

US EPA ARCHIVE DOCUMENT

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

PEST: Black imported fire ant & red imported fire ant

RESIDUAL

EFFECTS: last ~ 60 DAYS

APPLICATION: Soil incorporation @ 25-100 ppm <sup>WW</sup>  
by drenching, injection or trickling (methods being desc.)  
FORMULATION 10% a.i. wettable powder.

TYPE: ~~made~~ mixed with water  
& added to potting mix.  
at 1-1/2 inches of H<sub>2</sub>O to flower  
pots.

SCENARIOS

FOR USE: need to monitor vice

Subdivision U.  
(Consult with OREB on Protocols)

# BIFENTHRIN

7-15-91 EUP Request (1 TESTED HOUSE)  
USE: Termite control by professional pest control operators.

EXPOSURE: mixer/loader,  
NEEDS applicator  
indoor monitoring (air)  
(in kitchen, basement, bedroom @ 1, 3, 7

FORMULATION TYPE: 13% a.i. emulsifiable concentrate  
(Tested for chem & aromatic components)  
day post application for 8 hrs

APPLICATION METHOD: Injection in basement floor & ~~over~~ around foundation  
.62% emulsion by licensed pest control operator  
also apply at 24.4% w/w

Non-detect level: 0.045  $\mu\text{g}/\text{m}^3$   
recovered spike of 110%-116%

LEVELS Found: @ 1 day 1.02 PPM  
3 day 0.5 PPM  
7 day 0.12 PPM

CONCLUSION: measures of (2 person crew) m/w & w/o  
Dermal & respiratory exposure & applications  
protective clothing (2) whole body monitoring

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  $\neq$  exceed  $10^{-6}$

① highest exposure aerial open pour mixer/loader  
average daily exposure  $4 \times 10^{-2} \text{ mg/kg/day}$

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

BIFENTHRIN  
P.I. 082

2-6-90 Sect 18 for  
HMA use on Hops to control aphids

Formulation: Wettable powder (no ~~exposure~~ <sup>exposure</sup> data: used surrogate data)  
10% ai

Estimated EXPOSURE:  
for M/L, assumes use of chemical resistant long pants & long sleeve shirts gloves face shield shield or goggles.

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

APPLICATION METHOD:

Ground <sup>Boom</sup> application maximum rate ~~0.08~~ 0.08 lb ai / acre

① max 3 application / season  
(May 15 thru Sept 15)

max / yr 0.24 lb ai / acre  
② 14 preharvest interval

Total 24,500 acres hops treated - 2 Counties  
typical field 20 acres

fields treated 50% of time

③  
mean ~~annual~~ <sup>annual</sup> exposure calculated @ 0.2 lb ai / acre  
average exposure ground boom 4.6 mg / hr normalized at  
to 1 lb ai / acre @ 0.39 mathr (adjusted)

P. 2072  
2-6-90

Estimates of exposure - Ground applicator

Daily exposure	0.0059 mg/kg/day
Annual exposure	0.018 mg/kg/yr
Combined	M/L/A

Daily Exposure	0.011 mg/kg/day
Annual Exposure	0.032 mg/kg/yr

(has dermal exposure by hand, foot etc. Bifenthrin)

1-8-90

# EVAL. of Closed System Label Restriction

max label rate = 0.1 lb ai/acre

Large quantities handled ∴ closed systems required if available

Both = synthetic pyrethroids applied at 0.02-1 lb ai/acre by ULV tech  
ai's contain cypermethrin ∴ exposure for bifenthrin is based on " )  
Recommend: mechanical transfer systems for aerial applications

Risk estimates  
open pour  
closed loading

Ground Application

$8 \times 10^{-5}$

$8 \times 10^{-7}$

\* (handles more chem)

Aerial app

$9 \times 10^{-4}$

$9 \times 10^{-6}$

(based on exposure assessment of 3-14-89)

Cotton risk estimate also used for corn based on earlier estimates done 5-29-8 (pre label requirement changes)

e.g. that M/L wear gloves

\* ∴ assumed 100% dermal exposure

assumes exposure to head & hands only

that is covered

(we estimate cloth covering provides protection of 90-97% but variability is



P 2 of 2  
1-8-90

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

can be  
disaggregated  
by pilot  
part.

~ M/L exposure 19 µg/lb ai  
~ pilot exposure 4.6 µg/lb ai  
2 M/L pumped material into  
Atray tank.

in another test

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

assume pilot sprayed chemical 5 days/yr.  
̄ 2 pilots ∴ can handle 220 lbs ai/day  
Dermal Exposure estimates

M/L - open pour	$4 \times 10^{-2}$	
M/L - closed loading	$3.9 \times 10^{-4}$	
M/L open & mechan transfer		$8.1 \times 10^{-4}$ (8)
Pilot	$3.3 \times 10^{-5}$	$9.9 \times 10^5$

# ACCIDENT REPORT

3-8-89

(B)  
BIPHENTHRIN with  
Cypermethrin

[REDACTED] lbs of BIPHENTHRIN  
contaminated with [REDACTED] lbs of  
product containing cypermethrin

Co allowed to sell B with low level C  
contamination

Dispose of B  $\bar{c}$  [REDACTED] C

Co argues similar toxicology: sim, use

COMMERCIAL/FINANCIAL INFORMATION IS NOT INCLUDED

X Aug. 89 Exposure Assessment  
on Seed corn & popcorn.

use: as miticide in TX

(≠ access detasseled <sup>seed</sup> corn.)

m/L		<u>mg/Kg/yr.</u>
Grower	Commercial { Aerial	0.17
	Ground Boom	0.031
	Ground Boom	0.0077

Applicator

Commercial {	Aerial	0.021
	Ground Boom	
	Open Cab	5.0
	Combined m/L/A	5.0
	Closed Cab	0.19
	Combine m/L/A	0.22

Grower

GB

Open cab	1.2
Combr. m/L/A	1.2
Closed Cab	0.049
? m/L/A	0.057

Key Variables:

To crop actually treated

by particular equipment.

Typical Commercial applicator usage practices

eg acres/yr or days/year

- any other info on amt of prod. used during time period

application rate: 0.09 lb ai/acre

time average commercial applicator treats

3.47 hrs

8.6 hrs

2.15 hrs.

or

1120 acres/day aerially*
200 acres/day by ground boom
50 acres/day grower ± ground boom

\* for aerial application flopper is also applied

100.8 lb/ai/41 commercial applicators
18 lb/ai for ground boom Treatment/day
4.5 lb ai / treatment day for grower.

X Aug, 89

M/L = protective clothing

Exposure mg/lb ai
0.0041 Study 1
0.025 Study 2
<u>0.015 mg/lb.</u>

mean.

per treatment

Commercial-aerial	0.022 mg/Kg/d
Ground boom	0.0038 mg/Kg/d.
Grow-GB.	0.00096 mg/20/d

avg per yr.

Commercial aerial	0.17 mg/Kg/yr.
Ground Boom	0.031 mg/Kg/y
Grower "	0.0077 mg/Kg/y

aerial applicators

5 studies of Exposure		mg/hr	EXPOSURE
#1	0.10		longer
#2	0.021		" fans
#3	0.86		"
#4	0.80		"
#5	0.38		"
mean	0.58 mg/hr		

average based on average usage data  
 ∴ pilot, daily 0.0026 mg/Kg/d.  
 average annual 0.021 mg/Kg/yr.

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X Aug, 89

Open Cab

Exposure (mg/hr)

39.9

76.7

mean 56.7 mg/hr.

long sleeves &  
long pants.

Daily

Annual

Commercial  
Grower

0.63 mg/kg/d

5.0 mg/kg/yr

Grower

0.16 mg/kg/d

1.2 " " " "

if applicator is also m/L combined # =

Commercial  
Grower

0.63 mg/kg/d

5.0 mg/kg/yr

0.16 mg/kg/d

1.2 mg/kg/yr

5

Closed Cab

Exposure (mg/hr)

28.4

0.93

long sleeves  
& long pants.

22 mg/hr.

Commercial  
Grower

0.024 mg/kg/d

0.19 mg/kg/yr

Grower

0.0061

0.049 "

Combined m/L & applicator.

Commercial  
Grower

0.028 mg/kg/d

0.22 mg/kg/yr

Grower

0.0071

0.057 "

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