BIFENTHRIN

7-30-91 USE: on nursery stock (balled) & sod for quarantine from infected areas

APP: Black imported fire ant & red imported fire ant

RESIDUAL EFFECTS: last up to 60 days

APPLICATION: Soil incorporation @ 25-100 ppm

by trenching, injection or trickling (methods being in)

FORMULATION: 10% a.i. wettable powder

TYPE: made up with water

at 1-1/2 inches of 1/20 to flower pots

SCENARIOS

For use: need to monitor vice subdivision U.

(Consult with DREB on protocols)
7-15-91

USE:
EUP Request (1 TESTED HOUSE)
Termite control by professional
pest control operators
mixer/loader, applicator
indoor monitoring (air)
in kitchen, basement, bedroom @ 1, 3, 7 day post application
Formulation Type: 13% a.i. emulsifiable concentrate
(Tested for clean & aromatic components)
Application Method: Injection in basement floor & area around foundation
.625% emulsion by licensed pest control operator
also apply at 24.4% w/w

Non-detect level: 0.045 mg/m³
Recovered spike of 116%-116%
Levels Found: @ 1 day 1.02 ppm
3 day 0.5 ppm
7 day 0.12 ppm

CONCLUSION:
Dermal & respiratory exposure
measure of:
(experson crew) in % w & w/o protective clothing
12-13-91

Decision Modeling

1. Worker poisonings from Bifenthrin
BIFENTHRIN

9-27-90* EUP as Termiticide

Tox - Category C Carcinogen

Upper Bound Potency \(5 \times 10^{-2} \text{ (mg/kg/day)}^{-1}\)

Risk \# exceed \(10^{-6}\)

@ highest exposure aerial open pour mixer/loader
average daily exposure \(4 \times 10^{-3} \text{ mg/kg/day}\)

assume m/c handles 220 lbs ai/day
& 1100 lbs ai/yr & 5 uses/yr.

estimated mixer/loader at \(10^{-3}\) @ 30 yrs.

EUP has 190 lbs ai to be used in USA
2-6-90 Sect 18 for
BMA use on Hops to control aphids

Formulation: Wettable powder (no data; used surrogate data)
10% ace

Estimated EXPOSURE:
for ML, assumes use of chemical resistant
long pants & long sleeve shirt, gloves
face mask, shield or goggles

Daily exposure 0.017 mg/kg/day
Annual exposure 0.050 mg/kg/day

APPLICATION METHOD:
Ground boom application
Rate 0.08 lb/ai/ac/acre

Max 3 application/year
May 15 thru Sept 15

Max/yr 0.24 lb ai/acre
@ 14 preharvest interval

Total 24,500 acres Hops treated -2 count
Typical field 20 acres

Fields treated 50% of time

Average ground boom 4.6 mg/hr normalized to
1 lb ai/ac/acre & 0.39 fl/hm (adjusted)
Estimated exposure - Ground applicator

Daily exposure 0.0059 mg/kg/day
Animal exposure 0.018 mg/kg/day

Combined M/L/A

Daily Exposure 0.011 mg/kg/day
Animal Exposure 0.032 mg/kg/day
1-8-90

Eval. of Closed System Label
Restriction

Max label rate = 0.1 lb/acre
Eye quantities handled:
Closed systems required & are feasible

Both = a.i.'s contain Cypenmethrin: exposure
by pyrethroid recommended: mechanical transfer
applied at 0.02-1 lb/acre

Thrift estimates

<table>
<thead>
<tr>
<th>Ground Application</th>
<th>Aerial app.</th>
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</thead>
<tbody>
<tr>
<td>8 x 10^-5</td>
<td>9 x 10^-4</td>
</tr>
<tr>
<td>8 x 10^-7</td>
<td>9 x 10^-6</td>
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</tbody>
</table>

Based on exposure assessment of 3-14-89

Cotton risk estimate also used for corn
Based on earlier estimates 1-5-29-8
Pre label requirement changes

e.g. that 1% of hectares
vs. assumed 100% dermal exposure

Assumes exposure to head & hands only
 doubted

Implied 100% dermal exposure

Estimate cloth covering provides
protection of 90-97% but variability
2082
1-8-93

assumes

Treatments of 200 acres
4 gals at rate of 3 lb ai/gal.
12 lbs total ai handled per replication

n mL exposure 19.4 mg/lb ai
pilot exposure 4.1 mg/lb ai

2 mL pumped material into spray tank.

in another test
Bifenthrin was applied to 1400 acres cotton
in 1 day by pilot
at average application rate
of 1.23 lb ai/acre
or 0.078 lb/2 ai/acre.

assume pilot sprayed chemical 5x/acre/yr.
2 pilots: can handle 220 lbs ai/day

Dermal exposure estimates

mL - open pour $4 \times 10^{-2}$
mL - closed loading $3.9 \times 10^{-4}$
mL open &

mean transfer

pilot: $3.3 \times 10^{-5}$
ACCIDENT REPORT (B)

3-8-89

BIPHENTHRIN with Cypermethrin

Chemical spillage of BIPHENTHRIN contaminated with product containing Cypermethrin

Co. allowed to deal with low level Co. contamination

Dispose of B - C

Co. argues similar technology - similar
Aug. 89  Exposure Assessment
on Seed corn & popcorn

use: as miticide in TX

( + access detasseled corn )

mL
Commercial & Aerial
Ground Boom
Grower

Ground Boom

Applicator
Commercial & Aerial
Ground Boom

G E B

Open Cab
Combined mL/ha
Closed Cab
Combine mL/A

0.17
0.031
0.0077

0.021
5.0
5.0
0.19
0.22

1.2
1.2
0.049
0.057

(10)
Key Variables:
70 acres actually treated by particular equipment.

Typical commercial applicator usage practices:
- any other info on amount of product used during time period

Application rate: 0.09 lb ai/acre

Time average commercial applicator treats:
3.47 hrs
8.6 hrs or
2.15 hrs.

* for aerial application flagger is also exposed 112.0 acre/day aerially*

200 acres/day by ground boom

50 acres/day for ground boom

100.8 lb/ai/41 applicator
18 lb/ai for ground boom

Treatment day:
4.5 lb ai/treatment day for grower.
Aerial application:

1,800 gal. = 5.1
gal.

Sprayer:

1. 5.8
gal.
2. 0.86
gal.
3. 0.04
gal.

Exposure:

12 h.

Commercial aerial:

Ground beam:

Sprayer:

0.0041

Mean:

0.0038

Comm. aerial:

Mean:

0.0095

Exposure:

0.05 m/kg

P3.04
<table>
<thead>
<tr>
<th>Type</th>
<th>Exposure (mg/l)</th>
<th>Long-term</th>
<th>Annual</th>
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<tbody>
<tr>
<td>Open Cab</td>
<td>39.9</td>
<td>76.7</td>
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<tr>
<td></td>
<td>mean</td>
<td>56.7</td>
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<tr>
<td></td>
<td>Daily</td>
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<tr>
<td>Commercial</td>
<td>0.63 mg/kg/d</td>
<td>5.0 mg/kg</td>
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<tr>
<td>Grower</td>
<td>0.16 mg/kg/d</td>
<td>1.2 mg/kg</td>
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<tr>
<td>Closed Cab</td>
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<tr>
<td></td>
<td>Exposure (mg/l)</td>
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<tr>
<td>Commercial</td>
<td>28.4</td>
<td>0.93</td>
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<tr>
<td>Grower</td>
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For closed cabins, the exposure is lower due to the containment of the fumes.