Name: Chlorpyrifos

(See EAB review of 11 September 1984 for additional information.)

III. Discussion.

The study "Modeling the runoff potential and behavior of chlorpyrifos in a terrestrial - aquatic watershed" performed by DOW Chemical Co. in 1982 in Kankakee IL was submitted and reviewed. The review report was forwarded to Registration Division on 11 September 1984.

In response to EEB's questions concerning the study and adequacy of toxicity data and the runoff/water quality study, several points must be made.

1. The quantity of chlorpyrifos that is transported from the field to the pond will depend upon the interval between the application and the rainfall/runoff event and the quantity of LORSBAN applied to the field. In this study the greatest quantity (0.4 ppb) was found immediately following the first heavy application (4 lb/acre) on 28 April. Apparently the greatest quantity of chlorpyrifos entering the pond was attributed to drift and residual chlorpyrifos (of previous years) on the berm around the pond not directly from runoff. The quantity of drift was not reported in detail nor a study evaluated.

2. The size of the fields feeding the pond is important. In this case the pond only flowed when runoff occurred into the pond. A larger field to pond ratio would have provided a greater flow-through and cleansing of the pond and a more continuous flow.

3. Even though the quantity of chlorpyrifos reached 0.4 ppb, no fish kills were observed. This would indicate that there is a possible safety factor in natural systems that is not duplicated in laboratory acute toxicity tests.

4. This is a good field study and shows the typical problems found in pesticide application to agronomic crops and pesticide entering aquatic systems.

Robert W. Holst, Ph.D.
Exposure Assessment Branch
HED/OPP (TS-769)

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