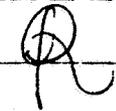


US EPA ARCHIVE DOCUMENT

Shaugh. No. 109901

EFB Log Out Date JAN 14 1983

Init. 

To: Hank Jacoby
Product Manager 21
Registration Division (TS-767)

From: Carolyn K. Offutt *Carolyn K. Offutt*
Chief, Modeling and Guidelines Section
Environmental Fate Branch, HED (TS-769)

Attached please find the environmental fate review of:

Reg./File No.: 3125-320

Chemical: Bayleton

Type Product: Fungicide

Product name: Bayleton 50% Wettable Powder

Company name: Mobay

Submission Purposes: Review of data to support proposed reentry interval for apple pickers

ZBB Code: Other

Action Code 331

Data In: 11/5/82

EFB #: 3048

Date Completed: 1/14/83

TAIS (Level II) Days

62

3

Deferrals To:

Ecological Effects Branch

Residue Chemistry Branch

Toxicology Branch

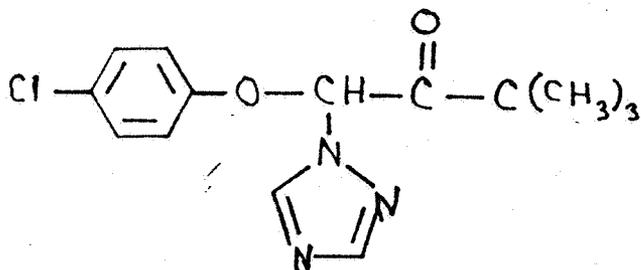
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INTRODUCTION

Mobay Chemical Corporation has submitted calculations in support of their contention that there is no need for a reentry interval for the protection of apple pickers after the application of Bayleton, 50 WP. George Ghali, Tox Branch, has reviewed the submitted data and has calculated the Allowable Exposure Level (AEL) for Bayleton to be 0.5 mg/Kg/day. This AEL was calculated from the 50 mg/Kg NOEL (teratological effect), the 0.10 dermal penetration (determined by Knaak, CDFA) and a safety factor of 1000. This AEL is higher than Mobay's estimate of 0.20.

PESTICIDE STRUCTURE/NOMENCLATURE

Bayleton: 1-(4-chlorophenoxy)-3,3-dimethyl-1-(1,2,4-triazol-1-yl)butan-2-one. AKA triadimefon.



DISCUSSION

Mobay has used the Agency's model, as found in Subdivision K of the Guidelines for Pesticide Registration, in order to calculate a reentry interval for apple pickers exposed to residues of Bayleton. Much of the data used to make these calculations has been previously submitted and reviewed by the Agency.

EFB's calculated worker exposure is 0.187 mg/kg/day. This is derived from Mobay's reported 400 ng/cm² foliar residue level taken at 0.04 hours after application, Popendorf's correlation of worker exposure with foliar residues, a 60 Kg body weight for a female worker (female because the toxic effect here is teratological effect), and an 8-hour work day. From Popendorf's correlation (which is attached to this review), a residue level of 400 ng/cm² corresponds to an exposure level of 1.4 mg/hour. The daily worker exposure then is:

$$\text{Exposure} = \frac{(1.4 \text{ mg/hr})(8 \text{ hr/day})}{60 \text{ Kg}} = 0.187 \text{ mg/Kg/day}$$

This is very close to Mobay's estimate of 0.163 mg/Kg/day which was derived using a 7-hour work day rather than an 8-hour work day.

2

4.0 CONCLUSIONS

Since the anticipated worker exposure level at "0" days (0.187) is less than the AEL (0.50), Mobay's proposal that the Bayleton 50% WP reentry interval can be 0 days is acceptable for persons working in Bayleton, 50 WP, treated apple orchards. EFB expects that the worker exposure levels will be somewhat less than 0.187 since Mobay sampled the foliar residue levels at 0.04 hr which is probably earlier than workers could legally reenter as per Title 40 CFR § 170.3(b) which says that workers cannot "..... enter a field treated with pesticides until spray have dried or dusts have settled,....".

5.0 RECOMMENDATIONS

The Agency should accept Mobay's proposal that their label for Bayleton, 50 WP does not need to bear a reentry interval.

James D. Adams

James D. Adams, PhD
Chemist
Environmental Fate Branch, TS-769

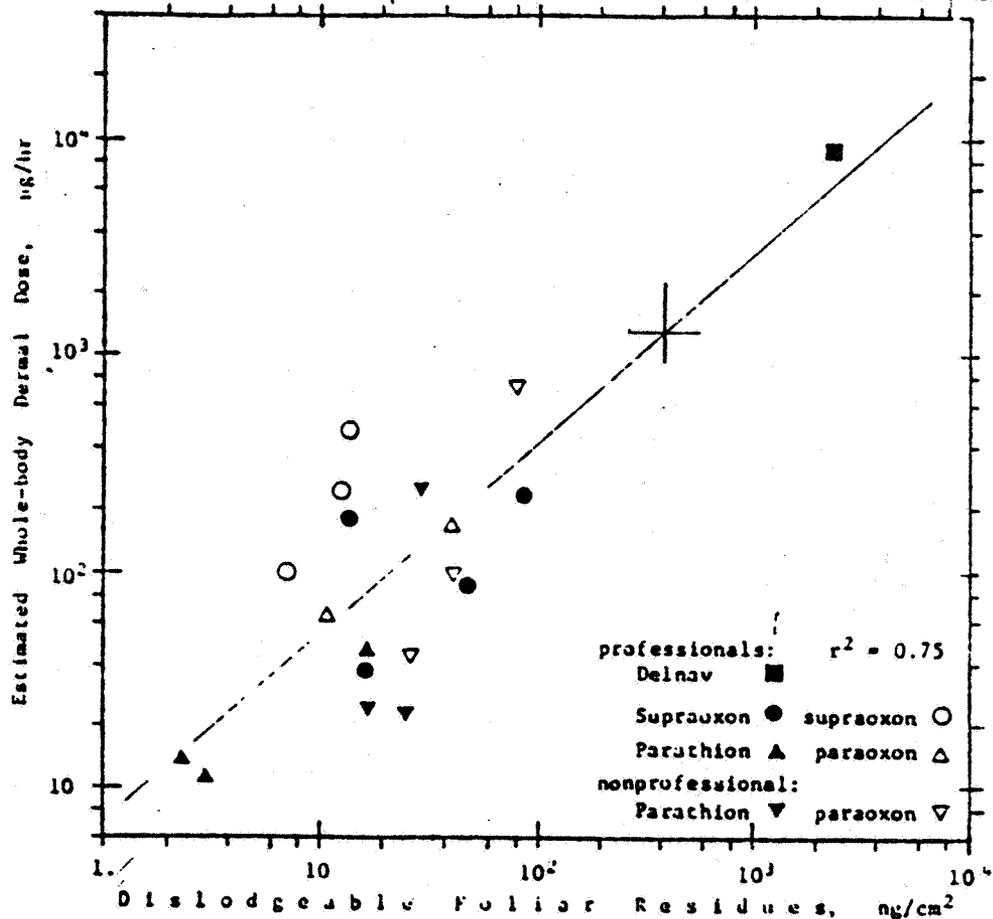


Figure 6 - Dislodgeable foliar pesticide residues as a predictor of harvester dermal dose.

... corresponds very closely to the ratio of the 15 mg/m³ aerosol concentration measured on experimental harvesters versus the 35 mg/m³ expected from the least-squares regression line of Figures 2-3; but, and more importantly, the "experimental" aerosol concentration can be seen to lie within the range expected for "professionals." Generally similar set of relationships can be seen in Figures 3-4 for dermal dose predictions. These close and consistent comparisons help to justify the validity of such controlled experiments for current extrapolations and for future laboratory development efforts.

There are three important implications from these findings. First is the verification that experimentally derived dermal dose measurements from inexperienced volunteers are very closely with measurements taken from professional harvesters. Second, the aerosols to which these workers are exposed during the dry summer season are generally above levels permissible in other industries. Third is the potential application of these residue-dose relationships for safe re-entry regulations for agricultural workers not only to prevent acute OP poisonings but also to identify chronic harvester exposures to other pesticides such as the chlorinated hydrocarbons, arsenicals, etc.

Acknowledgements

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research by the National Institute for Occupational Safety and Health, USPHW, Grant No. R01-OH-00040 (1974), Agricultural Research Service, USDA (1975), NIH General Research Support Grant No. 1-S01-R-00044 (1977), and the California Research and Medical Education Fund of the California Lung Association (1976). Critical comments by Dr. H.N. Nigg are gratefully acknowledged, as is the help and support of Dr. J. Spencer (USDA) during 1976.

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