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TYPE PRODUCT(S) : I, D, H, F, N, R, S Synthetic Pyrethroid

DATA ACCESSION NO(S). 410161-1

PRODUCT MANAGER NO. G. LaRocca(15)

PRODUCT NAME(S) Karate 1E

COMPANY NAME ICI Agricultural Products Inc.

SUBMISSION PURPOSE Submission of further data concerning fish
life cycle study

SHAUGHNESSEY NO. _____ CHEMICAL, & FORMULATION _____ % A.I. _____

_____ Lambdacyhalothrin _____

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

MAR 3 1989

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Review of Second Interim Report of Fish Life-Cycle Study on Lamdacyhalothrin (Karate-PP321)

FROM: James W. Akerman, Chief
Ecological Effects Branch
Environmental Fate and Effects Division (H-7507C)

TO: George LaRocca, Product Manager 15
Insecticide and Rodenticide Branch
Registration Division (H-7505C)

The Ecological Effects Branch (EEB) received the second interim report on the fish life-cycle study on March 9, 1989, and has had personal communications with Dr. John Tapp, author of this study on March 15, 1989. EEB has completed the review, and is recommending that the final report include the following:

- 1- Since the juveniles had started spawning more than 8 weeks before the adults were divided into pairs, the study authors should clearly indicate at what point, specifically day of study, the eggs used for the second generation embryo-larvae study were taken for each replicate.
- 2- The number of normal larvae at hatching for each incubation cup should be reported.
- 3- The growth and deformities of fish at end of 4 and 8 week exposure periods in each replicate growth chamber should be reported.
- 4- Survival and deformities of fish at the time of selection for paired spawning; growth and sex of discarded fish not selected for spawning; survival growth and deformities of male and female fish at end of spawning test period in each duplicate spawning tank should be reported.
- 5- In addition to the number of eggs per spawn, the total number of eggs by each pair of adults in individual spawning chambers along with the mean number of eggs per female for the two replicates should be reported. It should be noted that the number of eggs reported should be from the time the pairs were put into their separate breeding compartments until test

termination, since before that point the numbers of eggs per female would be unattainable with all the fish grouped in the adult spawning chambers.

Also, the number of fish per growth chamber from week 12 until separation into breeding compartments should be reported on a daily basis, per chamber, even though the study authors were not capable of sexing the fish at that point.

6- The hatchability per batch should be reported per individual test chamber.

The data (raw and summary) should be reported for individual incubation cups, growth chambers, spawning chambers, and individual breeding compartments, for statistical analysis purposes.

In addition, EEB was questioning why the fathead minnow started spawning so early, since it is typical that these fish do not spawn until week 20-24 after hatch (personal communications, Al Jarvinen, EPA Laboratory, Duluth, MN 3/13/89). The data indicate that spawning initiated week 12 of the study. This masks the delay in spawning that is evident in Figure 1 of the second interim report. We have since learned that the study authors have maintained the study at a constant day-length of 16 hours light and 8 hours dark. Dr. Tapp indicated that the day-length period was causing the early spawning.

EEB is recommending that future fish life cycle studies use the photoperiod which replicates Evansville, Indiana, which allows for a 5 month pre-spawning period. Please refer to the following protocol:

Benoit, Duane. 1982. User's Guide for Conducting Life-Cycle Chronic Toxicity with Fathead Minnows (Pimephales promelas). Environmental Research Laboratory Duluth, MN, EPA-600/8-81-011.

All the raw data must be submitted along with the final report. In addition to expedite the review, we recommend sending the data on 5 1/4 " floppy disks, formatted for IBM and compatible PCs, using the Lotus 1-2-3 software.

With regards to the second set of ICI responses that were submitted along with the second interim report, EEB is awaiting the final report before determining if the deviations from the protocol significantly detract from the study's scientific soundness.

If you have any questions, please feel free contact Candy Brassard (703) 557-0019.