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

MAY 20 1996

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

080808

MEMORANDUM

SUBJECT: Review of handler exposure assessment submitted in response to the Propazine Grassley-Allen letter.

TO: Kathryn Boyle
Risk Characterization and Analysis Branch (7509C)

FROM: Jim Carleton, Chemist

THRU: Francis B. Suhre, Section Head
Special Review and Reregistration Section

Larry C. Dorsey, Chief
Occupational and Residential Exposure Branch
Health Effects Division (7509C)

DP Barcode:	D222622, D224748
Pesticide Chemical Codes:	080808 Propazine
EPA Reg. Nos.:	N/A
EPA MRID Nos.:	N/A
Review Time:	10 days
PHED:	yes

I. BACKGROUND

OREB has reviewed the worker exposure portions of a human health hazard assessment for Propazine, submitted by Griffin Corp. in response to the Propazine Grassley-Allen letter. The report employs data from the Pesticide Handlers Exposure Database (PHED) to estimate unit exposures, then extrapolates these values into estimated doses based upon label application rates, and usage data obtained from the 1992 Census of Agriculture.

II. DETAILED CONSIDERATIONS

The following problems/deficiencies were noted in the methodology used to derive unit exposure values from PHED:

- In estimating exposure to handlers who both mix/load and apply pesticides, it is inappropriate to average data obtained from the MLAP file (mixer/loader/applicator) with data obtained from the MIXLD (mixer/loader) and APPL (applicator) files. For propazine use on ornamentals, mixer/loader/applicator (M/L/A) exposures should be modeled using only the MLAP file. This results in an estimated total unit exposure (dermal + inhalation) of 899.4748 μg/lb active ingredient.

- In estimating exposure to mixer/loaders for sorghum application, it is inappropriate to exclude data from studies with tank/hoppers less than 100 gallons. The report's authors quote a figure of 124 acres per farm average for sorghum in the state of Kansas. Based on the a.i. concentration of 4 lb/gal, and assuming an application rate of 1.2 lb a.i./A, this results in an estimate of only 37 gallons of Propazine 4L used per farm per treatment, *on average*. When data are not subsetted by tank/hopper size, the estimated total unit exposure is 43.7331 μg/lb active ingredient.

- In estimating exposure to open cab groundboom applicators, subsetting should include closed cabs with windows open, in addition to open cab studies. Subsetting for application methods should include groundboom truck, as well as groundboom tractor. When the data are subsetted this way, the estimated total unit exposure is 15.6808 μg/lb active ingredient.

- Data from open and closed cab applications should not be combined. In estimating exposure to aerial applicators, there are sufficient data only to model a closed cab scenario. It is also inappropriate to subset in such a fashion as to remove the low application rate data. When dermal grades A,B, and C are selected (in order to generate a sufficient number of replicates), the estimated total unit exposure for closed cab application is 5.3091 μg/lb active ingredient.

The following problems/deficiencies were noted in the methodology used to extrapolate estimated doses from unit exposures:

- The report's authors made an assumption of 2 percent dermal absorption, based on comparison with other triazines. However, as EPA has not defined a chemical specific

absorption factor for propazine, it is inappropriate at this time to assume that dermal absorption is less than 100 percent (K. Boyle, personal communication, 5/96).

The authors estimated amortized annual average daily doses, and lifetime average daily doses, but did not calculate short or intermediate term doses. EPA has not yet established a toxicological end point for propazine, therefore it is inappropriate to exclude short and intermediate term doses, especially as these will tend to be substantially higher than average long term doses. This review corrects that omission by including estimates of short term, average daily doses (ADDs).

III. CONCLUSIONS

The following table summarizes the correct unit exposures and estimated doses as determined by OREB. In order to extrapolate the doses, OREB employed the assumption that the usage and farm size data presented in the report are correct. However these values have not been verified by BEAD, therefore the doses presented here are subject to change based upon updated use/usage information. For ornamental handlers, the maximum label rate of 1.5 lb/A/day is assumed, and a total of 4.5 lb/A/yr, for one acre treated in one day. For sorghum groundboom application, the maximum label rate of 2.4 lb/A is assumed, along with 290 A/day, and 2 days/yr, for a total of 590 A/yr treated by a commercial applicator. For sorghum aerial application (pilots and flaggers) and mixing/loading, 2.4 lb/A is again assumed, along with 1000 A treated in one day, one time per year. All scenarios assume a 70 Kg body weight, and a 40 year career in a 70 year lifetime.

Job Function	Total Unit Exposure (μg/lb a.i.)	Absorbed Daily Dose (ADD) (mg/Kg/day)	Annual Average ADD (mg/Kg/day)	Lifetime Annual Average ADD (mg/Kg/day)
Ornamental M/L/A	899.4748	1.93 E-02	1.58 E-04	9.05 E-05
Sorghum M/L, open pour, for aerial application	43.7331	1.50	4.11 E-03	2.35 E-03
Sorghum Groundboom Commercial App., open cab	15.6808	1.56 E-01	8.54 E-04	4.88 E-04
Sorghum Aerial Appl. (pilot), closed cab	5.3091	1.82 E-01	4.99 E-04	2.85 E-04
Sorghum Flagger	11.7122	4.02 E-01	1.10 E-03	6.29 E-04

cc: J. Carleton, OREB
J. Bailey, SRRD
Chemical file - Propazine

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PC Code:	**080808**
HED File Code	~~**11000 Chemistry Reviews**~~ 12000 Exposure
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