

US EPA ARCHIVE DOCUMENT

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MEMORANDUM

SUBJECT: Gizzard shad mortalities in Bifenthrin study pond

FROM: James W. Akerman, Chief *William J. Cook*  
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Hazard Evaluation Division (TS-769C)

TO: George LaRocca, PM-15  
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The registrant's (FMC) rationale as to why bifenthrin should not be considered responsible for gizzard shad mortalities reported in the bifenthrin-treated farm pond has been determined to be non-persuasive. Bifenthrin as a contributor to the gizzard shad mortalities cannot be discounted on the basis of the data presented. First, the argument that gizzard shad are very susceptible to winter dieoff due to sensitivity to a variety of environmental parameters does not exclude a contribution from a highly toxic contaminant such as bifenthrin. Second, post-spawning mortality is irrelevant in this instance since gizzard shad do not generally spawn in January in Alabama farm ponds. Finally, the argument that the measured concentrations of bifenthrin do not correlate with the observed mortalities is unfounded.

Concentrations of bifenthrin were showing an increasing trend at the time of the dieoff several months after the last bifenthrin treatment. A peak concentration of 19 pptr was observed after the dieoff, and 33 pptr during the treatment phase months earlier. Based on the information provided it is assumed measured concentrations in the pond did not fall below 4 pptr.

The gizzard shad study [EPA Accession No. 405694-02] submitted with FMC's explanation of the pond dieoff demonstrated an LC10 of 28 - 80 pptr after only 8 days of exposure. Persistent (> 6 months) exposures of 4 - 33 pptr cannot be ruled out as being directly toxic to gizzard shad. Additional information, presumably available in the final study report, will be needed to evaluate the effects of bifenthrin on the gizzard shad forage base (plankton). EEB views the occurrence of gizzard shad mortalities in the bifenthrin study with much trepidation but reserves any conclusions until after careful evaluation of the bifenthrin field study final report.