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

AUG 2 1982

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

Subject: EPA Registration No. 464-448. Chlorpyrifos on Corn

From: Edward Zager, Chemist
Residue Chemistry Branch (TS-769)
Hazard Evaluation Division *Edward Zager*

To: Jay Ellenberger, PM Team 12
Insecticide-Rodenticide Branch
Registration Division (TS-767)

Thru: Charles L. Trichilo, Chief
Residue Chemistry Branch
Hazard Evaluation Division (TS-769) *CT*

The Dow Chemical Co. requests an amended registration for its product Lorsban 4E Insecticide (4 lbs chlorpyrifos/gallon) to permit use on sweet corn and seed corn for control of armyworms and corn earworm.

Tolerances for residues of chlorpyrifos and its metabolite 3,5,6-trichloro-2-pyridinol (TCP) have been established at 0.1 ppm on field (TCP) corn and fresh corn (inc sweet K+CWMR) and at 10 ppm on corn forage and fodder (180.342).

Present Use

Lorsban 15G

Pre-plant broadcast treatment at the rate of 1-2 lbs act/A.

At-plant application of 8 oz/1000 linear feet (equivalent to 2.2 lbs act/A using 18" row spacing the minimum for corn).

Up to two post-plant application at the rate of 8 oz/1000 linear feet (equivalent to 2.2 lbs act/A using 18" row spacing, the minimum for corn).

Lorsban 4E

Pre-plant incorporated treatment at the rate of 1-2 lbs act/A.

Up to two post-emergence applications at the rate of 0.25 - 1.5 lb act/A.

Proposed Use

Lorsban 4E

Multiple air or ground spray applications to sweet corn and seed corn at the rate of 0.5 - 1 lb act/A with no more than 11 lbs act to be applied per acre/season. There is no pre-harvest interval for sweet corn ears but there is a restriction against grazing or feeding treated corn silage, fodder or grain to meat or dairy animals for 21 days after treatment. This restriction is not considered practical since treated plant parts are likely to be fed to livestock at the same time sweet corn ears are harvested.

The restriction of the proposed use to seed corn only is also not considered practical since at least some of the treated (field) corn may be diverted for use as feed.

The granting of this registration would permit the following applications:

1 pre-plant application of Lorsban 15G (broadcast) or Lorsban 4E (incorporated) at the rate of 1-2 lbs act/A.

or 1 at-plant application of Lorsban 15G at 8 oz/1000 linear feet (equivalent to 2.2 lbs act/A using 18" row spacing the minimum for corn). It is unlikely that anyone would make both a pre-plant and an at plant application.

plus

Two post - plant applications of Lorsban 15G at rates up to 8 oz/1000 linear feet equivalent to 2.2 lbs act/A using 18" row spacing, the minimum for corn).

plus

Multiple applications of Lorsban 4E at the rate of 0.5 - 1 lb act/A with a maximum of 11 lbs act/acre/season.

Residue Data

Residue data submitted with this request reflect 7 studies from CA, WS, IL, and FL. Multiple (8-11) aerial or ground foliar applications were made at the rate of 1 lbs act/A. Residues of chlorpyrifos (calculated from TCP residues) ranged from ND (< 0.05 ppm) - 0.16 ppm in or on sweet corn (kernels + cob with husk removed) on the day of the last treatment. Residues of chlorpyrifos in or on sweet corn fodder ranged from 3.4 - 18 ppm at PHI's of 10-12 days.

No residue data are available reflecting the maximum dosage of Lorsban that could be applied to sweet and field (seed) corn were the proposed use registered. Consequently, we are unable to determine whether the resulting residues of chlorpyrifos and its metabolite TCP would exceed the established tolerances of 0.1 ppm on field corn and 10 ppm on field corn forage and fodder.

However, based on the above study we are concluding that residues of chlorpyrifos and TCP from the proposed use may exceed the established tolerances of 0.1 ppm on fresh corn (including sweet K - CWHR) and 10 ppm on fresh corn fodder and forage at a 0-day PHI.

Conclusions

1. Since no pre-harvest interval is proposed for this use, the restriction against grazing or feeding treated corn silage, fodder or grain to meat or dairy animals for 21-days after treatment is not practical.
2. Residues of chlorpyrifos and its metabolite TCP from the exposed use on sweet corn may exceed the established tolerance of 0.1 ppm in or on fresh corn (including sweet K-CWHR) and 10 ppm on corn forage and fodder at a 0-day PHI.
3. The restriction of the proposed use to seed corn only is not practical since at least some of the treated (field) corn may be diverted for use as livestock feed.
4. In the absence of data reflecting the maximum dosage that could be applied to field corn were this registration granted, we are unable to determine whether the resulting residues would exceed the established tolerances of 0.1 ppm on field corn grain and 10 ppm on corn forage and fodder.

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Recommendations

For reasons listed in Conclusions 1,2,3, and 4, we recommend against the amended registration of Lorsban 4E.

cc: Amended use file
Subject file
Circu
R.F.
Reviewer

RDI:Section Head:RJH>Date:7/28/82:RDS>Date:7/28/82
TS-769:RCB:Reviewer:E.Zager:LDT:X77324:CM:#2:RM:810>Date:7/30/82

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