UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Sent RP
12/5/84

MEMORANDUM

To: Tom Parshley

Thru: Harry Craven

Thru: Dave Coppage

Subject: Revision of Fish and Wildlife Support Chapter for the Disulfoton Registration Standard

Since the completion of the Support Chapter for the subject document additional information has become available on potential impact to endangered species. Therefore, the attached revision of the endangered species section of EEB chapter is being forwarded for inclusion into the standard.

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CONCURRENCES								
SYMBOL	79-769	Craven	Craven					
SURNAME	Fite	TS-769	TS-769					
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Endangered Species

As pointed out previously, data are scant for assessing hazards of disulfoton to non-target species, however, the following risk criteria have been established by EPA for determining the "no effect" cut off levels for evaluating risk of pesticides to endangered species.

1. Mammals - Occurs as a residue immediately following application in or on the feed of a mammalian listed species likely to be exposed to such feed in amounts equivalent to the average daily intake of said species, at levels less than 1/5 the lowest acute oral LD_{10} or LC_{10} or 1/10 the acute oral LD_{50}, or LC_{50}, measured in mammalian test animals as specified in the Registration Guidelines.

2. Birds - Occurs as a residue immediately following application in or on the feed of an avian listed species likely to be exposed to such feed in amounts equivalent to the average daily intake of said species, at levels less than 1/5 the subacute dietary LC_{10} measured in avian test animals as specified in the Registration Guidelines.

3. Aquatic Organisms - Results in a maximum calculated concentration following direct application to a 6-inch layer of water less than 1/10 the lowest aquatic acute LC_{10} or 1/20 the acute LC_{50} for aquatic organisms likely to be exposed as measured in test animals as specified in the Registration Guidelines.

For disulfoton these criteria are:

mammals
LD_{50} = 2-5 mg/kg
1/10 LD_{50} = .2-.5 mg/kg

avian
LC_{10} for mallard = 377.82 ppm
1/5 LC_{10} = 75.6 ppm

aquatic organisms
LC_{50} for Bluegill sunfish = .039 ppm
1/20 LC_{50} = .00195 ppm

For most of the crops where disulfoton is used calculated maximum residues exceed these previously mentioned levels. Even the lower use rates of disulfoton maximum expected residues on wildlife food sources in and around fields where it is used reach 350 ppm, well above the avian endangered risk trigger of 75.6 ppm. For the aquatic habitat expected residues also exceed the risk trigger. At .18 lbs ai/A, one of the lowest recommended use rates for disulfoton, expected residues in 6 inches of water following direct application would be .147 ppm - many times greater than the aquatic endangered species risk trigger of .00195 ppm.

Several of the crops where disulfoton is used have been considered under the cluster procedure for evaluating impacts to endangered species. This generic approach which entails the analysis of the effects of all pesticides on endangered species on a crop by crop basis, rather than a product by product approach, is being developed in cooperation with Federal and State enforcement Agencies, the Office of Endangered Species, the Department of Agriculture, the National Agricultural Chemical Association and both the State and county extension services. Thus, the idea is that labeling developed under this approach will encompass all pesticides on a particular crop.

To date, the Office of Endangered Species, Fish and Wildlife Service has issued biological opinions for corn, cotton, sorghum, soybeans and small grains clusters. They concluded that disulfoton, as well as other pesticides, use on these crops could jeopardize the continued existence of the Attwater's Greater Prairie Chicken, Aleutian Canada Goose, Everglades kite, slackwater darter, woundfin, 11 fresh water mussels, longhorn beetle, delta green ground beetle and Kern primrose sphinx moth. No mammalian endangered species were identified which could potentially be exposed from disulfoton use on these crops. It may be determined that more species are jeopardized by disulfoton when other clusters are completed. It is presently anticipated that appropriate labeling will be developed in time for the 1986 growing season for these 5 crops.

Five additional consultations covering other compounds used on the same crops as disulfoton have been made with the Office of Endangered Species. These crops include: Tomatoes peanuts, potatoes, tobacco, and sugar cane. No avian or mammalian species were identified in these consultations that weren't also cited in the previously mentioned clusters. However, additional aquatic species were identified in the opinion that considered tobacco. These include: the yellowfin madtom, and the spotfin chub.

The remaining use patterns for which disulfoton is registered have not yet been addressed by EEB for endangered species concerns due to the lack of residue data.

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