

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

NOV 13 1992

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Ecogen, Inc.
 c/o Christine A. Dively
 Jellinek, Schwartz, Connolly
 & Freshman, Inc.
 1015 15th Street, N.W., Suite 500
 Washington, D.C. 20005



**Subject: Cutlass WP Label Amendment Request Submitted 6/1/92
 EPA File Number: 55638-8**

Dear Ms. Dively:

The primary eye irritation study submitted to support the product's formulation as identified on the Confidential Statement of Formula (CSF) dated 1/16/90 is acceptable. This study is classified Toxicity Category III. However, the alternate formulation as identified on the CSF dated 9/21/90 cannot be supported by this data. If Ecogen wishes to continue marketing this formulation, then the formulation as stated on the 9/21/90 CSF must be registered separately.

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) is acceptable subject to the comments below.

1. Add the statement, "Causes eye irritation," to the **HAZARDS TO HUMANS AND DOMESTIC ANIMALS** section in advance of the statement, "Avoid contact with skin, eyes or clothing."

A copy of the Agency's Proposed Rulemaking Regarding "Required Labeling for Inerts," is enclosed for your review. Five copies of the finished labeling must be submitted prior to releasing the product for shipment. A stamped copy is enclosed for your records.

Sincerely,

Phil Hutton
 Product Manager (18)
 Insecticide/Rodenticide Branch
 Registration Division (H7505C)

Enclosures:		CONCURRENCES				
SYMBOL	* Rule and Label					
SURNAME	J. Dively					
DATE	12/13/92					

CUTLASS[®]

BIOINSECTICIDE

Wettable Powder Bioinsecticide

Active Ingredient:

Bacillus thuringiensis subspecies
kurstaki strain EG2371

Lepidopteran active toxin.....	10.0%
Inert Ingredients	90.0%
TOTAL.....	100.0%

1.6 oz. active ingredient per pound

CUTLASS[®] bioinsecticide is a biological insecticide for the control of lepidopteran pests.

KEEP OUT OF THE REACH OF CHILDREN

CAUTION

Statement of Practical Treatment

If Swallowed: Call a Physician or Poison Control Center. Drink 1 or 2 glasses of water and induce vomiting by touching back of throat with finger. Do not induce vomiting or give anything by mouth to an unconscious person.

If Inhaled: Remove to fresh air. Get medical attention.

If In Eyes: Flush with plenty of water. Call a physician if irritation persists.

If on Skin: Wash with soap and water.

PRECAUCION AL USUARIO:

Si usted no lee ingles, no use este producto hasta que la etiqueta le haya sido explicada ampliamente.

ACCEPTED
with COMMENTS
to EPA Letter Dated

NOV 10 1984

Under the Federal Insecticide,
Fungicide, and Rodenticide Act
as amended, for the pesticide
registered under EPA Reg. No.

566.38-8

EPA REG. No. 55638-8
EPA Est. No. 769-GA-1

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

Harmful if inhaled. Avoid breathing dust or spray mist. Harmful if swallowed. Avoid contact with skin, eyes or clothing. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

ENVIRONMENTAL HAZARDS

Do not contaminate water when disposing of equipment washwaters.

Storage and Disposal

Do not contaminate water, food or feed by storage or disposal.

Storage:

Store in a cool, dry place inaccessible to children.

Pesticide Disposal:

Do not contaminate water when disposing of equipment washwaters. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Disposal:

Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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EcoGen[®]

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DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

Preharvest Interval: *CUTLASS*® bioinsecticide may be applied to the crops listed in the **APPLICATION RATE TABLE** at any time, up to and on the day of harvest and in storage.

Mode of Action: After consuming a lethal dose of *CUTLASS*, larvae will cease to feed, but may remain alive on foliage for several days before disappearing. Immediately after ingestion of *CUTLASS*, larvae begin to move slowly, become discolored, shrivel and blacken prior to death.

MIXING INSTRUCTIONS

CUTLASS bioinsecticide may be applied with conventional ground, aerial or hand held application equipment with quantities of water sufficient to provide thorough coverage of infested plants. Do not apply this product through any type of irrigation system. To obtain a suitable mixture with water, add enough water to allow maximum agitation. With agitator running, slowly add in the *CUTLASS*. Continue agitation. Then add remainder of water and other spray materials and agitate until mixed. Maintain suspension while loading and spraying. Do not mix more *CUTLASS* than can be used in a 12-hour period. Rinse and flush spray equipment thoroughly following each use. Do not contaminate water when disposing of equipment washwaters.

In order to make proper decisions on application rates to be used, follow the recommendations in the **APPLICATION RATE TABLE** and these guidelines:

APPLICATION GUIDELINES

Pest category	Pest Pressure (number of larvae/plant)			
	Low ¹ (<0.3)	Moderate ² (0.3-1.0)	High ³ (1.0-5.0)	Extreme ⁴ (>5.0)
Pounds of Product to be Applied per Acre				
Category 1	1.5	2.0	2.5	2.5
Category 2	1.0	1.5	2.0	2.5
Category 3	1.0	1.0	1.5	2.0

¹Recommended spray interval of 7-10 days.

²Recommended spray interval of 6-8 days.

³Recommended spray interval of 4-6 days.

⁴Recommended spray interval of 3-5 days.

Category 1 pests include: artichoke plume moth, navel orangeworm, oriental fruit moth, tomato fruitworm (also called bollworm and corn earworm), tufted apple budmoth.

Category 2 pests include: amorbia, armyworms, cabbage looper, citrus cutworm, diamondback moth, leafrollers, melonworm, peach twig borer, pickleworm, soybean looper, tomato pinworm, tobacco budworm and tortrix moth.

Category 3 pests include: all caterpillar pests shown in the **APPLICATION RATE TABLE**, except those shown in Categories 1 and 2.

For crops such as Fruits, Nuts, Vines and Turf, applications are often timed to stage of development and recommendations from local Extension personnel should

APPLICATION INSTRUCTIONS

CUTLASS, bioinsecticide is a selective insecticide for use against the lepidopteran larvae listed in the **APPLICATION RATE TABLE**. Larvae must consume deposits of *CUTLASS* to be affected. Always follow these directions:

- Make applications when larvae are still small (early instars) and actively feeding on foliage or other plant parts.
- Make applications before noticeable foliar damage occurs.
- Thorough spray coverage is essential for good insect control. For ground applications, directed drop nozzles should be used for certain vegetable crops.
- When insect infestations are heavy, use the higher label rates, shorten the spray interval, and/or use larger total spray volume to improve spray coverage (see **APPLICATION GUIDELINES** for selection of rates and intervals).
- Applications should be repeated at an interval sufficient to maintain control, depending upon plant growth, insect pressure and weather conditions after spraying. (Refer to **APPLICATION GUIDELINES**)
- For ground applications, use a minimum of 5 gallons of water per acre. For aerial applications, use a minimum of 2 gallons of water per acre.
- Local conditions may affect the use of *CUTLASS*. Consult your State Agricultural Extension Specialist for specific recommendations related to local crop protection problems.
- Spray water/spray tank solutions should not exceed pH 8.0. If necessary, buffer water to near neutral pH.

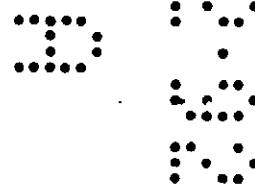
HAND HELD EQUIPMENT

When using hand held equipment, mix 3 teaspoons per gallon of water or 1 1/2 pounds per 100 gallons of spray solution. Spray to wet, but not to runoff.

TANK MIX

Combinations of *CUTLASS* with commonly used insecticides, fungicides, or other spray tank adjuvants are generally not deleterious to performance. It is advisable to test physical compatibility by mixing all components in small containers in proportionate quantities prior to mixing in spray tank. This product cannot be mixed with any product containing a label prohibition against such mixing. No label dosage rate should be exceeded. Application must be made in accordance with the more restrictive of label limitation and precautions.

- For improved durability of spray deposits, an approved spreader/sticker is strongly recommended for hard-to-wet crops such as cole crops.
- Feeding stimulants may improve performance. Consider using feeding stimulants in situations of heavy worm pressure, inadequate coverage, or dense crop canopy.



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APPLICATION RATE TABLE

I. VEGETABLES AND COLE CROPS (Fresh and Processed)

Crop	Insect Pest	Rate/Acre (pounds)
Such as:		1.0 - 2.5
Artichokes	Arm.yworms	
Arugala	Artichoke plume	
Asparagus	moth	
Beans	Beet armyworm	
Beets	Cabbage	
Bok Choy	budworm	
Broccoli	Cabbage looper	
Brussels sprouts	Cabbage webworm	
Cabbage	Celery leaf-tier	
Cardoni	Corn earworm	
Carrots	Cross-striped	
Cauliflower	cabbageworm	
Celeriac	Diamondback	
Celery	moth	
Chick peas	European	
Chicory	corn borer	
Chinese cabbage	Fall armyworm	
Collards	Green	
Cucumber	cloverworm	
Cucurbits	Imported	
Dry bulb onions	cabbageworm	
Eggplants	Melonworm	
Escarole	Omnivorous	
Endive	leafroller	
Garlic	Pickleworm	
Green onions	Rindworm	
Greens	complex	
Beet, China, Dandelion, Mustard, Turnip	Saltmarsh caterpillar	
Horseradish	Soybean looper	
Kale	Tobacco budworm	
Kohlrabi	Tomato fruitworm	
Leeks	Tomato hornworm	
Lentils	Tomato pinworm	
Lettuce: Head, Leaf and Romaine	Velvetbean caterpillar	
Malanga	Yellowstriped armyworm	
Melons		
Cantaloupe, Crenshaw, Honeydew, Muskmelon, Watermelon, etc.		
Napa		
Okra		
Onions		
Parsley		
Parsnips		
Peas		
Peppers		

Pumpkins		
Radishes		
Rutabaga		
Salsify		
Shallots		
Soybean foliage		
Spinach		
Squash		
Sugar Beets		
Sweet potatoes		
Swiss Chard		
Tomatoes		
Turnips		
Watercress		

II. HERBS AND SPICES

Crop	Insect Pest	Rate/Acre (pounds)
Such as:		1.0 - 2.5
Basil	Armyworms	
Chives	Diamondback moth	
Cilantro	European corn borer	
Dill	Green cloverworm	
Oregano	Imported cabbageworm	
Peppermint	Loopers	
Thyme	Saltmarsh caterpillar	

III. PASTURE AND HAY CROPS

Crop	Insect Pest	Rate/Acre (pounds)
Such as:		1.0 - 2.5
Alfalfa (hay & seed)	Alfalfa caterpillar	
Pasture (grasses & hay)	Armyworms*	
Silage	Loopers*	
	European skipper	
	Webworm	

* Product should be applied when early instar larvae first appear. If infestations persist, make a second application 7-10 days later. Combination of CUTLASS with a contact insecticide is recommended for control of 4th and 5th instar larvae.

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IV. FRUIT, NUT AND VINE CROPS

Crop	Insect Pest	Rate/Acre (pounds)
Such as: Pome and Stone Fruit Trees: Apples Apricots Cherries Nectarines Peaches Pears Plums Prunes Quince	Cankerworm (Spring & Fall) Eastern tent caterpillar Fall webworm Fruittree leafroller Gypsy moth Navel orangeworm Omnivorous leafroller Oriental fruit moth Peach twig borer Redbanded leafroller Redhumped caterpillar Tortrix moth (Orange and Garden) Tufted apple budmoth Variegated leafroller Walnut caterpillar	1.0 - 2.5
Nut Trees: Almonds Chestnuts Filberts Pecans Walnuts	Citrus cutworm Filbert leafroller Filbert webworm Navel orangeworm Oblique banded leafroller Peach twig borer Roughskinned cutworm	1.0 - 2.5
Citrus:	Amorbia Citrus cutworm Fruittree leafroller Orangedog	1.0 - 2.5

Small Fruit and Berries: Blackberries Blueberries Cranberries Currants Raspberries Strawberries	Achema sphinx moth Armyworms Blueberry leafroller Fruittree leafroller Grape berry moth Gypsy moth Loopers Oblique banded leafroller Tobacco budworm	1.0 - 2.5
Grapes:	Grape berry moth Cherry fruitworm Grape leafroller Grapeleaf skeletonizer Green fruitworm Omnivorous leafroller Orange tortrix Saltmarsh caterpillar	1.0 - 2.5
Tropical and Other Fruit: Avocados	Amorbia Loopers Orange tortrix Omnivorous leafroller Omnivorous looper Spanworm.	1.0 - 2.5
Bananas	Banana skipper	1.0 - 2.0
Kiwi	Omnivorous leafroller	1.5 - 2.5
Persimmons Pomegranate	Citrus cutworm Fall webworm Filbert webworm Omnivorous leafroller Redhumped caterpillar Tent caterpillar	1.0 - 2.5

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Pineapple	Gummosis- Batrachedra common Thecia-Thecia basilides	1.0 - 2.0
Tropical fruits	Hornworms Leafrollers Loopers Omnivorous leafroller	1.0 - 2.5

V. FIELD CROPS

Crop	Insect Pest	Rate/Acre (pounds)
Such as:		
Canola/ Rape Seed Evening Primrose	Armyworms Diamondback moth Imported cabbageworm Loopers	1.0 - 2.5
Corn (Field, Sweet, Popcorn)	Armyworms European corn borer Southwestern corn borer	1.0 - 2.5
Cotton*	Beet armyworm Bollworm Cabbage looper Cotton leaf perforator Saltmarsh caterpillar Tobacco budworm	1.0 - 2.5

* Use **CUTLASS** to control light to moderate populations of newly hatched worms in integrated pest management programs. Repeat treatments at 4 to 5 day intervals or as long as necessary until results are acceptable. For control of cotton bollworm and tobacco budworm ovicides such as Larvin® or synthetic pyrethroids can be combined with **CUTLASS** in accordance with the more restrictive of label limitation and precautions. No label dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing.

Hops	Armyworms Loopers Oblique banded leafroller Omnivorous leaf tier Spotted cutworm	1.0 - 2.5
Jojoba	Looper (<i>Anacamptodes</i> <i>spp.</i>)	1.0 - 2.0
Peanuts	Fall armyworm Green cloverworm Loopers Podworms Velvetbean caterpillar	1.0 - 2.5
Rice	Armyworms Green cloverworm Loopers Saltmarsh caterpillar Velvetbean caterpillar	1.0 - 2.5
Safflower	Armyworms Loopers Saltmarsh caterpillar	1.0 - 2.5
Small Grains (Barley, Oats, Rye, Wheat, etc.)	Armyworms Loopers	1.0 - 2.5
Sorghum	European corn borer Fall armyworm Saltmarsh caterpillar Velvetbean caterpillar	1.0 - 2.5
Soybeans	Green cloverworm Soybean looper Velvetbean caterpillar	1.0 - 2.5

Sunflowers	Banded sunflower moth Beet armyworm Headmoth Loopers Sunflower moth	1.0 - 2.5
Tobacco	Tobacco budworm Tobacco hornworm Loopers	1.0 - 2.5

	caterpillar Saddleback caterpillar Saddle prominent caterpillar Spring and fall cankerworm Spruce budworm Tent caterpillar Tortrix Western tussock moth	
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VI. COMMERCIAL FLOWERS AND ORNAMENTAL PLANTS

Crop	Insect Pest	Rate/Acre (pounds)
Such as: Bedding plants Flowers Greenhouse Ornamentals, Vegetables	Armyworms Azalea moth Diamondback moth Ello moth (hornworm) Io moth Loopers Oleander moth Omnivorous leafroller Omnivorous looper Tobacco budworm	1.0 - 2.5

Warranty and Conditions of Sale

Ecogen warrants that this product conforms to the description on this label and is reasonably fit for the purposes stated on this label when used in accordance with the directions on this label under normal conditions of use.

ECOGEN MAKES NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

If this product is defective, Buyer's exclusive remedy shall be the replacement of the product, or if replacement is impracticable, refund of the purchase price. In no case will Ecogen be liable for incidental, consequential or special damages resulting from the handling, storage or use of this product.

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VII. FOREST, SHADE TREE AND NURSERY STOCK

Crop	Insect Pest	Rate/Acre (pounds)
Such as: Forest, Shade trees Nursery trees	Bagworm Blackheaded budworm Browntail moth California oakworm Douglas fir tussock moth Elm spanworm Fall webworm Fruittree leafroller Greenstriped mapleworm Gypsy moth Jack pine budworm Mimosa webworm Pine butterfly	1.0 - 2.5

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