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

JUL 17 1985

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

SUBJECT: #85-IL-01 Permethrin: Section 18 Exemption on Pumpkins in State of Illinois (RCB #1139).

FROM: William L. Anthony
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TO: D. Stubbs/S. Austin, PM-41
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THRU: Ed Zager, Section Head
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William L. Anthony
E. Zager

The State of Illinois, Department of Agriculture, requests a section 18 exemption for use of the insecticide permethrin on canning pumpkin for control of squash bugs in Illinois. Permethrin is marketed under the trade names AMBUSH®-2E and POUNCE®-3.2EC. This request is similar to those approved in 1980, 1981, 1982, 1983, and 1984.

The proposed use would permit a maximum of two applications at the rate of 0.2 lbs act/A in a minimum of 4 gals of spray/A by air and a minimum of 20 gals of spray/A by ground equipment. There will be a 10-day PHI. It is estimated that a maximum of 4,500 acres of pumpkin grown for processing will be treated under this exemption. A maximum of 1800 lb ai will be used in 1985. Pesticide treatment is scheduled from June 15 to November 1, 1985.

There is no permanent tolerance for residues of permethrin and its metabolites in/on pumpkins.

The metabolism of permethrin in plants and animals has been reviewed numerous times and we concluded that the residues of concern are cis- and trans- permethrin; cis- and trans-DCVA (3-(2,2-dichlorovinyl)-2,2-dimethylcyclopropane carboxylate); 3-phenoxy benzyl alcohol, (3-PBA); and 3-phenoxybenzoic acid (the latter for meat, milk, poultry and eggs only). These have been reviewed in PP#7G1891, 3/10/77; PP#8G2029, 12/27/78; PP#8F2034, 3/14/78; #PPOF2389, 4/10/81.

The analytical method to determine residues of permethrin in/on cottonseed and soybeans is listed in PAM II as method I. The method is applicable for all crops. In this method, separate determinations are made of the cis- and trans- isomers of permethrin or as total permethrin. Method sensitivity for permethrin was reported to be 0.05 ppm.

The analytical methods to determine the permethrin metabolites cis- and trans- isomers of DCVA, and 3-PBA in/on soybeans and soybean fractions are listed in PAM II, methods III and IIIA. The methods are applicable for all crops including pumpkins. Reported method sensitivity for permethrin metabolites is 0.01 ppm.

We conclude that adequate analytical methods are available for enforcement. The methods listed in PAM II as methods I, III and IIIA may be employed for pumpkins.

The available residue data submitted with this request had been reviewed in connection with previous section 18 exemptions (E. Zager, 5/28/82) and reflect studies conducted in Illinois in 1978 and 1980. Pumpkins received two applications of 0.1 lb ai/A or one application of 0.2 lb ai/A. Residues of permethrin ranged from ND (<0.01 ppm) to 0.18 ppm in pumpkin rind and pulp and from ND (0.04) to 0.06 ppm in the seeds at PHI's ranging from 5 to 14 days. No detectable (<0.01 ppm) residues of permethrin were found in processed canned pumpkin.

No residue data are available for the metabolites of permethrin in pumpkins. However, residue data submitted with PP#9F2207 indicate that residues of DCVA may range up to \cong 50% of the residue levels of permethrin, per se, in or on broccoli, brussels sprouts, and cauliflower. Residues of 3-PBA were, in general, lower ranging from ND (<0.05 ppm) to \cong 30% of the residue levels of permethrin per se on the same commodities.

Residue data for metabolites of permethrin in field corn were submitted in PP#2F2624. Following one to six applications from 0.1 to 0.2 lbs ai/A, no detectable residues of permethrin (<0.05 ppm) or its metabolites DCVA and 3-PBA (<0.01 ppm) were found in field corn kernels at PHI's of 0 to 89 days.

We thus estimate that residues of permethrin and its metabolites DCVA and 3-PBA will not exceed 0.5 ppm in or on pumpkins as a result of the proposed use.

Meat, Milk, Poultry and Eggs

There are no feed items involved in this use. There will be no problem with secondary residues in meat, milk, poultry and eggs.

Conclusions

1. Residues of permethrin and its metabolites, DCVA and 3-PBA, will not exceed 0.5 ppm in or on pumpkins as a result of the proposed use.

2. There will be no problem with secondary residues in meat, milk, poultry and eggs.

3. We conclude that adequate methods are available for enforcement. The methods listed in PAM II as methods I, II, and IIIA may be employed for pumpkins.

4. A reference standard for permethrin is available from the U.S. EPA Pesticide and Industrial Chemicals Repository.

Recommendation

TOX considerations permitting, we have no objections to the proposed section 18 exemption. An agreement should be made TOX regarding the legal status of the treated pumpkins in commerce.

cc: Permethrin (S.F.)
Section 18 (S.F.)
R.F.
Circulation
Reviewer
TOX
PMSD/ISB

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