PM50/ISB

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

SEP 8 1988

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: 88-IL-08. Proposed Section 18 exemption for the use of permethrin (Ambush® &/or Pounce®) on Mustard and Turnip greens* in Illinois.
No MRID No. Branch Nos. 4209 and 4218.

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THRU: A.R. Rathman, Section Head
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TO: D. Stubbs/L. Pemberton, PM#41
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The Illinois Department of Agriculture is requesting a Section 18 exemption for the use of permethrin [(3-phenoxyphenyl) methyl (±)-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate; [redacted] to control cabbage worms and aphids on 2500 acres of mustard and turnip greens*. It is expected that a maximum of 2000 lbs ai will be used in 1988.

A tolerance with regional registration, as defined in § 180.1 (n), is established for residues of the insecticide permethrin and its metabolites cis- and trans- 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropane carboxylic acid; DCVA and 3-(phenoxybenzyl) alcohol; PBA in or on turnip greens grown in FL, GA, IN, SC, TX, & WA (and collards grown in AZ, GA, NE, OK, SC, & TX) both at 20 ppm [FR 52 #246 48539; PP 6E3360]. The request for a tolerance on mustard greens was withdrawn from that petition, because geographic representation (of residue data) was not adequate. (See N. Dodd 11/13/86 memo). Also, data from GA (4 applications of 0.1 lb ai/A showing residues of 17.11 ppm) indicate the number of applications may have to be limited to 4 so that the 20 ppm proposed tolerance is not exceeded. (See M. Firestone 6/5/86 memo; PP 4F3136).

A Registration Standard has not been completed for permethrin.

* The accompanying/supporting IR-4 data, PR 941, includes use of permethrin on Collards, as well as on mustard and turnips.

The proposed use includes a maximum of 8 foliar-spray applications to mustard and turnips at a rate of 0.05-0.1 lb ai/A using ground equipment in Will, Cook, Kendall, and Grundy counties in Illinois, and a 1-day PHI would be imposed. The grazing or feeding of crop refuse to livestock will not be permitted.

Available plant metabolism data indicate that permethrin is degraded at various rates with the residue of concern consisting of the parent compound (cis- and trans-isomers) plus the hydrolysis products DCVA and PBA. Also, in animal tissue oxidation of PBA to form 3-phenoxybenzoic acid can occur. No metabolism data were submitted with the current Sec. 18 request. We consider that the nature of the residue of permethrin in animals and plants is adequately delineated.

Two analytical methods were used to obtain the permethrin residue data provided with the current Sec. 18 request, and both basic procedures were discussed in PP#6E3360. (See N. Dodd 4/16/86 memo). The first method [modification (PCY 84-8) of George, et al., Synthetic Pyrethroids: Methodology and Applications. ACS Symposium Series No. 42, pp 201-220, 1977] was used to determine permethrin residues in turnip roots and tops. The second method [modification (Simonaitis) of Fujie & Fullmer, J. Agric. Food. Chem. 26 395-7 1978] was used to determine permethrin residues in collards, mustard greens, and turnips (roots & greens). Both methods have been published in PAM II.

Data submitted with this request reflect two sets of residue data. One set of data was generated from collards, mustard, and turnips grown in Washington, and collards and mustard grown in South Carolina and collected in the 1980 season, and turnips grown in Indiana and Texas and collected in the 1983 season, all as part of an IR-4 project to obtain a federal registration. The other set of data was generated from collards, kale, mustard, spinach, and turnips grown in AZ, CA, DE, FL, GA, NC, & TX and collected in the 1979, 1980, 1981, & 1983 seasons by ICI Americas Inc. in support of PP#4F3136 and the aforecited IR-4 petition. Certain residue data, Agency-requested raw data sheets, and a sorghum (grain, stover & forage) 52 month storage stability report are included in this latter data set.

The data submitted from the eight IR-4 trials reflect residues occurring on collards, mustard and turnips 1, 3, or 5 days after the last of 4 to 8 applications of 0.1 or 0.2 lb. ai/acre. The value in this set of data most closely reflecting the proposed emergency use in Illinois is the sample receiving 8 applications of 0.1 lb ai/A with a 1-day PHI. The total residues on turnip tops in Indiana were 3.6 ppm. In the Texas sample a value of 8.3 ppm was reported. Of the 2 mustard trials, values of 3.6 and 4.0 ppm were reported for Washington and South Carolina, respectively. Both reflect levels 1 day after the last of 5 applications of 0.1 lb ai/A. The highest

total residue reported was 21.8 ppm on collards 1 day after the last of 5 applications of 0.2 lb ai/A in South Carolina.

The ICI data was previously reviewed, which see PP#4F3136; M. Firestone 6/5/86 rejection memo.

From all the data available, the Branch concludes that total residues of permethrin occurring as a result of this proposed emergency use in Illinois will not exceed 20 ppm in or on mustard and turnip greens, providing use on mustard is limited to 4 applications.

Conclusions

1. For the purpose of this Sec. 18 exemption the Branch considers the residue of concern consists of permethrin, DCVA, and PBA.

2. Satisfactory analytical methods are available for enforcement of this Sec. 18 exemption. The analytical methods published in PAM II, Method I for permethrin per se in all crops; PAM II, Method III for PBA in all crops; PAM II, Method IIIa for DCVA in all crops, may be used for enforcement.

3. For the purposes of this section 18 only, we conclude that residues are not likely to exceed 20 ppm in or on mustard and turnip greens as a result of the proposed use, providing the use on on mustard is limited to 4 applications. Since grazing treated areas or feeding crop refuse to livestock are restricted, there will be no problems of secondary residues in meat, milk, poultry and eggs.

4. Reference standards are available from the Pesticides and Industrial Chemicals Repository at RTP, NC.

Recommendation

TOX considerations permitting, the Branch has no objections to the granting of this Sec. 18 request. An agreement should be made with FDA regarding the legal status of the treated mustard and turnip greens in commerce.

cc: K. Dockter (DEB), Permethrin S.F., Sec. 18 file, E. Eldredge (ISB/PMSD), Circulation (7), RF, TAS (S. Stanton)
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