

US EPA ARCHIVE DOCUMENT



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

JUN 23 1987

~~JUN 1 1987~~

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Applicator Exposure Risk for Bifenthrin

TO: George La Rocca
Product Manager 15
Registration Division (TS-767C)

FROM: Byron T. Backus, Toxicologist
Review Section III
Toxicology Branch, HED (TS-769C)

Byron T. Backus
06/03/87

THROUGH: Marcia van Gemert, Ph.D., Section Head
Review Section III
Toxicology Branch, HED (TS-769C)

M. van Gemert 6/3/87
sh/cws
6/4/87

and

Theodore M. Farber, Ph.D., D.A.B.T.
Branch Chief, Toxicology Branch
Hazard Evaluation Division (TS-769C)

Caswell 463F

The following values are calculated for applicator exposure risk, using the estimates for annual exposures given in the memorandum from L. Lewis to B. Backus, dated May 28, 1987, and a Q₁* for Bifenthrin of 5.4 x 10⁻² (mg/kg/day)⁻¹ (=1.48 x 10⁻⁴ (mg/kg/yr)⁻¹).

	Exposure (mg/kg/yr)	Lifetime (70 yrs exposure)	1-year expo- sure
Open loading system:			
Peaches and cotton	6.4 x 10 ⁻²	9.47 x 10 ⁻⁶	1.35 x 10 ⁻⁷
Pecans	0.10	1.48 x 10 ⁻⁵	2.11 x 10 ⁻⁷
Pears	4.8 x 10 ⁻²	7.10 x 10 ⁻⁶	1.01 x 10 ⁻⁷
Walnuts & strawberries	5.1 x 10 ⁻²	7.55 x 10 ⁻⁶	1.08 x 10 ⁻⁷
Closed loading system:			
Peaches and cotton	1.9 x 10 ⁻⁴	2.81 x 10 ⁻⁸	4.02 x 10 ⁻¹⁰
Pecans	3.0 x 10 ⁻⁴	4.44 x 10 ⁻⁸	6.34 x 10 ⁻¹⁰
Pears	1.4 x 10 ⁻⁴	2.07 x 10 ⁻⁸	2.96 x 10 ⁻¹⁰
Walnuts & strawberries	1.5 x 10 ⁻⁴	2.22 x 10 ⁻⁸	3.17 x 10 ⁻¹⁰
Mixer/Loader - Wettable Powder Formulation			
Open loading system			
Peaches and cotton	1.6 x 10 ⁻²	2.37 x 10 ⁻⁶	3.38 x 10 ⁻⁸
Pecans	2.5 x 10 ⁻²	3.70 x 10 ⁻⁶	5.28 x 10 ⁻⁸
Pears	1.2 x 10 ⁻²	1.78 x 10 ⁻⁶	2.54 x 10 ⁻⁸
Walnuts & strawberries	1.3 x 10 ⁻²	1.92 x 10 ⁻⁶	2.75 x 10 ⁻⁸

151

Pilots

Peaches, pecans & strawberries	4.6×10^{-2}	6.81×10^{-6}	9.72×10^{-8}
Cotton	4.6×10^{-2}	6.81×10^{-6}	9.72×10^{-8}

Flaggers

Peaches, pecans & strawberries	0.27	3.99×10^{-5}	5.71×10^{-7}
Cotton	0.27	3.99×10^{-5}	5.71×10^{-7}

Ground Boom Applicators

Low exposure	5.9×10^{-2}	8.73×10^{-6}	1.25×10^{-7}
Mean exposure	1.1	1.63×10^{-4}	2.32×10^{-6}
High exposure	26	3.85×10^{-3}	5.50×10^{-5}

Hand Spray Applicators

3	4.44×10^{-4}	6.34×10^{-6}
---	-----------------------	-----------------------

Airblast Applicators

6.1	9.03×10^{-4}	1.29×10^{-5}
-----	-----------------------	-----------------------

In a previous memorandum (4/30/87) the Toxicology Branch indicated that a lifetime exposure risk of greater than 1×10^{-5} associated with dietary levels of bifenthrin would be excessive.

One-year applicator exposures (presumably those associated with a temporary tolerance) that would result in an estimated lifetime risk of greater than 1×10^{-5} would be those to airblast applicators (1.29×10^{-5}) and high-exposure ground boom applicators (5.5×10^{-5}).

152