



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

Caswell no 63AB

OCT 19 1987

OFFICE OF
PESTICIDES AND TOXIC SUBSTANCES

MEMORANDUM

SUBJECT: Qualitative Exposure Assessment for Avermectin
Use on Cotton (No EAB Number)

TO: William Dykstra
Toxicology Branch
Hazard Evaluation Division (TS-769C)

FROM: Curt Lunchick
Special Review Section 2
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

THRU: Michael Firestone, Chief
Special Review Section 2
Exposure Assessment Branch
Hazard Evaluation Division (TS-769C)

The Exposure Assessment Branch has received your request to determine whether avermectin exposure to mixer/loaders, applicators, and harvesters will be less for cotton than for citrus use.

Citrus airblast of avermectin can be applied to a maximum of about 20 acres daily at an application rate of 0.025 lb a.i./acre. This is equivalent to 0.50 lbs a.i. handled daily. Avermectin can be applied to cotton by ground equipment at application rates of 0.01875 lbs a.i./acre to a maximum of about 70 acres daily. This is equivalent to 1.3 lbs a.i. handled daily.

The same individual would be expected to mix, load, and apply avermectin. During mixing/loading, the exposure during cotton use would be about 2.6 times greater than for citrus, since 2.6 times more avermectin is handled. However, EAB believes that the reduction in applicator exposure from cotton use as compared to citrus would more than compensate for the increased mixer/loader exposure. Citrus application is by airblast which is a very high-exposure situation. Overhead

foliage is soaked and often drips onto the applicator. The cotton application would be by ground equipment, probably by a high-boy tractor. These high-clearance tractors are very efficient at reducing exposure, since the applicator is forward of and above the spray. I would predict that the combined exposure to the mixer/loader and applicator would be less for avermectin use on cotton, as compared to citrus.

The reentry exposure to harvesters of cotton should be less than for citrus. Citrus reentry is considered the highest-exposure scenario due to immersion into the foliage. Cotton harvesting cannot occur until 20 days or more after the last application, at which time avermectin residues would have decreased. Also, most cotton harvesting is mechanical rather than manual, as is done with citrus.

cc: G. LaRocca, PM 15