PM 50 / ESB

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

JUL 26 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: 464-EUP-96 Chlorpyrifos Bait for Control of Grasshoppers in Non-Crop Areas.
Review of Request for Additional Extension of Experimental Use Permit in South Dakota, North Dakota, Wyoming, Minnesota, Colorado, Nebraska, Iowa and Montana.
(MRID #411184-01) [DEB #5507] {HED Project #9-1671}

FROM: Francis D. Griffith, Jr., Chemist
Dietary Exposure Branch
Health Effects Division (H7509C)

THRU: Andrew R. Rathman, Section Head
Special Registration Section I
Dietary Exposure Branch
Health Effects Division (H7509C)

TO: Dennis H. Edwards, Jr., PM-12
Insecticide-Rodenticide Branch
Registration Division (H7505C)

In a cover letter dated June 5, 1989, and signed by G. R. Oliver, Product Registration Manager, Dow Chemical, U.S.A. has applied for another extension of their current experimental use permit (EUP) to study the efficacy of a chlorpyrifos bait for control of grasshoppers in non-crop lands. The present EUP and this extension permit cattle grazing 90 days after treatment. The type of non-crop lands was not defined. For a permanent registration non-crop lands need to be better defined.

No tolerances have been established for residues of chlorpyrifos [0,0-diethyl-0-(3,5,6-trichloro-2-pyridinyl) phosphorothioate] and its metabolite 3,5,6-trichloro-2-pyridinol (TCP) on grasses or pastures. Tolerances up to 15 ppm have been established on livestock feed items such as alfalfa hay and peanut hulls (see 40 CFR 180.342). Tolerances have also been established to cover these residues in animal tissues and milk from feeding of chlorpyrifos treated feeds.

The product proposed for use in the EUP is XRM-4985 containing 3.0% chlorpyrifos a.i. The bait is to be applied

broadcast at a rate of 2 lbs. per acre (0.06 lb. a.i.) by ground equipment; only one application is to be made per growing season. There is a 90 day restriction on livestock grazing treated areas or harvesting hay for feed to meat or dairy animals. DEB considers such a restriction practical for this limited EUP. DEB reiterates that for full registration on grasses or rangeland tolerances must cover residues present on the day of treatment.

This extension request would allow use of up to 16,000 pounds of bait (480 lbs. chlorpyrifos a.i.) on a maximum of 8,000 acres. No more than 2,000 lbs. on 1,000 acres will be used in each of the eight following states: Minnesota, North Dakota, Wyoming, Colorado, Nebraska, Iowa, Montana, and South Dakota. The period of the extension request is from July 15, 1989 to July 15, 1990.

In support of this EUP extension the petitioner has provided additional residue data in a report titled "Residues of Chlorpyrifos and 3,5,6-Trichloro-2-Pyridinol on Range and Pasture Grass After Applications of Lorsban Insecticide Bait for Grasshopper Control" by P. A. Nugent dated June 16, 1988, and coded Laboratory Project ID GH-C2069. Part of the residue data in this report has been previously submitted and reviewed (see memo by R. A. Loranger dated June 14, 1988 for 464-EUP-96).

The petitioner presented chlorpyrifos and its TCP metabolite residue data for the crop year 1986 from one site each in ND and SD on grass and grass hay. At each site there were 4 test plots, 3 treated individually with a formulation containing chlorpyrifos broadcast by ground equipment at a rate of 1.5 lbs. per acre. The individual formulations were XRM-4947 containing 1.5% a.i. (0.02 lb. a.i./acre) chlorpyrifos, XRM-4948 containing 3.5% a.i. chlorpyrifos (0.05 lb. a.i./acre), and XRM-4949 containing 6.8% a.i. chlorpyrifos (0.10 lb. a.i./acre). The plot in Aberdeen, S.D. was treated on October 2, 1986, contained mixed grasses including western wheat grass and the plot in Hettinger, N.D. was treated on October 5, 1986, contained mixed prairie grass. There was one control plot at each site. The grasses were sampled on the day of treatment, then again at 7 and 14 days. The hay samples were grass samples that were allowed to dry 3 days before frozen storage. Grass samples were frozen immediately after harvest.

Residue data for chlorpyrifos in grass and grass hay were generated by Dow Method ACR73.5.S1 which has been previously reviewed (ibid). The determination step was by gas chromatography using a Perkin-Elmer Sigma 2000 equipped with a N-P detector and a column containing a 11% mixed phase OV-17/QF-1 on 80/100 mesh Supelcoport. Using untreated control samples spiked with chlorpyrifos at 0.01 ppm to 0.5 ppm recoveries ranged from 85% to 120% ($X = 99\% \pm 8\%$, $n = 11$). DEB considers the recovery data are adequate to validate the method

for this EUP. For future tolerance requests the petitioner will need to provide additional chlorpyrifos recovery data on grass and grass hay identifying which control samples were used. The limit of detection needs to be better defined below the 0.01 ppm limit of quantification for a permanent tolerance.

The TCP (trichloropyridinol) metabolite residue data in grass and grass hay were generated by Dow Method ACR71.19R.S7 which has been previously reviewed (ibid). The determination step was by gas chromatography using a Perkin Elmer Sigma 2000 equipped with a ^{63}Ni electron capture detector and a column containing 10% OV-101 on 80/100 mesh Supelcoport. Using untreated control samples spiked with TCP at 0.1 ppm and 0.2 ppm had recoveries ranging from 82% to 151% ($X = 100\% \pm 15\%$, $n = 10$). DEB considers the recovery data presented is adequate to validate the method for this EUP. For future tolerance requests the petitioner will need to provide additional TCP metabolite recovery data on grass and grass hay identifying which control samples were used. The limit of detection needs to be better defined below the 0.1 ppm limit of quantification for a permanent tolerance.

Samples from plots treated with XRM-4947, 1% chlorpyrifos (0.02 lb. a.i./acre) were not analyzed. Grass samples treated at the proposed use (1X) rate had chlorpyrifos residues on the day of treatment ranging from 0.02 ppm to 0.08 ppm. No TCP was detected at 0 day PHI. At 7 days after treatment chlorpyrifos residues in grass ranged from 0.01 ppm to 0.07 ppm. TCP results ranged from none detected to 0.42 ppm. 14 days PHI residues of chlorpyrifos after the proposed use application to grass ranged from ND to 0.06 ppm and corresponding TCP residues ranged from ND to 0.15 ppm. Hay samples matching the grass showed chlorpyrifos residues at 0 day PHI ranging from 0.04 ppm to 0.07 ppm. TCP residues in hay at 0 day PHI ranged from ND to 0.14 ppm. Hay samples at 7 days PHI had chlorpyrifos residues ranging from 0.01 ppm to 0.33 ppm and TCP residues ranging from ND to 0.40 ppm. At 14 days PHI grass hay samples had chlorpyrifos residues ranging from ND to 0.03 ppm and TCP residues ranging from ND to 0.20 ppm.

The petitioner presented exaggerated rate residue data from treatment with XRM-4949 containing 6.8% chlorpyrifos (0.1 lb./acre or 2X) at 0 day PHI. In grass chlorpyrifos residues ranged from 0.02 ppm to 0.29 ppm and TCP residues ranged from ND to 0.24 ppm. In hay chlorpyrifos residues ranged from 0.03 ppm to 0.32 ppm and TCP residues ranged from ND to 0.30 ppm.

Nondetectable (ND) is defined as values less than 1/2 the quantification limit, i.e., 0.005 ppm chlorpyrifos and 0.05 ppm TCP. We note the control samples had both chlorpyrifos and TCP equivalents. Chlorpyrifos equivalents in grass ranged from <0.000 to 0.006 ppm and in hay ranged from 0.005 ppm to 0.059 ppm. TCP equivalents in grass ranged from 0.036 ppm to

0.078 ppm and in hay ranged from 0.011 ppm to 0.078 ppm. The petitioner did apply an average correction factor to all results.

In this proposed extension of the EUP to non-crop lands any potential grazing or harvesting of plant parts as livestock feed will not be permitted for 90 days after application. Previously the petitioner has provided plots of residues of chlorpyrifos vs. times showing residues decline to 0.005 ppm 30 to 40 days after treatment. While similar residues versus time plots are not available for TCP it is unlikely any detectable residues of TCP would be present in plants on non-crop lands after 90 days.

CONCLUSIONS

DEB concludes that levels of chlorpyrifos and its TCP metabolite will not be detectable in plants on non-crop lands 90 days after the application of the bait. DEB considers this to be a non-food use equivalent to a crop destruct EUP even though some plant parts may eventually be used in animal feed, by taking into account the long pre-grazing interval, limited acreage in each state, low application rate, and residues as high as 15 ppm on major livestock feed items.

RECOMMENDATION

DEB recommends for the extension of the EUP for the chlorpyrifos bait use on non-crop lands.

For a temporary tolerance on grass/rangeland and/or a full registration DEB reiterates its additional data needs of our 14 June 1988 by R. A. Loranger, q.v.

cc: R.F., Circu (7), Chlorpyrifos Sub. File, EUP File, Reviewer (FDG), PMSD/ISB (Eldredge).

H7509C:DEB:Reviewer(FDG):CM#2:814B:557-0826:mb:7/19/89:
edited:fdg:7/19/89.

RDI:A.R.Rathman:7/25/89:E.Zager:7/25/89.