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

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OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: EPA Reg. No. 464-448. Protocols for chlorpyrifos studies on corn and alfalfa.

FROM: Richard Loranger, Chemist *R. Loranger*  
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Hazard Evaluation Division (TS-769)

THRU: Charles L. Trichilo, Chief  
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TO: Jay Ellenberger, PM 12, IRB,  
Registration Division (TS-767)

Dow Chemical U.S.A. has submitted protocols in response to two of our reviews for amended registrations of the insecticide chlorpyrifos (Lorsban 4E) on corn and alfalfa. Each protocol along with the appropriate background information will be discussed separately below.

Corn Protocol

In our 5/2/83 review (A. Rathman) we recommended against registering foliar aerial applications with non-emulsifiable oil since the data submitted reflected application with sprinkler irrigation water (at least 10,000 gallons per acre) and not the requested 2 gallons spray per acre. Dow now proposes the following work to support registration of the aerial use with oil.

Corn in California and Illinois will receive an at-planting treatment with Lorsban 15G at the rate of 8 oz product per 1000 ft row as a 7" band (regd. rate is 8-16 oz). Forty-eight days later 1.5 qt Lorsban 4E (1.5 lb ai) plus 1 qt non-emulsifiable per acre will be applied by aerial equipment. The same rate of chlorpyrifos and oil will be used at 90 and 100 days after planting. Green forage will be collected 14 days after the final application. Thirty five days will elapse until harvest of grain and fodder. The same use pattern without the oil will also be used to allow comparison of residues. We note that the intended spray volume per acre has not been specified. Otherwise, the rates and PHI's correspond to those requested on the amended label.

Conclusion

The proposed studies will be adequate for comparison of residues with and without non-emulsifiable oil in the spray. Dow should be told to use a spray volume of 2 gallons per acre in line with the minimum volume proposed on the previous label.

### Alfalfa Protocol

In our 11/18/83 review (L. Propst) we recommended against the proposed 7 day PHI following 0.25 lb ai applications of Lorsban to alfalfa. This conclusion was based on the data not reflecting previous applications of chlorpyrifos earlier in the season. The label permits 4 applications per season with no more than one per cutting.

In response Dow proposes to apply Lorsban 4E once per cutting with four total applications for the crop. The application rates will be 1.0, 1.0, 0.5 and 0.25 lb ai/A (broadcast by ground equipment) with respective pre-harvest intervals of 28, 21, 14 and 7 days. Both green alfalfa and cured hay will be obtained from each cutting. Trials will be conducted in California, Illinois and Michigan.

### Conclusion

The above program should be adequate to support the requested use. In response to the registrant's questions, we consider the number of locations sufficient and advise that analysis of the fourth crop cutting only is satisfactory. We also note that Dow should be told to add the statement "Do not apply more than once per cutting" to the "Restrictions" paragraph under "ALFALFA" on the Lorsban 4E label even though it already appears elsewhere under the alfalfa discussion. This would make the possibility of multiple applications to the same cutting less likely.

cc: Circu, RF, Chlorpyrifos SF and Amended use, Loranger  
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