

DP Barcode : D203458  
PC Code No : 111601  
EEB Out : JUN 1 1994

To: Rebecca Cool  
Product Manager 41  
Registration Division (7505C)

From: Anthony F. Maciorowski, Chief  
Ecological Effects Branch/EFED (7507C)

Attached, please find the EEB review of...

Reg./File # : 94CT0002  
Chemical Name : Oxyfluorfen  
Type Product : Herbicide  
Product Name : Goal Herbicide  
Company Name : Connecticut Dept. of Environmental Protection  
Purpose : Proposed Section 18 for use on strawberries.

Action Code : 510 Date Due : 06/06/94  
Reviewer : A. Vaughan Date In : 05/24/94

EEB Guideline/MRID Summary Table: The review in this package contains an evaluation of the following:

GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT	GDLN NO	MRID NO	CAT
71-1 (A)			72-2 (A)			72-7 (A)		
71-1 (B)			72-2 (B)			72-7 (B)		
71-2 (A)			72-3 (A)			122-1 (A)		
71-2 (B)			72-3 (B)			122-1 (B)		
71-3			72-3 (C)			122-2		
71-4 (A)			72-3 (D)			123-1 (A)		
71-4 (B)			72-3 (E)			123-1 (B)		
71-5 (A)			72-3 (F)			123-2		
71-5 (B)			72-4 (A)			124-1		
72-1 (A)			72-4 (B)			124-2		
72-1 (B)			72-5			141-1		
72-1 (C)			72-6			141-2		
72-1 (D)						141-5		

Y=Acceptable (Study satisfied Guideline)/Concur  
P=Partial (Study partially fulfilled Guideline but additional information is needed)  
S=Supplemental (Study provided useful information but Guideline was not satisfied)  
N=Unacceptable (Study was rejected)/Nonconcur

1

DP BARCODE: D203458

CASE: 285672  
SUBMISSION: S464681

DATA PACKAGE RECORD  
BEAN SHEET

DATE: 05/17/94  
Page 1 of 1

\* \* \* CASE/SUBMISSION INFORMATION \* \* \*

CASE TYPE: EMERGENCY EXEMP ACTION: 510 SEC18-OC F/F USE  
RANKING : 75 POINTS (A)  
CHEMICALS: 111601 Oxyfluorfen (ANSI)

ID#: 94CT0002

COMPANY:

PRODUCT MANAGER: 41 REBECCA COOL 703-308-8417 ROOM: CS1  
PM TEAM REVIEWER: LAWRENCE FRIED 703-308-8328 ROOM: CS1  
RECEIVED DATE: 05/04/94 DUE OUT DATE: 06/23/94

\* \* \* DATA PACKAGE INFORMATION \* \* \*

DP BARCODE: 203458 EXPEDITE: N DATE SENT: 05/17/94 DATE RET.: / /  
CHEMICAL: 111601 Oxyfluorfen (ANSI)  
DP TYPE: 001 Submission Related Data Package

	CSF: N		LABEL: Y		ADMIN DUE DATE: 06/06/94
ASSIGNED TO	DATE IN		DATE OUT		
DIV : EFED	05/20/94		/ /		NEGOT DATE: / /
BRAN: EEB	05/12/94		/ /		PROJ DATE: / /
SECT:	/ /		/ /		
REVR :	/ /		/ /		
CONTR:	/ /		/ /		

\* \* \* DATA REVIEW INSTRUCTIONS \* \* \*

Please review the proposed use of oxyfluorfen on strawberries in Connecticut.

Regards,

Larry Fried  
308-8328

\* \* \* DATA PACKAGE EVALUATION \* \* \*

No evaluation is written for this data package

\* \* \* ADDITIONAL DATA PACKAGES FOR THIS SUBMISSION \* \* \*

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
203097	BAB	05/09/94	05/29/94	Y	N	Y
203098	EAB	05/09/94	05/29/94	Y	N	N

2

ECOLOGICAL EFFECTS BRANCH REVIEW  
SECTION 18

Oxyfluorfen (Goal)

100 Section 18 Application

100.1 Nature and Scope of Emergency

The state of Connecticut is requesting an emergency exemption (Section 18) for the use of Goal 1.6E Herbicide to control wood sorrel and field pansy in strawberries. No new data were submitted with this request.

100.2 Formulation Information

ACTIVE INGREDIENT  
Oxyfluorfen.....19.4%

100.3 Target Organisms

Pests to be suppressed or controlled: field pansy (Viola tricolor) and wood sorrel (Oxalis sp.).

100.4 Date, Duration

The use period will be from November 1 to December 31, 1994.

100.5 Application Methods, Directions, Rates

The product is to be applied postemergence to dormant strawberries only. The application rate will be 1.25 - 2.5 pints (0.25 - 0.50 lbs. a.i.) per acre. A single application is allowed under this exemption.

100.6 Precautionary Labeling

"Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water by cleaning of equipment or disposal of wastes.

This product is highly toxic to aquatic invertebrates, aquatic plants, wildlife and fish. Use with care when apply in areas frequented by wildlife or adjacent to any body of water or wetland area. Do not apply when weather conditions favor drift or erosion from target areas.

101 Hazard Assessment

101.1 Discussion

The state of Connecticut is requesting an emergency

3

exemption (Section 18) for the use of Goal 1.6E Herbicide for control of weeds in strawberries. A single application is allowed, not to exceed 0.5 lb ai per acre. Application will be made postemergence to dormant strawberries. A maximum of 500 acres will be treated.

Goal Herbicide is currently registered for use on a number of crops grown in Connecticut, including crucifers, onions, tree fruits, and grapes.

## 101.2

### Likelihood of Adverse Effects on Nontarget Organisms

Environmental Fate Data (information obtained from Environmental Fate and Groundwater Branch (EFGWB) Pesticide Environmental Fate One Line Summary, last update, 10/12/89.)

(V) = validated study (S) = supplemental study

- Oxyfluorfen is stable to hydrolysis at pH 4, 7, and 10. (V)
- Oxyfluorfen is stable to photolysis. (S)
- Oxyfluorfen has a half life of 291 day - 130 weeks in Clay Loam, >393 day in Sand Loam and Silty Loam and 556-596 days in Sandy Loam. (S)
- Oxyfluorfen degraded to 2-7% of the applied in 60 days with half lives to 554 and 605 days in anaerobic soils. (S)
- Runoff study showed that oxyfluorfen will not translocate to nearby aquatic compartments.
- Bluegill sunfish bioaccumulation: muscle 605 x; viscera 4360 x; whole fish 2200 x. 83-94% depurates in 14 days.

### Terrestrial Organisms

Based on data in the Ecological Effects Branch (EEB) files, oxyfluorfen is considered to be practically nontoxic to moderately toxic to birds and practically nontoxic to mammals (bobwhite LD<sub>50</sub> >2150 mg/kg; bobwhite LC<sub>50</sub> = 390 ppm; mallard LC<sub>50</sub> >4000 ppm; rat LD<sub>50</sub> >5000 mg/kg). Supplemental data shows the avian reproductive NOEC <50 ppm. Recently reviewed avian dietary LC<sub>50</sub> studies with bobwhite quail and mallard duck showed that the LC<sub>50</sub> of oxyfluorfen technical, based on nominal concentrations, was >5000 ppm for both studies. In light of the new data as well as the previously reviewed avian acute oral LD<sub>50</sub> and avian dietary LC<sub>50</sub> studies, EEB believes it appropriate for this Section 18 that it bases

4

its hazard assessment on these new data.

If oxyfluorfen is applied at 0.5 lbs. a.i./ acre, the following residues (ppm) are expected to occur on terrestrial food items immediately after treatment: 120 ppm on short grass; 55 ppm on long grass; 63 ppm on leaves/leafy crops.

The data indicate that oxyfluorfen is not expected to pose acute hazard to nontarget mammals or avian species.

Since the environmental fate data indicate persistence, and the NOEC for bobwhite quail reproduction was <50 ppm (based on reduced body weights of 14 day old chicks), the proposed application would be expected to pose a chronic hazard to nontarget birds. However, due to the limited acreage to be treated (a maximum of 500 acres) and the fact that a single application will be made in late fall/early winter, the proposed use of oxyfluorfen is not expected to pose a significant chronic hazard to avian wildlife.

#### Aquatic Organisms

Based on EEB data, oxyfluorfen may be characterized as very highly to moderately toxic to aquatic invertebrates and fish: (Daphnia magna LC<sub>50</sub>=1.5 ppm; bluegill sunfish (Lepomis macrochirus) LC<sub>50</sub>=200 ppb; Rainbow trout (Oncorhynchus mykiss) LC<sub>50</sub>=410 ppb. To assess potential hazard to aquatic organisms, EEB calculated a rough aquatic EEC (see attached sheet). Expected concentration in the freshwater environment would be 3.05 ppb following application at 0.5 lb ai/acre. Since the LC<sub>50</sub> for the most sensitive species (bluegill) is 200 ppb, the estimated aquatic EEC of 3.05 ppb does not approach any level of concern for aquatic organisms. On the basis of this calculation, along with the very limited acreage to be treated, the proposed use is not expected to result in adverse effects on nontarget aquatic organisms.

#### Nontarget Plants

In an earlier Sec. 18 review by Winnik (D198736, use on raspberries in WA), he indicated that the use of oxyfluorfen would be expected to pose hazard to terrestrial and semiaquatic plants in areas adjacent to treated fields. Hazard is not expected from use under this exemption, however, due to the time of application and the limited acreage to be treated.

101.3

#### Endangered Species Considerations

Due to the limited nature of the proposed use (minimal

acreage, low exposure use; fall/winter application), hazard to endangered species is not expected.

**101.4      Adequacy of Data**

The available data were adequate to assess hazard to nontargets under this Section 18.

**101.5      Adequacy of Labeling**

Environmental Hazards labeling on the product label is adequate.

**102        Conclusions**

EEB has reviewed the proposed emergency exemption for the use of Goal 1.6E Herbicide in strawberries in Connecticut. Based upon information from previous reviews and a rough aquatic EEC calculation, and considering the limited acreage to be treated, EEB concludes that use under the proposed exemption should not result in adverse effects on nontarget organisms, including endangered species.

*Allen W. Vaughan 05.31.94*

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EEC CALCULATION SHEETI. For un-incorporated ground application

## A. Runoff

$$\underline{0.5} \text{ lb(s)} \times \frac{0.01}{(1\% \text{ runoff})} \times \frac{10 \text{ (A)}}{\text{(from 10 A. drainage basin)}} = \underline{0.05} \text{ lb(s)} \text{ (tot.runoff)}$$

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

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \underline{0.05} \text{ (lb)} = \underline{3.05} \text{ ppb}$$

II. For incorporated ground application

## A. Runoff

$$\underline{\quad} \text{ lb(s)} \div \frac{\underline{\quad} \text{ (cm)}}{\text{(depth of incorporation)}} \times \frac{0.0}{(\% \text{ runoff})} \times \frac{10 \text{ (A)}}{\text{(10 A. d.basin)}} = \underline{\quad} \text{ lb(s)} \text{ (tot.runoff)}$$

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \underline{\quad} \text{ (lbs)} = \underline{\quad} \text{ ppb}$$

III. For aerial application (or mist blower)

## A. Runoff

$$\underline{\quad} \text{ lb(s)} \times \frac{0.6}{\text{(appl. efficiency)}} \times \frac{0.0}{(\% \text{ runoff})} \times \frac{10 \text{ (A)}}{\text{(10 A. d.basin)}} = \underline{\quad} \text{ lb(s)} \text{ (tot.runoff)}$$

## B. Drift

$$\underline{\quad} \text{ lb(s)} \times \frac{0.05}{(5\% \text{ drift})} = \underline{\quad} \text{ lb(s)} \text{ (tot. drift)}$$

$$\text{Tot. loading} = \underline{\quad} \text{ lb(s)} \text{ (tot. runoff)} + \underline{\quad} \text{ lb(s)} \text{ (tot. drift)} = \underline{\quad} \text{ lb(s)}$$

$$\text{Therefore, EEC} = 61 \text{ ppb} \times \underline{\quad} \text{ (lbs)} = \underline{\quad} \text{ ppb}$$