DP Barcode : D203682
PC Code No : 111601
EEB Out : JUN 3 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 # : 94OR0020
Chemical Name : Oxyfluorfen
Type Product : Herbicide
Product Name : Goal 1.6E Herbicide
Company Name : Oregon Department of Agriculture
Purpose : Proposed Section 18 for use on grasses grown for seed.

Action Code : 510 Date Due : 06/14/94
Reviewer : A. Vaughan Date In : 05/25/94

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

0

DP BARCODE: D203682

CASE: 285725 DATA PACKAGE RECORD DATE: 05/25/94
SUBMISSION: S466251 BEAN SHEET 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#: 94OR0020
COMPANY:
PRODUCT MANAGER: 41 REBECCA COOL 703-308-8417 ROOM: CS1
PM TEAM REVIEWER: SUSAN STANTON 703-308-8327 ROOM: CS1
RECEIVED DATE: 05/24/94 DUE OUT DATE: 07/13/94

* * * DATA PACKAGE INFORMATION * * *

DP BARCODE: 203682 EXPEDITE: N DATE SENT: 05/25/94 DATE RET.: / /
CHEMICAL: 111601 Oxyfluorfen (ANSI)
DP TYPE: 001 Submission Related Data Package
CSF: N LABEL: Y

ASSIGNED TO	DATE IN	DATE OUT	ADMIN DUE DATE: 06/14/94
DIV : EFED	05/25/94	/ /	NEGOT DATE: / /
BRAN: EEB	05/25/94	/ /	PROJ DATE: / /
SECT:	/ /	/ /	
REVR :	/ /	/ /	
CONTR:	/ /	/ /	

* * * DATA REVIEW INSTRUCTIONS * * *

The state of Oregon is requesting emergency exemptions for the use of 4 different herbicides to control weeds in grass grown for seed: oxyfluorfen, metolachlor, pendimethalin, and pronamide. I have attached "bean sheets" for all 4 requests. This is the first time that metolachlor, pendimethalin, and pronamide have been requested under section 18 for this use. However, exemptions for the use of oxyfluorfen on grass grown for seed have been granted to Oregon since 1989. Please review Oregon's request to determine whether the use of these herbicides poses a risk of unreasonable adverse effects on non-target organisms. If you have any questions, please give me a call at 308-8327.

Thanks,
Susan Stanton

* * * DATA PACKAGE EVALUATION * * *

No evaluation is written for this data package

2

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

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL

DP BARCODE: D203678

CASE: 285725
SUBMISSION: S466251

DATA PACKAGE RECORD
BEAN SHEET

DATE: 05/25/94

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

DP BC	BRANCH/SECTION	DATE OUT	DUE BACK	INS	CSF	LABEL
203678	BAB	05/25/94	06/14/94	Y	N	Y
203680	EAB	05/25/94	06/14/94	Y	N	Y
203683	TSCB	05/25/94	06/14/94	Y	N	Y
203684	TB-1	05/25/94	06/14/94	Y	N	Y
203685	OREB	05/25/94	06/14/94	Y	N	Y

3

ECOLOGICAL EFFECTS BRANCH REVIEW
SECTION 18

Oxyfluorfen (Goal)

100 Section 18 Application

100.1 Nature and Scope of Emergency

The state of Oregon is requesting an emergency exemption (Section 18) for the use of Goal 1.6E Herbicide to control various weeds in grasses grown for seed. 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:

Italian ryegrass (Lolium multiflorum)
Perennial ryegrass (Lolium perenne
Tall fescue (Festuca arundinacea)
Fine and hard fescues (Festuca rubra and related species)
Orchardgrass (Dactylis glomerata)
Kentucky bluegrass (Poa pratensis)
Bentgrass (Agrostis tenuis)
California brome (Bromus carinatus)
Downy brome (Bromus tectorum)
Roughstalk bluegrass (Poa trivialis)
Annual bluegrass (Poa annua)
Rattail fescue (Vulpia myuros)

100.4 Date, Duration

The use period will be from September 1, 1994 to January 15, 1995.

100.5 Application Methods, Directions, Rates

The product is recommended for late preemergence through early postemergence control of annual broadleaf weeds, annual grasses and the seedling stage of perennial grasses, including volunteer crops, in established perennial grasses grown for seed. The application rate will be 10 to 30 ounces (0.125 - 0.375 lbs. a.i.) per acre. Two applications are allowed under this exemption, not to exceed 0.375 lbs. a.i. per acre per season.

Product is to be applied as a broadcast application in a minimum spray volume of 20 gallons of water per acre,

using conventional ground spray equipment.

SPECIFIC USE RESTRICTIONS:

The following use restrictions must be observed when GOAL 1.6E Herbicide is used as recommended on this label:

- Follow the General Use Restrictions listed on the EPA registered label.
- Read and observe all label directions before using. All applicable directions, restrictions and precautions on the EPA registered product label must be followed.
- Do not allow animals to graze on any areas treated with GOAL 1.6E herbicide.
- Do not apply GOAL herbicide within 150 days of harvest.
- GOAL 1.6E herbicide should be applied only by ground application equipment.
- **Do not apply when weather conditions favor drift. Avoid drift to all nontarget areas. GOAL 1.6E herbicide is phytotoxic to plant foliage.**
- Do not treat ditch banks or waterways with GOAL 1.6E herbicide.
- Workers must wear long-sleeved shirts, long pants and chemical resistant gloves during mixing, loading and application.

100.6 Precautionary Labeling

PRODUCT LABEL:

"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.

SUPPLEMENTAL LABELING:

"Do not apply directly to water or wetlands. Do not apply to saturated soil; do not apply to standing water. 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. If soil is approaching saturation, avoid

application when heavy rainfall is predicted to occur within 24 hours following planned application."

NOTE: Due to the close proximity of native prairie remnants to agricultural areas and the potential for these areas to be adversely affected by herbicides through drift or possible runoff/soil movement, it is recommended that GOAL 1.6E herbicide not be applied directly to native prairie habitats. It is recommended that dosage rates be maintained at the lower end of the use rate range (if effective seedling control can be achieved) in a further effort to lessen the potential impacts to endangered species.

101 Hazard Assessment

101.1 Discussion

The state of Oregon is requesting an emergency exemption (Section 18) for the use of Goal 1.6E Herbicide for control of weeds in grasses grown for seed. Two applications are allowed, not to exceed 0.375 lb ai per acre per season. Application will be made from September, 1994 through January, 1995. A maximum of 187,500 acres will be treated.

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.) (Excerpted from review by H. Winnik dated Feb 22, 1994; D198736).

(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_{50} >2150 mg/kg; bobwhite LC_{50} = 390 ppm; mallard LC_{50} >4000 ppm; rat LD_{50} >5000 mg/kg). Supplemental data shows the avian reproductive NOEC <50 ppm. Recently reviewed avian dietary LC_{50} studies with bobwhite quail and mallard duck showed that the LC_{50} 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_{50} and avian dietary LC_{50} studies, EEB believes it appropriate for this Section 18 that it bases its hazard assessment on these new data.

If oxyfluorfen is applied at 0.375 lbs. a.i./ acre, the following residues (ppm) are expected to occur on terrestrial food items immediately after treatment: 90 ppm on short grass; 41 ppm on long grass; 48 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 birds. However, due to the fact that application will be made in fall/early winter, to a limited acreage, 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_{50}=1.5 ppm; bluegill sunfish (Lepomis macrochirus) LC_{50}=200 ppb; Rainbow trout (Oncorhyncus mykiss) LC_{50}=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 2.29 ppb following application at 0.375 lb ai/acre. Since the LC_{50} for the most sensitive species (bluegill) is 200 ppb, the estimated aquatic EEC of 2.29 ppb does not approach any level of concern for aquatic organisms. On the basis of this calculation, along with the limited acreage to be treated, the proposed use is not expected to result in

acute effects on nontarget aquatic organisms.

One chronic study with fathead minnow provided an MATC value between 38 and 74 ppb. Since the aquatic EEC is 2.29 ppb, chronic hazard to aquatic organisms is not expected.

Nontarget Plants

In an earlier Sec. 18 review by Winnik (D198736, use on raspberries in WA), he calculated the risk quotients for nontarget plants from application of oxyfluorfen at 0.8 lb ai/acre. If these risk quotients are revised to reflect the lower use rate of 0.375 lb ai/acre, LOC's are exceeded for 4 of 6 measured parameters. This indicates that the proposed use of oxyfluorfen on seed grasses would be expected to pose hazard to terrestrial and semiaquatic plants in areas adjacent to treated fields.

101.3 Endangered Species Considerations

Maximum residues do not exceed acute LOC's for endangered birds, mammals, fish, and aquatic invertebrates. The proposed use is not expected to result in acute hazard to endangered wildlife and aquatic organisms.

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). Residues on terrestrial food/feed items may exceed the avian chronic LOC, indicating a potential for chronic hazard to endangered birds.

The only endangered bird species likely to be exposed under the proposed use is the Aleutian Canada goose, which has been found in association with grass fields. However, due to the fact that application will be made in fall/early winter, to a limited acreage, the proposed use of oxyfluorfen is not expected to pose a significant chronic hazard to the Aleutian Canada goose.

Use under the proposed exemption is expected to present significant hazard to endangered plants. Of the several endangered plant species found in Oregon, only the Bradshaw's Lomatium would be exposed under the proposed use. To prevent hazard, the applicant should abide by the recommendations outlined in the attached letter by R.D. Petersen of the USFWS. These recommendations are also reflected in the supplemental labeling.

101.4 Adequacy of Data

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

101.5 Adequacy of Labeling

Environmental Hazards labeling on the product label and the supplemental labeling are adequate.

102 Conclusions

EEB has reviewed the proposed emergency exemption for the use of Goal 1.6E Herbicide in grasses grown for seed in Oregon. 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 wildlife and aquatic organisms, including endangered species.

The proposed use of oxyfluorfen is expected to present a significant hazard to nontarget plants, including one endangered species, Bradshaw's Lomatium. To mitigate this potential hazard, the applicant should abide by the precautions and restrictions set forth on the product label, on the supplemental labeling, and in the attached letter from the USFWS Portland Field Office.

Allen W. Vaughan 06.01.94
Allen W. Vaughan
Ecological Effects Branch
Environmental Fate and Effects Division (7507C)

Norman J. Cook 06.03.94
Norman J. Cook, Section Head
Ecological Effects Branch
Environmental Fate and Effects Division (7507C)

Anthony F. Maciorowski, Chief 6/3/94
Ecological Effects Branch
Environmental Fate and Effects Division (7507C)

AQUATIC EEC CALCULATION SHEET FOR Oxyfluorfen

I. For un-incorporated ground application

A. Runoff

0.375 lb(s) X 0.01 X (% runoff) 10 (A) = (from 10 A drainage basin) 0.0375 lb(s) (total runoff

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

Therefore EEC = 61 ppb X 0.0375 = 2.2875 ppb

II. For Incorporated ground application

A. Runoff

---------lb(s) X --------- (cm) X ---------X 10(A) = 0 lb(s)
(depth of incorporation) (% runoff) (10 A drainage basin) (total runoff)

Therefore, EEC = 61 ppb X 0 (lbs) = 0 ppb

III. For aerial application (or mist blower)

A. Runoff

---------lb(s) X 0.6 X (application efficiency) ---------X 10(A)= (% runoff) (10 A drainage basin) 0 (total runoff)

B. Drift

- lb(s) X 0.05 (5% drift) = 0 lb(s) (total drift)

Total loading = 0 lb(s) + (total runoff) 0 lb(s) = (total drift) 0 lb(s)

Therefore, EEC = 61 ppb X 0 lbs = 0 ppb

10

Portland Field Office
727 NE 24th Avenue
Portland, OR 97232

September 19, 1989

Re: 1-7-89-I-163

Robert Mitchell
Department of Agriculture Building
635 Capitol Street N.E.
Salem, Oregon 97310

Dear Mr. Mitchell:

We have reviewed the proposed wording for the GOAL label that is contained in an August 30, 1989 transmittal from Douglas D. Campt, Office of Pesticide Program to Bill Wright, Oregon Department of Agriculture. The following comments specifically address the wording proposed by Oregon Department of Agriculture for 7a (buffer for endangered plant), 7b (avoiding drift), and 7c (avoiding sensitive areas).

In view of available information regarding GOAL, additional restrictions to avoid drift and use in sensitive areas, and the biology of the plant, Bradshaw's lomatium should be adequately protected without 7a.

However, the brief description of how wet prairie plant communities have been degradated in the Willamette Valley is very true for many other sensitive species. Though such plant species i.e. Aster curtis, Erigeron decumbens var. decumbens, and others, may not be federally listed at this time, they share the same problems and threats as do the lomatium and may be more susceptible to GOAL because of their latter flowering times. As a discretionary conservation measure, we would appreciate your consideration of the following 7a for inclusion on the GOAL label:

> Wet prairie plant communities have become rare in the Willamette Valley due to agriculture and development. As a result, small remnant patches of prairie communities persist along fence rows, roadsides, and drainage courses. Due to the close proximity of native prairie remnants to agricultural areas and the potential for these areas to be adversely affected by herbicides through drift or possible runoff/soil movement, the Oregon Department of Agriculture recommends that Goal 1.6E herbicide not be applied directly to native prairie habitats in Benton, Clackamas, Lane, Linn, Marion, Polk, and Yamhill counties of Oregon.

Although inclusion of the above would be discretionary, we would commend its inclusion on the label by Rohm and Haas and the Oregon Department of