Cas rell #:323EE

Date Out EFB 14 JUN 1982

To: Product Manager
TS-767

From: Dr. Willa Garner
Chief, Review Section No. 1
Environmental Fate Branch

Attached please find the environmental fate review of:

Reg./File No.: 100-EUP-AO, 100-EUP-TN

Chemical: CGA-64250

Type Product: Fungicide

Product Name: Tilt

Company Name: Ciba-Geigy

Submission Purpose: Review Applicator Exposure Data

ZBB Code: Sec 5

ACTION CODE: 711

Date in: 3/12/82

EFB # 232,233

Date Completed: 14 JUN 1982

TAIS Level (II) Days

67 3

Deferrals To:

_____ Ecological Effects Branch

_____ Residue Chemistry Branch

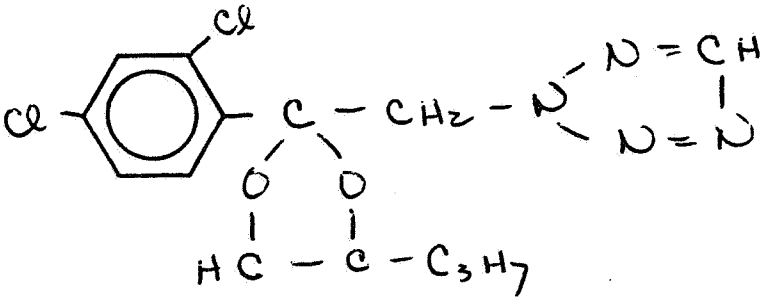
X Toxicology Branch

1.0 INTRODUCTION

Ciba-Geigy has submitted an applicator exposure study for a risk assessment for the fungicide Tilt. Ciba-Geigy has applied for an EUP for use of Tilt on pecans and rice.

2.0 Tilt: CGA-64250

1- 2-(2,4-dichlorophenyl)4-propyl-1,3-dioxoban-2-ylmethyl -1H-1,2,4-triazole



3.0 DISCUSSION

The following exposure situations are considered.

1. Mixer/loader and applicator exposure to Tilt during treatment of pecans using an open loading system and a speed sprayer.

2. Mixer/loader and applicator exposure to Tilt during treatment of rice fields using an open loading system and aerial application.

3.1 Ground Application to Pecans Using an Open System

A. Experimental Use Pattern Information

1. Application rate: 150 g ai/A = 0.33 lb ai/A
2. Application frequency: max 10 applications/yr
3. Average orchard size: 4 acres
4. Open loading system
5. Air blast speed sprayer application system

B. Mixer/Loader Exposure

1. One 4 acre orchard treated; one load treats one orachard.
2. Mixing/loading operation takes 30 min for one treatment.
3. Exposure Time:

   Daily: 30 min/day
   Yearly: 30 min/application x 10 application/yr = 300 min/yr = 5 hr/yr

4. The expousre to Tilt is based on the exposure data for Supracide 2E on alfalfa (EIR-81011). This sutdy has been previously reviewed by EFB (R. Moraski, 1/22/82, Metolachlor exposure study). The Su]racode study was found to provide useful exposure data even though the sampling size was small.
5. Assume a 70 kg worker can work 40 years during a 70 year lifespan; assume 100% dermal absorption.
6. Daily Exposure:

   0.0029 mg/day (30 min = 1 day)

   0.041 ug/kg/day

   Hourly Exposure

   0.0058 mg/hr

   0.082 ug/kg/hr

   Yearly Exposure

   0.0058 mg/hr x 5 hr/yr = 0.029 mg/yr

   0.41 ug/kg/yr

   Lifetime Daily Exposure

   0.41 ug/kg/yr x yr/365 day x 40 yr/70 yr = 0.00064 ug/kg/day

C. Applicator Exposure

1. One 4 acre orachard treated with one load of Tilt.

2. Application operation using an air blast speed sprayer.

3. Application of Tilt to 4 acres takes 0.57 hr.

4. Exposure Time:

   Daily: 0.57 hr/day
   Yearly: 0.57 hr/day x 10 application/yr = 5.7 hr/yr

5. The exposure to Tilt is based on data for Su]pracide 2E used on citrus (EIR-81013). This surrogate sutdy is different in the same manner as EIR-81011 in that a small data base was generated.
6. Assume a 70 kg worker can work 40 years during a 70 year lifespan; assume 100% dermal absorption.

7. Daily Exposure

   0.54 mg/day (0.57 hr = 1 day)

   7.7 ug/kg/day

   Hourly Exposure

   0.95 mg/hr

   0.013 mg/kg/hr

   Yearly Exposure

   0.95 mg/hr x 5.7 hr/yr = 5,4 mg/yr

   7.7 ug/kg/yr

   Lifetime Daily Exposure

   77 ug/kg/yr x yr/365 day x 40 yr/70 yr = 0.12 ug/kg/day

3.2. Aerial Application To Rice Using An Open System

A. Experimental Use Pattern Information

1. Application rate - 128 g ai/A = 0.28 lb ai/A
2. Applicatiion frequency = 2 application/yr
3. Average field size = 65 acres
4. Open loading system
5. Aerial application

B. Mixer/Loader Exposure

1. One load will treat 65 acres
2. Mixing/loading takes 30 min for one load
3. Exposure Time:
   Daily: 30 min/day
   Yearly: 30 min/application x 2 applications/yr = 60 min/yr = 1 hr/yr
4. The Supracide study EIR-81011 is the bases for mixer/loader exposure.
5. Assume a 70 kg worker can work 40 years during a 70 year lifespan; assume 100% dermal absorption.
6. Daily Exposure

   0.0023 mg/day (30 min = 1 day)

   0.033 ug/kg/day

   Hourly Exposure

   0.0046 mg/hr

   0.066 ug/kg/hr

   Yearly Exposure

   0.0046 mg/hr x 1 hr/yr = 0.0046 mg/yr

   0.066 ug/kg/yr

   Lifetime Daily Exposure

   0.066 ug/kg/yr x yr/365 day x 40 yr/70 yr = 0.0001 ug/kg/day

C. Applicator Exposure

1. One 65 acre field treated with one load of Tilt.

2. Application operation is aerial.

3. Application of Tilt to 65 acres takes 32.5 min.

4. Exposure Time:

   Daily: 32.4 min/day = 0.54 hr/day
   Yearly: 32.5 min/application x 2 application/yr = 65 min/yr = 1.08 hr/yr

5. Exposure to Tilt is based on the surrogate study Supracide 2E applied by air to cotton (EIR-8002). This exposure study contains the same deficiency as the previous Supracide studies in that the sampling number is small. Apparently only one test was completed using one mixer/loader, pilot (applicator) and flagger. However, in the absence of more complete data, this will be considered sufficient for review purposes.

6. Assume a 70 kg worker cana work 40 years during a 70 year lifespan; assume 100% dermal absorption.

7. Daily Exposure

   0.117 mg/day (32.5 min = 1 day)

   1.7 ug/kg/day

   Hourly Exposure

   0.216 mg/hr

   3/1 ug/kg/hr

   Yearly Exposure

   0.216 mg/hr x 1.08 hr/ykr = 0.23 mg/yr

   3.3 ug/kg/yr

   Lifetime Daily Exposure

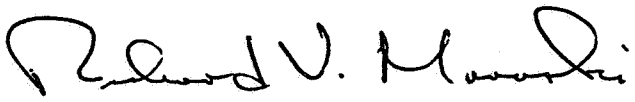
   3.3 ug/kg/yr x yr/365 day x 40 yr/70 yr = 0.005 ug/kg/day

## 4.0 CONCLUSIONS AND RECOMMENDATIONS

The numbers generated by Ciba-Geigy appear to be valid. The major difficulty is the limited data generated by the surrogate studies.

The exposure estimates given by the registrant are satisfactory. However, it must be noted that the daily exposure given is not a lifetime daily exposure but the result of exposure to Tilt for only one year averaged on a daily basis. In this review, hourly, daily, yearly, and lifetime daily exposures are included for completeness.

EFB defers to Tox Branch to comment on the risk assessment.



Richard V. Moraski, Ph.D.
Chemist, Review Section No. 1
Environmental FAte Branch, HED