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
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

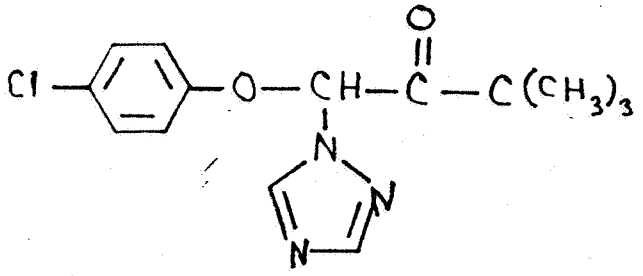
___ Toxicology Branch

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/cm^2 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/cm^2 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.

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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

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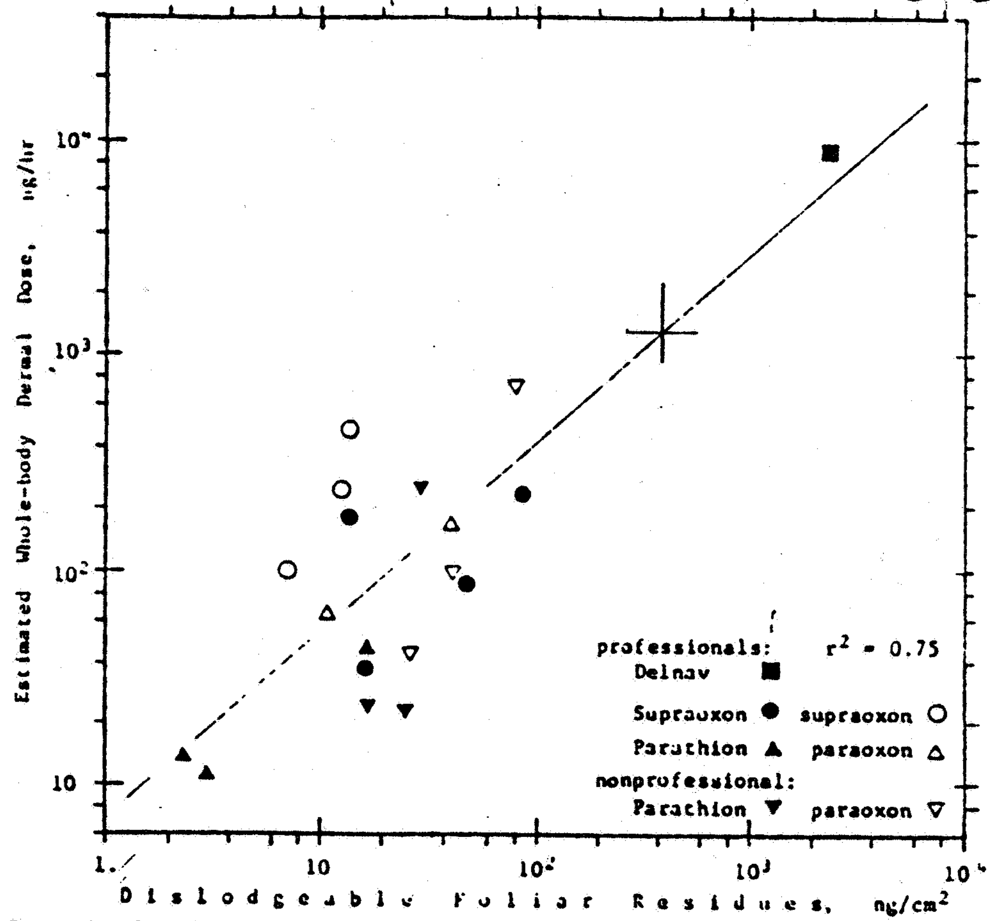

Figure 6 — Dislodgeable foliar pesticide residues as a predictor of harvester dermal dose.

...io corresponds very closely to the ratio of the 15 mg/m³ ...n aerosol concentration measured on experimental ...vesters versus the 35 mg/m³ expected from the least-...ares regression line of Figures 2-3; but, and more ...portantly, the *"experimental"* aerosol concentration can ...een to lie within the range expected for *"professionals."* ...nerally similar set of relationships can be seen in Figures ... dermal dose predictions. These close and consistent ...arisons help to justify the validity of such controlled ...ments for current extrapolations and for future ...tory development efforts.

...e are three important implications from these ...gs. Fir... is the verification that experimentally derived ...re m...asurements from inexperienced volunteers ...re ve... closely with measurements taken from ...ional ...arvesters. Second, the aerosols to which these ...s are ...xposed during the dry summer season are ...ly abo...e ...evels permissible in other industries. Third ... pote...tial application of these residue-dose ...tions for safe re-entry regulations for agricultural ...te's not o...ly to prevent acute OP poisonings but also ...ntify c...ronic harvester exposures to other pesticides ...s the c...lorinated hydrocarbons, arsenicals, etc.

...wledgements

...al su...port was provided during portions of this research by the National Institute for Occupatio... ...fety and Health, USPHEW, Grant No. R01-OH... (1974), Agricultural Research Service, USDA (19...), NIH General Research Support Grant No. I-S01-R... (1977), and the California Research and Medical F... Fund of the California Lung Association (1...). Critical comments by Dr. H.N. Nigg are ... acknowledged, as is the help and support of ... Spencer (USDA) during 1976.

references

1. NIOSH: *Manual of Analytical Methods.* 2nd Ed. Vol. ... DHEW(NIOSH) Public. No. 77-157-A through C (1977).
2. NIOSH: *Manual of Analytical Methods.* 2nd Ed. Vol. ... DHEW(NIOSH) Public. No. 78-175 (1978).
3. ACGIH: *Documentation of the Threshold Limit Values.* ... Conf. of Governmental Industrial Hygienists, Cincinnati ... (1976).
4. OSHA: *Safety and Health Standards* (29 CFR ...) ... USDOL ...ccupational Safety and Health Admin. ...
5. Quinby, G.E. and A.B. Lemmon: Parathion Residues as ... Cause of ...isoning in Crop Workers. *JAMA* 166 ... (1958).
6. Westlake, W.E., F.A. Gunther and G.E. Carman: ... Environment Research: Dioxathion (Delnav) Residues ... in Orange Fruits and Leaves, in Dislodgeable ... Matter, and in the Soil Beneath Sprayed Trees. *Arch. Environ. Contam. Toxicol.* 1: 60-83 (1973).

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