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

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OFFICE OF
PESTICIDES AND TOXIC
SUBSTANCES

MEMORANDUM

SUBJECT: Oxyfluorfen on Raspberries in Oregon; Section 18
Request; Calculation of Worker Risks

Caswell No. 188AAA
Project No. 1-0475A
Record No. S388777

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THRU: Roger Gardner, Section Head
Review Section I
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Health Effects Division (H7509C)

K/B 2/12/91

Requested action

The Registration Support Branch of RD requests that Toxicology Branch (TB) calculate the carcinogenic risks to workers based on OREB exposure estimates for the use of oxyfluorfen on raspberries.

Conclusion and Recommendations

The risk estimates for the following exposure estimates, are presented below. The Q1 is 1.28×10^{-1} (mg/kg/day). Dietary risks are calculated by DRES.

	<u>Dermal Exposure Carcinogenic Risks</u>	<u>Inhalation Exposure Carcinogenic Risks</u>	<u>Total Risk Estimates</u>
Mixer/Loader *	4.2 x 10 ⁻⁸	3.0 X 10 ⁻⁹	4.5 X 10 ⁻⁸
Mixer/Loader**	5.6 x 10 ⁻⁶	3.0 x 10 ⁻⁹	5.6 x 10 ⁻⁶
Applicator	7.7 x 10 ⁻⁸	2.6 x 10 ⁻⁸	1.0 x 10 ⁻⁷
M/L* + App.	1.2 x 10 ⁻⁷	2.9 x 10 ⁻⁸	1.5 x 10 ⁻⁷
M/L** + App.	5.6 x 10 ⁻⁶	2.9 x 10 ⁻⁸	5.6 x 10 ⁻⁶

* Mixer/loader wearing long sleeve shirt, hat, long pants, work footwear and gloves.

** Mixer/Loader wearing short sleeve shirt, long pants and work footwear (no gloves).

Applicator wearing short sleeve shirt, long pants and work footwear (no gloves).

Review

The Oregon Department of Agriculture requests a Section 18 to use Goal 1.6E Herbicide for chemical pruning (cane suppression) of primocanes in raspberries grown in Oregon.

The use period will be from March 1 to May 15, 1991. A preharvest interval of 50 days must be observed.

It is estimated that 4600 acres will be treated.

The formulation to be used is Goal 1.6E (EPA Registration No. 707-174). Inerts are cleared under 40 CFR 180.1001.

Tolerances are established for oxyfluorfen in 40 CFR 180.381. No regulatory actions are pending against the pesticide.

The toxicity data base has been detailed in previous memorandum.

No new technical data relating to toxicology were submitted. Other than oncogenicity, there are no other toxicology triggers.

Dermal absorption is estimated to be 1% (previous personal communication from R. Zendzian) and a Q1 of 1.28 x 10⁻¹ (mg/kg/day) has been previously determined. Risk is calculated by multiplying exposure (mg/kg/day) X 1.28 X 10⁻¹ (mg/kg/day).

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DERMAL EXPOSURE TO WORKERS HANDLING OXYFLUORFEN FOR USE ON RASPBERRIES

	<u>Dermal</u>	<u>Yearly Exposure</u>	<u>Exposure</u>
	<u>Absorption</u>	<u>Mg/Kg/Year (70 KG BW)</u>	<u>Mg/Kg/Day</u>
Absorption Mixer/Loader*	.01	0.012	3.3×10^{-7}
Mixer/Loader*	.01	1.6	4.4×10^{-5}
Applicator	.01	0.022	6.0×10^{-7}
M/L* + App.	.01	0.034	9.3×10^{-7}
M/L** + App.	.01	1.6	4.4×10^{-5}

* Mixer/Loader wearing long sleeve shirt, hat, long pants, work footwear and gloves.

** Mixer/Loader wearing short sleeve shirt, long pants and work footwear (no gloves).

Applicator wearing short sleeve shirt, long pants and work footwear (no gloves).

Yearly respiratory exposure for mixing and loading is estimated at 8.9×10^{-5} ug/kg/year (8.9×10^{-6} mg/kg/year).

Yearly respiratory exposure for application is estimated as 7.4×10^{-2} ug/kg/year (7.4×10^{-3} mg/kg/year).

Total yearly respiratory exposure for a worker performing both mixer/loader and applicator task is 8.3×10^{-2} ug/kg/year. (8.3×10^{-3} mg/kg/year).

Inhalation absorption is estimated to be 100% of exposure.

The inhalation exposure is 2.3×10^{-7} mg/kg/day. The inhalation risk is 2.9×10^{-8} for M/L/A.

This inhalation risk can be added onto the M/L/A (with gloves) and M/L/A (without gloves).

Total Risk (Inhalation and Dermal Exposure) to M/L/A

<u>M/L/A - without gloves</u>	5.6×10^{-6}
<u>M/L/A - with gloves</u>	1.5×10^{-7}

Disk 3 HES "Oxyfluorfen" for Dykstra typed 2/4 & 5/91 & 2/7/91