

PM 18 55638-15 1948



U.S. ENVIRONMENTAL PROTECTION AGENCY
Office of Pesticide Programs
Registration Division (H7505C)
401 "M" St., S.W.
Washington, D.C. 20460

EPA Reg. Number:
55638-15

Date of Issuance:
APR 21 1994

NOTICE OF PESTICIDE:
 x Registration
 Reregistration

(under FIFRA, as amended)

Term of Issuance:
Unconditional

Name of Pesticide Product:
Cutlass Aqueous
Flowable
Bioinsecticide

Name and Address of Registrant (include ZIP Code):

Ecogen, Inc.
2005 Cabot Blvd. West
Langhorne, PA 19047-1810

166 / 546,267
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Notes: Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered/reregistered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5). Once a pesticide is registered, however, it is not regarded as permanently acceptable. Registration does not eliminate the need for continual reassessment of pesticides. If EPA determines, at any time, that additional data are required to maintain in effect an existing registration, the Agency will require submission of such data under section 3(c)(2)(B) of FIFRA.

A stamped copy of the label is enclosed for your records.

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Signature of Approving Official:

William F. Nelson - PM-18
for *Phil Fulton*

Date:

4/21/94

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Cutlass Aqueous Flowable Bioinsecticide

Active Ingredient:
Bacillus thuringiensis subspecies kurstaki strain EG2371

Lepidopteran active toxin.....	3.0%
Inert Ingredients	<u>97.0%</u>
Total.....	100.0%

0.27 lbs. active ingredient per gallon

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

KEEP OUT OF REACH OF CHILDREN

CAUTION

Statement of Practical Treatment

If on Skin: Wash with plenty of soap and water. Get medical attention.

If In Eyes: Flush eyes with plenty of water. Get medical attention if irritation persists.

Precautionary Statements

Hazards to Humans and Domestic Animals

Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Causes moderate eye injury. Wash thoroughly with soap and water after handling.

Personal Protective Equipment (PPE):
Applicators and other handlers must wear:

- Long sleeved shirt and long pants
- Shoes plus socks
- Waterproof gloves

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EPA REG. No. 55638-15
EPA Est. No. 769-GA-1
Net Contents: 2.5 U.S. Gallons

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incinerate, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

ACCEPTED
with COMMENTS
in EPA Letter Dated

APR 21 1994

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

56638-15

Ecogen Inc.
2005 Cabot Blvd. West, Langhorne, PA 19047
215/757-1590 • 800/220-2135

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific statements on this label about personal protective equipment (PPE). The requirements in this section only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is: coveralls, waterproof gloves, shoes plus socks.

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.

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 dying. Immediately after ingestion of CUTLASS, larvae begin to move slowly, become discolored, shrivel and blacken prior to death.

CUTLASS bioinsecticide is a highly selective insecticide for use against the lepidopteran larvae listed in the attached APPLICATION RATE TABLE. Larvae must consume deposits of CUTLASS to be affected.

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. 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

For best results, shake container well, empty 1/2 of contents, reshake. CUTLASS should be mixed well and never added before introducing water into the tank. If a sticker is to be used, add after the addition of CUTLASS. Maintain suspension while loading and spraying. Do not mix more CUTLASS than can be used in a 24 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

(See separate application guidelines for cotton)

Pest Pressure (number of larvae/plant)
Pest category Low¹ Moderate² High³ Extreme⁴
 (<0.3) (0.3-1.0) (1.0-5.0) (>5.0)

Product to be Applied per Acre (quarts)

Category 1	2	2 1/2	3	4
Category 2	1	2	2 1/2	3
Category 3	1	1	1 1/2	2

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), and 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 and Vines, applications are often timed to stage of development, and recommendations from

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Local Extension personnel should always be followed.

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:

- Careful scouting and attention to infestations are essential to good control.
- 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.
- For ground applications, use at least 20 gallons of water per acre. For aerial applications, use at least 5 gallons of water per acre. (See cotton and soybeans for special instructions.)
- 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**)
- 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 2 teaspoons per gallon of water or 1 quart per 100 gallons of spray solution. Spray to wet, but not to runoff.

Tank Mix

CUTLASS may be tanked mixed with contact pesticides. Combinations with commonly used insecticides, fungicides, or other spray tank adjuvants are generally not deleterious to performance (see **PRECAUTIONS**). 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.

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Chemigation (corn only)

Apply this product only through center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set or hand move sprinkler systems. Do Not apply this product through any other type of irrigation system.

Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.

If you have questions about calibration, contact your State Extension Service specialist, equipment manufacturers or other experts.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label prescribed safety devices for public water systems are in place.

A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Chemigation System Connected to Public Water Systems

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

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Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops, or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump), effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

Sprinkler Chemigation

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

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The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment.

The active ingredient in CUTLASS® will settle in the tank and injection lines; adequate agitation must be provided before and during the injection period. Use only in systems that apply uniformly and have appropriate check valves. When application is complete, thoroughly flush the injection system and sprinkler lines.

Mixing Recommendations for Chemigation

Follow general Mixing Instructions and keep the ratio at 3 parts water to 1 part CUTLASS. Also, provide mild uniform agitation throughout the solution but do not agitate excessively.

For undiluted injection for chemigation: flush and clean nurse tank, lines, screen canister and pump with diesel fuel or a nonemulsifiable oil until they are water free before and after application. Use a 25-mesh screen. Continue agitation during injection. Cutlass should be applied continuously for the duration of the water application.

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Spray Volume

For chemigation use irrigation levels of 0.15 to 0.5 inches of water per acre. Up to 1 inch of irrigation water may be used, but efficacy may be reduced.

Application Rate Table

I. VEGETABLES AND COLE CROPS (Fresh)

Crops Such as:		Insect Pest
Chokes	Leeks	Armyworms
Chugala	Lentils	Artichoke plume moth
Asparagus	Lettuce: Head, Leaf and Romaine	Beet armyworm
Beans		Cabbage budworm
Beets	Malanga	Cabbage looper
Bok Choy	Melons: Cantaloupe, Crenshaw, Honeydew, Muskmelon, Watermelon, etc.	Cabbage webworm
Broccoli		Celery leaflier
Brussels sprouts		Corn earworm
Cabbage		Cross-striped cabbageworm
Cardoni		Diamondback moth
Carrots	Napa	European corn borer
Cauliflower	Okra	Fall armyworm
Celeriac	Onions	Green cloverworm
Celery	Parsley	Imported cabbageworm
Chick peas	Parsnip	Melonworm
Chicory	Pea	Omnivorous leafroller
Chinese cabbage	Pepper	Plodeworm
Collards	Potato	Flindworm complex
Cucumber	Pumpkins	Saltmarsh caterpillar
Courbit	Pasha	Soybean looper
Dry bulb onions	Rumbaga	Tobacco budworm
Eggplants	Salsify	Tomato fruitworm
Escarol	Shallots	Tomato hornworm
Enchive	Soybean foliage	Tomato pinworm
Garlic	Spinach	Velvetbean caterpillar
Green onions	Squash	Yellowstriped armyworm
Greens: Beet, Chins, Dandelion, Mustard, Turnip	Sugar Beets	
Horseradish	Sweet potatoes	
Kale	Swiss Chard	
Kohlrabi	Tomatoes	
	Turnips	
	Watercress	

Rate/Acre (quarts) 1 - 4

II. HERBS AND SPICES

Crops Such as:	Insect Pest
Basil	Armyworms
Chives	Diamondback moth
Cilantro	European corn borer
Dill	Green cloverworm
Oregano	Imported cabbageworm
Peppermint	Loopers
Thyme	Saltmarsh caterpillar

Rate/Acre (quarts) 1 - 3

III. PASTURE AND HAY CROPS

Crops Such as:	Insect Pest
Alfalfa (hay & seed)	Alfalfa caterpillar
Pasture (grasses & hay)	Armyworms*
	Loopers*
	European sprayer Webworm

Rate/Acre (quarts) 1 - 3

*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. 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 limitations and precautions.

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Crops Such as:	Insect Pest
Peas and Beans Fruit Trees: Apples Apricots Cherries Nectarines Peaches Pears Plums Prunes Quince	Cankerworm (Spring & Fall) Eastern tent caterpillar Fall webworm Fruitree leafroller Gypsy moth Naval orangeworm Omnivorous leafroller Oriental fruit moth Peach twig borer Redbanded leafroller Redhumped caterpillar Tortrix moth (Orange and Garden) Tufted apple budmoth Variegated leafroller
Nut Trees: Almonds Chestnuts Filberts Pecans Walnuts	Citrus Citivorm Fall webworm Filbert leafroller Filbert webworm Hickory shuckworm Naval orangeworm Oblique banded leafroller Peach twig borer Pecan nut casebearer Roughskinned cutworm Walnut caterpillar
Citrus	Arborea Citrus cutworm Fruitree leafroller Orangedog
Small Fruit and Berries: Blackberries Blueberries Cranberries Currants Raspberries Strawberries	Achana sphinx moth Armyworms Blueberry leafroller Fruitree leafroller Grape berry moth Gypsy moth Loopers Oblique banded leafroller
Grapes:	Tobacco budworm Grape berry moth Cherry fruitworm Grape leafroller Grapeleaf skeletonizer Green fruitworm Omnivorous leafroller Orange tortrix Saltmarsh caterpillar
Leaf and Other Fruit: Avocados	Arborea Loopers Orange tortrix Omnivorous leafroller Omnivorous looper
Bananas	Spanworm
Ruwi	Banana skipper
Perseimonia Pomegranate	Omnivorous leafroller Citrus cutworm Fall webworm Filbert webworm Omnivorous leafroller Redhumped caterpillar
Pineapple	Tent Caterpillar Gummosis-Batrachia comosae
Tropical fruits	Thecia-Thecia basoides Hornworms Leafrollers Loopers Omnivorous leafroller

Rate/Acre (quarts) 1 - 4

Crops Such as:	Insect Pest	Rate/Acre
Canola/Rape Seed Evening Primrose	Armyworms Diamondback moth Imported cabbageworm Loopers	1 - 3 qts.
Corn* (Field, Sweet, Popcorn)	Armyworms European corn borer Southwestern corn borer	1 - 3 qts.
Cotton*	Beet armyworm Cabbage looper Cotton bollworm Cotton leaf perforator Fall armyworm Saltmarsh caterpillar Soybean looper Tobacco budworm Yellowstriped armyworm	1 - 4 qts.
Hops	Armyworms Loopers Oblique banded leafroller Omnivorous leafier Spotted cutworm	1 - 3 qts.
Joyba	Looper (Anacamptodes spp.)	1 - 3 qts.
Peanuts	Fall Armyworm Green cloverworm Loopers Podworms Velvetbean caterpillar	1 - 3 qts.
Rice	Fall armyworm Green cloverworm Loopers Podworms Velvetbean caterpillar	1 - 3 qts.
Safflower	Armyworms Loopers Saltmarsh caterpillar	1 - 3 qts.
Small Grains (Barley, Oats, rye, wheat, etc.)	Armyworms Loopers	1-3 qts.
Sorghum	European corn borer Fall armyworm Saltmarsh caterpillar Velvetbean caterpillar	1 - 3 qts.
Soybeans	Green cloverworm Soybean looper Velvetbean caterpillar	1 - 3 qts.
Sunflowers	Banded sunflower moth Beet armyworm Headmoth Loopers Sunflower moth	1 - 3 qts.
Tobacco	Tobacco budworm Tobacco hornworm Loopers	1 - 3 qts.

- * See APPLICATION GUIDELINES and/or CHEMIGATION FOR CORN sections for special instructions.
- ** Use of CUTLASS® in integrated pest management programs:
- CUTLASS can be used alone to control light to moderate populations of newly hatched worms at the rates specified above, depending upon insect pressure. Repeat treatments at 4 to 5 day intervals or as long as necessary until results are acceptable.
- For early-season control of cotton bollworm and tobacco budworm, CUTLASS can be mixed with an ovicide, such as Larvina, for control of first generation worms. For mid- to late-season control, CONDOR can be mixed with a conventional chemical, such as a synthetic pyrethroid, in

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mixed with any product containing a label prohibition against such mixing.

- Treat only 1st and 2nd instar larvae as 3rd, 4th and 5th instar larvae tend to feed in squares and bolls and will not be exposed to CUTLASS®.
- 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.
- Short residual contact action materials may be tank mixed with CUTLASS® to control secondary pests such as boll weevil.
- Long residual stomach action materials may be tank mixed with CUTLASS® to aid in worm control.
- Under low level infestations (<5% insect or eggs per acre), CUTLASS can be used at 8 ounces per acre alone or in combination with foliar fertilizers or other approved applications.

***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.

Ecogen be liable for incidental, consequential or special damages resulting from the handling, storage or use of this product. *copy*

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VI. COMMERCIAL FLOWERS AND ORNAMENTAL PLANTS

Crops Such as:	Insect Pest	
Bedding plants	Armyworms	Loopers
Flowers	Azalea moth	Oleander moth
Greenhouse	Diamondback moth	Omnivorous leafroller
Ornamentals,	Elm moth (hornworm)	Omnivorous looper
Vegetables	to moth	Tobacco budworm

Rate/Acre (quarts) 1 - 4

VII. FOREST, SHADE TREE AND NURSERY STOCK

Crops Such as:	Insect Pest	
Forest	Bagworm	Pine butterfly
Shade trees	Blackheaded budworm	Redhumped caterpillar
Nursery trees	Browntail moth	Saddleback caterpillar
	California oakworm	Saddle prominent caterpillar
	Douglas fir tussock moth	Spring and Fall cankerworm
	Elm spanworm	Spruce budworm
	Fall webworm	Tent caterpillar
	Fruitree leafroller	Tortrix
	Greenstriped mapleworm	Western tussock moth
	Gypsy moth	
	Jack pine budworm	
	Mimosa webworm	

Rate/Acre (quarts) 1 - 4

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,

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