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SHAUGHNESSEY NO.

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REVIEW NO.

EEB BRANCH REVIEW

DATE: IN 6/29/84 OUT JUL 09 1984

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TYPE OF PRODUCT(S) I, D, H, F, N, R, S Insecticide

DATA ACESSION NO(S)

PRODUCT MANAGER NO. A. Heyward (17)

PRODUCT NAME(S) Cypermethrin

COMPANY NAME FMC Corporation

SUBMISSION PURPOSE Submission of Aquatic Field Effects Protocol

SHAUGNESSEY NO.	CHEMICAL, & FORMULATION	%A.I.

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

MEMORANDUM

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

TO: Adam Heyward
Registration Division, TS-767c

THRU: Dave Coppage
Head, Section #3
Ecological Effects Branch
Hazard Evaluation Division, TS-769c

THRU: Clayton Bushong, Chief
Ecological Effects Branch
Hazard Evaluation Division, TS-769c

JUL 09 1984

SUBJECT: Submission of Aquatic Field Effects Protocol for Cypermethrin.

ICI Americas Inc. is planning to do a two year aquatic field study on the synethic pyrethroid cypermethrin. The aquatic study is in response to a cotton registration. Cypermethrin is acutely and chronicly toxic to aquatic organisms under laboratory conditions. With a cotton use, the possibly exists that cypermethrin can cause disruptive affects on aesthetically and commerically valuable aquatic organisms. This has been discussed at greater length in previous reports in the cypermethrin file.

The resolution of the question is dependent upon actual effects under field conditions. A pond site is considered desirable because the pond and its watershed can be kept under scientific control, and the results can be extrapolated to larger acreages and watersheds. Proper site selection should consider a test pond in a non-cotton area. This would allow the registrant a wider latitude in finding an uncontaminated, viable, test pond and watershed. Three potential test ponds were found approximately an hour drive from Wildlife International. The first year study was to monitor three ponds, and select the most appropriate in species diversity and richness, and complete baseline population studies. EEB staff, Wayne C. Faatz, Dave Coppage, Ken Clark, and Charles Lewis were requested by ICI to inspect three sites being considered for the study. All three appeared to have the characteristics worthy of further study to see if they are "balanced" ponds suitable for risk assessment of various trophic levels. Final selection would be determined on the physical-chemical parameters, endemic populations, and agreement with the land owners. No site was outstandingly better than another. ICI through Wildlife Internation would monitor all three ponds, and as a data base was established a more intensive monitoring would be done on the most favorable site. During the tour, test methodologies and objectives were discussed.

2

EEB's basic concerns, which were discussed with Ian Hill of ICI and Mark Jaber of Wildlife International, were:

1. The test pond should already have established and balanced fish populations and have a diverse invertebrate population.

2. The water supply is derived from runoff; definitely not spring fed.

3. The pond would be subjected to water and sediment runoff.

4. The ratio of water shed to pond surface should be a minimum of 3:1 with 5:1 or greater being prefered.

5. Soil-bound cypermethrin must enter the aquatic system. The registrant is to insure this occurance even if irrigation is necessary.

6. The total watershed would be treated with cypermethrin at cotton rates and timing.

7. Base-line population, productivity, and relevant trophic level assessments are necessary prior to actual testing. Biomass at each trophic level, especially for relevant fish food groups, are necessary determinations as well as fish "gut content" studies.

8. Final methodologies and site selection will be decided by ICI and EEB prior to actual testing.

Based on these criteria, EEB does not approve the test protocol.

Site Selection is the source of disapproval, Section IV. subparts D, E, and F.

Section D. EEB does not understand and requests are explanation of the rationale for the statement "At least 25% of the treatment pond perimeter should be exposed to runoff." The ponds shown to EEB had perimeters that exceeded this "minimum". Visual estimates would exceed 60% including the dam. Why is the minimum of 25% included? A point source runoff or the creation of a site just to measure spray drift is to be avoided.

Section E. Any pond that is not capable of supporting a statistically measureable and reasonably balanced fish population is unsuitable. Endemic fish and species diversity are an indication of a stable pond. A stable pond is the corner stone of the study. If the pond is not stable, how can the pesticidal effects, if any, be assessed?

Section F. The use of a protective buffer strip will put the study in serious jeopardy. A buffer strip is intended to impede siltation. The soil-bound cypemethrin would be "trapped" to some extent in this buffer strip. One of the objects is to determine the effect of soil-bound cypermethrin on the aquatic system. This has been discussed at length in previous reports and in discussions with the registrant. Why has it been included in this protocol?

Proper site selection is of primary importance. A poor site will preclude any hazard assessment regardless of the research sophistication. Any further discussion of this particular protocol would only rehash site characteristics already excluded by EEB discussions with the registrant, and be counterproductive. We ask that the registrant tell us how they intend to carry out the site selection and study they have agreed to, without reintroducing previously excluded site characteristics.

The registrant is urged to clarify the points as soon as possible.

Wayne C Faatz

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