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108501
SHAUGHNESSEY NO.

51
REVIEW NO.

EEB REVIEW

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TYPE PRODUCT(S) Herbicide

DATA ACCESSION NOS.

PRODUCT MANAGER NO. J. Tompkins (41)

PRODUCT NAME(S) Prowl (Pendimethalin)

COMPANY NAME State of Louisiana

SUBMISSION PURPOSE Proposed Sec. 18 for use on sugarcane

SHAUGHNESSEY NO.	CHEMICAL AND FORMULATION	% AI
108501	Pendimethalin	45.6%

EEB REVIEW

Chemical: Prowl (Pendimethalin)

100 Submission Purpose and Label Information

100.1 Submission Purpose and Pesticide Use

The State of Louisiana is requesting an emergency exemption (Section 18) for the use of Prowl to control itchgrass and browntop panicum in sugarcane. No new data were submitted with this request.

100.2 Formulation Information

Active Ingredient:	
Pendimethalin, N-(1-ethylpropyl)-3,4-dimethyl-2,6-dinitrobenzenamine	45.6%
Inert Ingredients	54.4%

This product (Prowl) contains 4 lb ai per gallon.

100.3 Application Methods, Directions, Rates

Application rate is 4-6 pints of 4 EC (2-3 lb ai) per acre, with two applications being allowed, one in early spring and one at layby. Early spring application may be made by air or ground. Layby application must be made with ground equipment. See attached label for additional information.

100.4 Target Organisms

The pests to be controlled are itchgrass (Rottboellia exaltata) and browntop panicum (Panicum fasciculatum).

100.5 Precautionary Labeling

Precautionary labeling was not provided.

101 Hazard Assessment

101.1 Discussion

The State of Louisiana is requesting an emergency exemption for the use of pendimethalin on sugarcane. Pendimethalin is currently registered for use on a number of crops such as soybeans, cotton, rice, peanuts, and sorghum. Registered rates of application range from 0.5 to 2.0 lb ai per acre. Louisiana is requesting two applications at 3.0 lb ai per acre. Sites to be treated are in the parishes of Ascension, Assumption, Iberia, Iberville, Lafayette, Pointe Coupee, St. Charles, St. James, St. John, St. Martin, St.

Mary, Terrebonne, Vermilion, and West Baton Rouge. The total acreage covered under this exemption is 40,000 acres.

101.2 Likelihood of Adverse Effects on Nontarget Organisms

Terrestrial Organisms

Pendimethalin is only slightly toxic to birds (dietary LC50 > 4000 ppm for bobwhite quail and mallard duck). At the maximum proposed rate of application, 3.0 lb ai per acre, residues on terrestrial food items are expected to range from 21 to 720 ppm. Highest expected residue levels are well below avian hazard triggers based on laboratory-determined LC50 levels for birds. Thus, the proposed use is not likely to cause adverse effects in birds. No data were available on toxicity to mammals.

Aquatic Organisms

Pendimethalin is highly toxic to aquatic organisms, with LC50 values in the range of 140 to 420 ppb for Daphnia, bluegill sunfish, and rainbow trout. Chronic studies with fathead minnow showed reduction in egg production at 9.8 ppb and reduced hatchability of eggs at 22 ppb. Chronic studies with Daphnia showed reproductive impairment at 17.2 ppb.

To assess potential hazard to aquatic organisms, EEB used a quick aquatic EEC calculation (see attached sheet) to estimate aquatic residues from application at the maximum proposed rate. The resulting aquatic EEC of 20.13 ppb exceeds chronic effect levels for fathead minnow and Daphnia. Based on these figures, the proposed use of pendimethalin may result in hazard to aquatic organisms in bodies of water near treatment sites.

As noted above, pendimethalin is already registered for use on several major crops which are grown in Louisiana. Total acreage for three of these crops in Louisiana (cotton, rice, and soybeans) equals more than 3.5 million acres. Since the acreage to be treated under the proposed exemption totals only 40,000 acres, use on sugarcane should not present a significant increase in exposure to nontarget organisms.

101.3 Endangered Species Considerations

On the basis of information in its Endangered Species files, EEB has determined that application to sugarcane in Louisiana will not result in exposure of endangered species of aquatic organisms or plants.

101.4 Adequacy of Toxicity Data

The existing database is adequate to assess hazards to nontargets under the proposed exemption.

103 Conclusions

EEB has reviewed the proposed emergency exemption for the use of Prowl (pendimethalin) in sugarcane in Louisiana. EEB concludes that the proposed use will not result in hazard to terrestrial nontarget organisms. However, aquatic organisms in freshwater habitats near treatment areas may be at risk from the proposed use.

There are no federally listed endangered species in Louisiana that will be adversely affected by this use.

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Attachment A

EEC CALCULATION SHEET

I. For un-incorporated ground application

A. Runoff

3 lb(s) x 0.01 (1% runoff) x 10 (A) (from 10 A. drainage basin) = 0.3 lb(s) (tot.runoff)

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

Therefore, EEC = 61 ppb x 0.3 (lb) = 18.3 ppb

II. For incorporated ground application

A. Runoff

___ lb(s) ÷ ____ (cm) (depth of incorporation) x 0.0_ (_% runoff) x 10 (A) (10 A d.basin) = ____ lb(s) (tot.runoff)

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

III. For aerial application (or mist blower)

A. Runoff

3 lb(s) x 0.6 (appl. efficiency) x 0.01 (1% runoff) x 10 (A) (10 A. d.basin) = 0.18 lb(s) (tot.runoff)

B. Drift

3 lb(s) x 0.05 (5 % drift) = 0.15 lb(s) (tot. drift)

Tot. loading = 0.18 lb(s) (tot. runoff) + 0.15 lb(s) (tot. drift) = 0.33 lb(s)

Therefore, EEC = 61 ppb x 0.33 (lbs) = 20.13 ppb

PROWL herbicide

Supplemental Labeling

EPA Reg. No. 241-243

FOR USE IN SUGARCANE IN LOUISIANA

OBSERVE ALL PRECAUTIONARY STATEMENTS, MIXING INSTRUCTIONS, AND ROTATIONAL CROP RESTRICTIONS IN THE PROWL LEAFLET LABEL BEFORE USING.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. PROWL herbicide controls most annual grasses and certain broadleaf weeds as they germinate, but it will not control established weeds. PROWL should be applied to rows free of weeds and trash. Unusually cold, excessively wet, or hot and dry conditions that delay germination or extend it over a long period of time may reduce weed control.

PROWL may be applied twice per season for preemergence weed control in plant or ratoon sugarcane: in the spring either during or after bed reconditioning, and at the last cultivation (layby). Applications may be band or broadcast. At layby, uniformly apply PROWL with ground equipment in a spray directed under the sugarcane canopy. See page 2 for Spraying Instructions.

DO NOT apply this product through any type of irrigation system.

NOTE: DO NOT graze treated fields or feed treated forage or fodder to livestock.

This label should be in the possession of the user at the time of herbicide application.

BROADCAST RATES OF PROWL

Apply 4 to 6 pints of PROWL per acre at each application timing (spring and layby). See Spraying Instructions on page 2 for calculation of band treatment rate. Total application in one growing season should not exceed 12 pints per acre on a broadcast basis.

Use the 6 pint rate on dark clay soils, if no mechanical incorporation is planned, or if heavy weed populations or itchgrass infestations are anticipated.

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WEED SPECIES CONTROLLED

When applied preemergence as directed, PROWL will control the following grass and broadleaf weeds:

GRASSES

Barnyardgrass (*Echinochloa crus-galli*)
Browntop panicum (*Panicum fasciculatum*)
Crabgrass (*Digitaria* spp.)
Fall panicum (*Panicum dichotomiflorum*)
Foxtail (giant) (*Setaria faberi*)
Foxtail (green) (*Setaria viridis*)
Foxtail (yellow) (*Setaria lutescens*)
Goosegrass (*Eleusine indica*)
Itchgrass (Raoulgrass) (*Rottboellia cochinensis*)*
Johnsongrass (from seed) (*Sorghum halepense*)
Junglerice (*Echinochloa colonum*)
Signalgrass (*Brachiaria platyphylla*)
Texas panicum (*Panicum texanum*)

BROADLEAF WEEDS

Carpetweed (*Mollugo verticillata*)
Florida pusley (*Richardia scabra*)
Lambsquarters (*Chenopodium album*)
Pigweed (*Amaranthus* spp.)
Purslane (*Portulaca oleracea*)
Spurge, annual (*Euphorbia* spp.)

*PROWL must be applied at the 5-6 pint/acre broadcast rate in the spring with mechanical incorporation for itchgrass control. Surface application (no mechanical incorporation) will provide partial itchgrass control. An additional application of 4-6 pints/acre may be made at layby.

For additional broadleaf weed control, use 2-4 pints per acre (broadcast basis) of PROWL in combination with the label rate of any registered broadleaf herbicide.

SPRAYING INSTRUCTIONS

GROUND APPLICATIONS

BROADCAST TREATMENT - Apply PROWL in 10 or more gallons of water or in 20 or more gallons of liquid fertilizer per acre. (Refer to the PROWL leaflet label for liquid fertilizer compatibility determinations.) Use a properly calibrated low-pressure (20 to 40 psi) sprayer equipped with 8002 or larger size Tee-Jet or comparable nozzles to achieve uniform spray distribution and minimize drift. Keep the by-pass line on or near the bottom of the tank to minimize foaming. Maintain agitation while spraying.

BAND TREATMENT - Apply the broadcast equivalent rate and volume per acre. To determine these

$$\frac{\text{Band width in inches}}{\text{Row width in inches}} \times \text{Broadcast RATE per acre} = \text{Band RATE per acre}$$

Band width in inches / Row width in inches	X	Broadcast VOLUME per acre	=	Band VOLUME per acre

AERIAL APPLICATIONS (Spring preemergence application ONLY!)

Uniformly apply in 5 or more gallons of water per acre. To minimize drift, DO NOT apply during periods of gusty winds in excess of 5 mph. It is recommended that a flagman or an automatic mechanical flagging unit on the aircraft be used to avoid overlapping and possible crop injury. DO NOT make aerial applications at layby.

INCORPORATION INSTRUCTIONS

PROWL must be thoroughly and uniformly incorporated into the soil with either (a) mechanical incorporation equipment as outlined below, or (b) with rainfall, if rainfall is adequate for good crop and weed emergence and received within 7 days after application. If rainfall does not occur, PROWL should be mechanically incorporated.

Mechanical Incorporation:

PROWL should be applied to loosened beds and incorporated into the upper 2 inches of soil within 7 days after application. Ratoon sugarcane must be lightly shaved in early spring to remove the old stubble before incorporation over the line of sugarcane is possible. Carefully adjust equipment to incorporate without causing excessive damage to emerging shoots. Mechanical incorporation can be achieved by the following:

a. Rolling cultivator (Lilleston type - Lely Roterra*) set to cut 2 to 3 inches deep and operated two times at 6 to 8 mph. This technique may be used in the spring or at layby.

b. Rolling disc cultivator (Hipper) set to cut 2 to 3 inches deep and operated two times at 6 to 8 mph. This technique may be used to incorporate between sugarcane lines (rows) at layby only.

*Lely Roterra is a trademark of Lely