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SHAUGHNESSEY NO.

EEB REVIEW

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TYPE PRODUCT Herbicide

DATA ACCESSION NOS.

PRODUCT MANAGER NO. R. Mountfort (23)

PRODUCT NAME(S) Whip 1 EC (Fenoxaprop-ethyl)

COMPANY NAME Hoechst Celanese Corp.

SUBMISSION PURPOSE Proposed registration of cotton, peanut, and wheat uses

SHAUGHNESSEY NO.	CHEMICAL & FORMULATION	%AI
128701	Fenoxaprop-ethyl	12.50%

EEB BRANCH REVIEW

Whip 1 EC (Fenoxaprop-ethyl)

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The registrant (Hoechst Celanese Corp.) has applied for registration of Whip 1 EC as an herbicide for use on cotton, peanuts, and wheat. No new data were submitted with this request.

100.2 Formulation Information

ACTIVE INGREDIENT:

Fenoxaprop-ethyl 12.50%

INERT INGREDIENTS: 87.50%

Contains 1 lb active ingredient per gallon.

100.3 Application Methods, Directions, Rates

Ground Application: Broadcast - Whip 1 EC herbicide should be applied in a minimum of 10 gallons of water per broadcast acre. Flat fan or hollow cone nozzles are recommended. Use a minimum pressure of 40 psi. Under dense weed/crop canopies, high spray pressure is very important for obtaining thorough coverage; therefore, use higher spray pressure under these conditions.
Spot Treatment: Whip 1 EC herbicide may be applied for the control of grasses through knapsack sprayers or high-volume equipment utilizing handguns or other suitable nozzle arrangements. Apply to actively growing grasses. Apply to the foliage of grasses on a spray-to-wet basis. DO NOT apply to the point of runoff. Spray coverage should be uniform and complete.

Product is registered for aerial application to soybeans only. Application to cotton, peanuts, and wheat is by ground equipment only.

The following restrictions apply:

Peanuts: maximum of 2 applications (0.25 lb ai) per acre per season.
Cotton: maximum of 3 applications (0.35 lb ai) per acre per season.
Wheat: maximum of 1 application (0.16 lb ai) per acre per season.

For additional details on application specifics, rate information, tank mixes, etc., please see attached labeling.

100.4 Target Organisms

Target organisms are annual and perennial grassy weeds. For listing of species controlled, see attached label.

100.5 Precautionary Labeling

Environmental Hazards

This pesticide is toxic to fish. Do not apply directly to a body of water. Do not apply when weather conditions favor runoff or drift. Do not contaminate arable land and/or water by cleaning of equipment and/or disposal of waste.

101 Hazard Assessment

101.1 Discussion

The Hoechst Celanese Corporation is proposing full registration of Whip 1 EC for use in cotton, peanuts, and wheat. This product is currently registered for use in soybeans and rice.

Maximum application rate for these crops will be 0.16 lb ai per acre, applied by ground equipment only.

Large acreages of cotton and peanuts are associated with coastal counties. Thus, exposure of estuarine environments is of special concern.

101.2 Likelihood of Adverse Effects on Nontarget Organisms

Terrestrial Organisms

Data from previous EEB reviews indicate that fenoxaprop ethyl is practically nontoxic to mammals and birds on an acute basis (avian LC50's > 5000 ppm, mammalian LD50's > 2000 mg/kg). At the maximum proposed rate of application, 0.16 lb ai per acre, maximum residues on terrestrial food items are expected in the range of 1 to 40 ppm. These levels are well below calculated or laboratory-determined toxicity values for birds and mammals. Thus, the proposed use is not expected to cause significant acute effects in birds and mammals.

Data from previous EEB reviews indicate that fenoxaprop ethyl is relatively nontoxic to honey bees. Thus, hazard to honey bees is not anticipated from the proposed uses.

To assess potential for chronic hazard in birds, EEB used the Kenaga nomograph to estimate residue levels on terrestrial food items. Following application at the maximum rate (0.16 lb ai/A), highest residues (38.4 ppm) would be found on short grass. Residues on all other food items would be 20 ppm or less. From avian reproduction testing, the most sensitive species (bobwhite) provided a NOEL of 30 ppm. On the basis of these figures, chronic hazard to birds is not anticipated.

Data from toxicology files indicate mammalian NOEL's from reproduction testing as low as 5 ppm. These data were derived from 2-generation rat reproduction studies. Following application at the maximum rate, maximum residues would exceed 5 ppm for forage, leaves and leafy crops, short grass, and long grass. Residues on pods containing seeds, and on fruit, would be lower than the lowest mammalian NOEL.

The lowest NOEL's (maternal and fetal) of 5 ppm were derived from testing during which mammals were continuously exposed to the pesticide for 2 generations. That such exposure is highly unlikely under actual field conditions is a mitigating factor. EEB believes that, although there is a potential for chronic hazard to small mammals, this potential is minimal.

Aquatic Organisms

Data from previous reviews indicate that fenoxaprop ethyl is highly toxic to freshwater fish (bluegill LC50 = 310 ppb, brown trout LC50 = 480 ppb), and moderately toxic to freshwater aquatic invertebrates (daphnid LC50 = 3.18 ppm). To assess potential hazard to freshwater aquatic organisms, EEB used a quick aquatic EEC calculation (see attached sheet) to estimate aquatic residues from foliar application at the maximum rate of 0.16 lb ai per acre. The resulting aquatic EEC of 0.976 ppb is well below the trigger value of 31 ppb (1/10 X bluegill LC50). On the basis of these figures, proposed uses of Whip 1 EC will not result in acute hazard to freshwater organisms.

Use on cotton represents the maximum number of applications (3) and the highest amount of ai (0.35 lb) allowed per acre per season. Even assuming application of the maximum per season, with no breakdown between applications, the aquatic EEC would be only 2.14 ppb. This is still well below any trigger value for aquatic organism hazard. Thus, chronic hazard to freshwater organisms is not a concern.

Since large acreages of cotton and peanuts are grown in coastal counties, there is concern for potential impacts on

estuarine environments. Data on the toxicity of fenoxaprop ethyl to estuarine organisms indicate that the LC50 for the most sensitive species is 98 ppb for mysid shrimp. Per communication with EFGWB, estuarine EEC may be estimated as 1 order of magnitude lower than freshwater aquatic EEC. Thus, estuarine EEC will be 0.0976 ppb. This is less than 1/1000 the LC50 for mysid shrimp, indicating no hazard to estuarine organisms.

Plants

The only applicable data requirements for registration on cotton, peanuts, and wheat would be in phytotoxicity to terrestrial plants. These data are not required, however, since fenoxaprop ethyl has low volatility and low solubility in water, and since application will be with ground equipment only.

101.3 Endangered Species Considerations

There are a number of terrestrial and aquatic endangered species associated with cotton, peanuts, and wheat. Since fenoxaprop ethyl is low in toxicity to birds and mammals, hazard to terrestrial species is not anticipated. With regard to aquatic species, there is a basis for concern, due to the high toxicity of fenoxaprop ethyl to fish and estuarine invertebrates.

Using the rough calculation of an aquatic EEC (attached), expected concentration in the freshwater environment is 0.976 ppb. This is well below the endangered species trigger value of 15.5 ppb (1/20 X bluegill LC50). Thus, proposed use is not expected to adversely affect any aquatic endangered species.

101.4 Adequacy of Toxicity Data

Data are adequate to assess hazard to terrestrial organisms and freshwater and estuarine aquatic organisms from use on cotton, peanuts, and wheat. It should be noted that the only outstanding data requirements in ecological effects are the requirements for testing on 4 species of aquatic plants, as outlined under Sec. 123-2 (Growth and Reproduction of Aquatic Plants - Tier 2) in Subdivision J of the Pesticide Assessment Guidelines. Data from these tests are required to support the proposed use on rice.

101.5 Adequacy of Labeling

End-Use Label

The statement under Environmental Hazards should be amended to read as follows:

This pesticide is toxic to fish. Drift or runoff may adversely affect nontarget plants. Do not apply directly to water or wetlands (swamps, bogs, marshes, and potholes). Do not contaminate water when disposing of equipment washwaters.

103 Conclusions

EEB has reviewed the proposed registration of fenoxaprop ethyl (Whip 1 EC) for use on cotton, peanuts, and wheat. Proposed uses should not result in hazard to nontarget terrestrial and aquatic organisms, including endangered species. As noted above, nontarget plant data requirements are still outstanding for the proposed use on rice.

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Attachment A

EEC CALCULATION SHEET

I. For foliar application

A. Runoff

0.16 lbs x 0.01 (1 % runoff) x 10 (A) (from 10 A. dranage basin) = 0.016 lb (tot. runoff)

EEC of 1 lb a.i. direct application to 1 A. pond 6-foot deep = 61 ppb

Therefore, EEC = 61 ppb x 0.016 (lb) = 0.976 ppb

II. For aereal application

A. Runoff

_____ lbs x 0.6 (appl. efficiency) x 0.0 (__ % run-off) x 10 (A) (10 A. d. basin) = _____ (tot. runoff)

B. Drift

_____ lbs x 0.05 (5 % drift) = _____ lb (tot. drift)

Tot. loading = _____ lb + _____ lb = _____ lbs

Therefore, EEC = 61 ppb x _____ (lbs) = _____ ppb

Fenoxaprop-ethyl scientific review

Page _____ is not included in this copy.

Pages 8 through 25 are not included in this copy.

The material not included contains the following type of information:

___ Identity of product inert ingredients

___ Identity of product impurities

___ Description of the product manufacturing process

___ Description of product quality control procedures

___ Identity of the source of product ingredients

___ Sales or other commercial/financial information

X A draft product label

___ The product confidential statement of formula

___ Information about a pending registration action

___ FIFRA registration data

___ The document is a duplicate of page(s) _____

___ The document is not responsive to the request

The information not included is generally considered confidential by product registrants. If you have any questions, please contact the individual who prepared the response to your request.