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DP TYPE 001
PRODUCT MANAGER, NO. GEORGE LAROCCA 13 THERESA LEMASTER
PRODUCT NAME(S) ES FENVALERATE
TYPE PRODUCT INSECTICIDE
COMPANY NAME US FISH AND WILDLIFE SERVICE
SUBMISSION PURPOSE REVIEW PROPOSED EUP TO APPLY
ES-FENVALERATE DIRECTLY TO WATER

COMMON CHEMICAL NAME _____

REVIEWER: MIKE REXRODE

ECOLOGICAL EFFECTS BRANCH REVIEW

CHEMICAL: ASANA XL 0.66EC

100.1 Submission Purpose and Label Information

Request for an Experimental Use Permit in order to apply ASANA XL 0.66EC directly to prairie wetlands in Minnesota. This is a continuation of a 1991 research project which was done under EPA Experimental Use Permit #64595-EUP-1.

100.2 Formulation Information

Active Ingredients

Esfenvalerate..... 8.4%

Inerts..... 91.6%

Total.....100.0%

100.3 Application Rate, Method, Directions

ASANA will be applied to 6 of the 12 wetland basins (approximately 7 to 74 acres) at 0.03 lb active ingredient per acre (0.21 to 2.22 lb ai). Study wetlands will be located on Waterfowl Production Areas owned and managed by the U.S. Fish and Wildlife Service (Western Minnesota). The applicator will apply the insecticide only when wind speed is < 10 mph and there is no precipitation.

100.4 Label Restrictions

Environmental Hazards: This pesticide is extremely toxic to fish and aquatic invertebrates. Do not apply directly to water or wetlands (swamps, bogs, marshes and potholes). Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated

areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters.

100.5

Hazard Assessment

The purpose of the EUP submission is to develop a data base for a University of Minnesota Masters of Science Degree Thesis. The following objectives will be addressed in this project:

- 1) To determine the effect of an insecticide-induced reduction in the aquatic invertebrate food base on one-to-three week old mallard ducklings on prairie wetlands.
- 2) To monitor aquatic and wetland changes in invertebrate populations after an application of esfenvalerate.

The Experimental Use Permit is necessary since the insecticide will be applied directly over water (contrary to label statement). This application is expected to simulate an over-spray or drift event into a wetland with a reduction in aquatic invertebrate populations. This reduction in a food base will be evaluated with regard to duckling growth and survival in a field environment.

In assessing pesticide impact to wildlife and aquatic organisms, EEB must consider toxicity, fate and the potential for exposure to non-target organisms. Therefore, the following issues have been considered: 1) fenvalerate, a second generation pyrethroid and predecessor to ASANA, appears to be relatively persistent in the aquatic environment with a half-life of about six months (anaerobic conditions), a hydrolysis of 24 days at pH 7.2 and a soil/water partition coefficient > 15000; 2) fenvalerate is very highly toxic to aquatic organisms ($LC_{50} = 0.008 - 5.3 \mu\text{g/L}$) but practically non-toxic to birds ($LC_{50} > 9000 \text{ ppm}$); and 3) Exposure through this EUP is limited to a maximum of 74 acres and one application.

This information suggests that ASANA is relatively persistent in the environment and is highly toxic to aquatic organisms. However, the limited acreage and potential exposure that is proposed in this EUP suggests minimal risk to nontarget organisms in the overall pothole wetland area.

The second part of this assessment is to define adequacy of this study in supporting registration or providing

significant information to evaluate the potential hazard of ASANA use to waterfowl in prairie wetlands. EEB realizes that the intent of this research is to fulfill certain interests and objectives as defined by the Office of Fish and Wildlife, and not the needs of EPA. However, the EEB would like to go on record for future reference, as stating that the results of this study design may not be useful for the Agency's risk assessment of ASANA for the following reasons: 1) although the proposal is brief, the experimental design appears to be very limited in sample size and may not have adequate sensitivity and power for showing a "no effect"; and 2) even if a change in duckling growth is demonstrated, as a result of a reduced food base during the two week observation period, it is difficult to extrapolate this information with regard to survival.

107.0

Conclusions

The intent of the EUP is to serve as a research project for studying the effects of an insecticide-induced reduction of a mallard duckling aquatic food base in a prairie wetland and to evaluate changes in the exposed aquatic invertebrate populations with regard to the respective pesticide.

The EEB has evaluated this EUP request in the following two parts: 1) define potential impact to nontarget organisms and 2) discuss the adequacy of the study in providing significant information to evaluate the potential hazard of ASANA use to waterfowl in prairie wetlands.

In spite of the relative persistence of ASANA in an aquatic system, and the potentially significant adverse effects on nontarget aquatic organisms exposed to this treatment, the acreage that is proposed (74 acres) for exposure, suggests minimal overall risk to nontarget organisms in the total pothole wetland area.

EEB realizes that the intent of this research is to fulfill certain interests and objectives as defined by the office of Fish and Wildlife, and not the needs of EPA. However, EEB would like to go on record as stating that the results of this study may not fulfill the Agency's needs for developing an ASANA risk assessment for the prairie wetlands because of the following reasons: 1) the experimental design appears to be

NOTE TO PM

While EEB typically requires labeling to prohibit direct application to water; in this specific case, such labeling is not warranted. Since the entire purpose for the EUP is to measure the effects of applying asana directly to water in potholes, the following labeling is more appropriate:

"This pesticide is extremely toxic to fish and aquatic invertebrates. Direct application to water is expected to result in adverse effects to these organisms. ~~Do not apply to water.~~
~~Do not apply to water.~~ Do not contaminate water when disposing of equipment washwaters."

Dan Beard
3-19-92

limited in sample size for adequate sensitivity and power, and may not show a no-effect, 2) even if a change in duckling growth is demonstrated, it is difficult to extrapolate this information with regard to survival.

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