

7-30-91

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 ^{WW}
by drenching, injection or trickling (methods being done)

FORMULATION

10% a.i. wettable powder.

TYPE:

~~made~~ mixed with water

& added to potting mix.

at 1-1/2 inches of H₂O to flower
pots.

SCENARIOS

FOR USE: Need to monitor vice

Subdivision U.

(Consult with OREB on Protocols

BIFENTHRIN

7-15-91

USE:

EUP Request (1 TESTED HOUSE)
Termite control by professional
pest control operators.

EXPOSURE:
NEEDS

mixer/loader,
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/l
w & w/o

whole body monitoring
Dermal & respiratory exposure
& applications
protective clothing (2)

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 lb ai / yr, \$ 5 uses / yr.

estimated mixer/loader at 10^{-3} @ 30 grs.

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~~ ^{exposure}
10% ai data $\therefore$ used
surrogate
data)

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 ^{Boom} 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 exposure~~ ^{annual exposure} calculated @ 0.2 lb ai /
average exposure ground boom 4.6 mg / hr normalized ai
to 1 lb ai / acre @ 0.37 malin (adjusted)

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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

lge quantities handled $\therefore$ closed systems required & are possible

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

Risk estimates

Ground Application

8×10^{-5}

8×10^{-7}

* (handles more chem)

Aerial app

9×10^{-4}

9×10^{-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

* $\therefore$ 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
c 4 gals at rate of 3 lb ai/gal.
c 12 lbs total ai handled per
replication

can be
disaggregated
by pilot
part:

~ M/L exposure 19 μ g/lb ai
~ pilot exposure 4.6 μ g/lb ai
2 M/L pumped material into
Aeray 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/acre
or 0.078 lb ai/acre.

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

M/L - open pour 4×10^{-2}
M/L - closed loading 3.9×10^{-4}
M/L open &
mechan transfer
pilot 3.3×10^{-5}

8.1×10^{-4} (8)
 9.9×10^5

ACCIDENT REPORT

3-8-89

(B)
BIPHENTHRIN with
Cypermethrin

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

Co allowed to sell B with low level C
contamination

Dispose of B in [REDACTED] C

Co argues similar toxicology: sim. use

COMMERCIAL/FINANCIAL INFORMATION IS NOT INCLUDED

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

use: as miticide in Tx

($\neq$ access detasseled ^{Seed} corn.)

m/L		mg/Kg/yr.
Commercial	Aerial	0.17
	Ground Boom	0.031
	Grower 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
Comb. m/L/A	1.2
Closed Cab	0.049
Combine m/L/A	0.057

(10)

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

or

2.15 hrs.

1120 acre/day aerially*

200 acres/day by ground boom

50 acres/day grower
± ground boom

* for aerial application
flogger 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

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M/L = protective clothing

mean

Exposure mg/lb ai
0.0041 Study 1
0.0025 Study 2
0.015 mg/lb.

per treatment

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

avg per yr.

Commercial aerial
Ground Boom
Grower "

0.17 mg/Kg/yr.
0.031 mg/Kg/yr.
0.0077 mg/Kg/yr.

aerial applicators

5 studies of Exposure

	#	mg/hr	longer
	#1	0.10	"
	#2	0.021	"
	#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. 12

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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.

Commercial
Grower

Daily

0.63 mg/kg/d

Annual

5.0 mg/kg/yr

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

Closed Cab

Exposure (mg/hr)

28.4

0.93

c long sleeve
& long pants.

Commercial
Grower

22 mg/hr.

0.024 mg/kg/d

0.19 mg/kg/yr

0.0061

0.049 "

Combined m/L & applicator.

Commercial
Grower

0.028 mg/kg/d

0.22 mg/kg/yr

0.0071

0.057 "