

CAUTION
KEEP OUT OF REACH OF CHILDREN
READ SAFETY DIRECTIONS BEFORE OPENING OR
USING

CoStar[®] OF

BIOLOGICAL INSECTICIDE

ACTIVE CONSTITUENT: *Bacillus thuringiensis* subspecies *kurstaki* strain SA-12
(Manufactured by Certis USA LLC) active solids and solubles

SOLVENT: 597 g/L LIQUID HYDROCARBON

GROUP 11C INSECTICIDE

An oil flowable suspension concentrate formulation for the control of Bollworm (*Helicoverpa armigera*) and Native Budworm (*Helicoverpa punctigera*) on Cotton.

Contents: 20 L [200L] [1000 L]

Batch:
Expiry Date:
DOM:

Certis Australia Pty Ltd
Level 11, Tower B
Zenith Centre
821 Pacific Highway
Chatswood, NSW 2067 Australia
Tel: (02) 8448 8155

N.R.A.
APPROVED LABEL (TEXT)
Label No: 4.8.556/0603
Date: 25/6/03
Signature: [Signature]

DIRECTIONS FOR USE

Restraint: Bt alone will not control larvae greater than 8 mm.

Crop	Pest	State	Rate	Critical Comments
Pre-Squaring Cotton	Bollworm (<i>Helicoverpa armigera</i>), Native Budworm (<i>Helicoverpa punctigera</i>)	Qld. NSW	450 mL to 900 mL/ha	Apply when egg pressure is less than 10 eggs/m. Use a higher rate for larger larvae up to 8 mm. Repeat applications as required to maintain control. Ensure thorough coverage of crop.
Cotton			450 mL to 900 mL/ha plus Larvin* LV or Larvin* 375 0.5 L/ha to 1.0 L/ha	Add Larvin when egg pressure is greater than 10 eggs/m; use lower rates of CoStar OF and Larvin where egg pressure is less than 30 eggs/m. Use a higher rate of CoStar OF if hatching larvae are present and a higher rate of Larvin for larger larvae up to 8 mm. Refer to Larvin labels for mixing and application details. Ensure thorough coverage of crop
			450 mL to 900 mL/ha plus endosulfan ULV 1.5 L/ha or endosulfan EC (350 g/L) 1.0 L/ha	Add endosulfan when egg pressure is greater than 10 eggs/m and small larvae are present at time of spraying. Use a higher rate of CoStar OF under higher egg/larval pressure and/or where larger larvae are present. Ensure thorough coverage of crop.

Crop	Pest	State	Rate	Critical Comments
			450 mL to 900 mL/ha plus Decis* ULV 2.5L/ha to 3.5L/ha or Dominex* 16 ULV 2.0L/ha to 2.5L/ha or Karate* Zeon 60mL/ha to 85mL/ha	Apply (within the synthetic pyrethroid use period) when <i>Helicoverpa armigera</i> is the predominant pest Use a higher rate of CoStar OF when larger larvae or pyrethroid resistant larvae are present. Use a higher rate of synthetic pyrethroid under higher egg/larval pressure and/or when larger larvae are present. Consult the respective pyrethroid labels for use directions. Repeat applications as required to maintain control but in accordance with the summer crops insecticide resistance management strategy. Ensure thorough coverage of crop.

NOT TO BE USED FOR ANY PURPOSE, OR IN ANY MANNER, CONTRARY TO THIS LABEL UNLESS AUTHORISED UNDER APPROPRIATE LEGISLATION.

WITHHOLDING PERIOD: NOT REQUIRED WHEN USED AS DIRECTED

CoStar OF is a biological insecticide based on a strain of *Bacillus thuringiensis* (Bt) subsp. *kurstaki*. Bt is a spore-forming bacterium which produces, in addition to spores, crystals of a protein endotoxin. This endotoxin is specifically toxic to lepidopteran larvae.

CoStar OF acts within the gut of the target larvae. CoStar OF causes feeding inhibition within a few minutes of ingestion. Eventually disintegration of the gut wall and larval death occur. Dying larvae can be expected to be found for several days after application.

CoStar OF is a selective agent that provides fast and effective control of lepidopteran larvae, without harmful effects on humans, domestic animals, honeybees, wildlife, fish and beneficials.

GENERAL INSTRUCTIONS

Before application, thorough scouting of crop should be carried out to determine size of larvae. Thorough spray coverage is essential as CoStar OF is active only if ingested by the caterpillar. Repeat treatments as indicated by regular crop checking.

Insecticide Resistance Warning

GROUP 11C INSECTICIDE

For insecticide resistance management CoStar OF is a Group 11C insecticide.

Some naturally occurring insect biotypes resistant to CoStar OF and other Group 11C insecticides may exist through normal genetic variability in any insect population. The resistant individuals can eventually dominate the insect population if CoStar OF or other Group 11C insecticides are used repeatedly. The effectiveness of CoStar OF on resistant individuals could be significantly reduced. Since occurrence of resistant individuals is difficult to detect prior to use, Certis Australia Pty Ltd accepts no liability for any losses that may result from the failure of CoStar OF to control resistant insects.

CoStar OF may be subject to specific resistance management strategies. For further information, contact your local supplier, Certis Australia Pty Ltd or local agricultural department agronomist.

Mixing

To ensure a homogenous suspension of the product, agitate containers prior to use, by shaking or rolling if possible.

For Ground Application and Low Volume Aerial Application

Fill spray or mixing tank 1/2 to 3/4 full with water and start agitation. Pour the required amount of CoStar OF onto the surface of the water whilst maintaining continuous agitation. Add other insecticides and balance of water until the tank is full.

For Ultra Low Volume

Add CoStar OF to spray or mixing tank and start agitation. Add Ampol DC-Tron spray oil (or equivalent) if required whilst maintaining continuous agitation.

Maintain the agitation throughout the mixing, standing and spraying operations.

DO NOT allow diluted sprays to remain in the tank for more than 24 hours.

CoStar OF is formulated to provide desirable coverage and adhesion on leaf surfaces. Additional adjuvants, spreaders or stickers may be added to improve product performance, especially under heavy dew or rainy conditions.

Application

Ground Application

Use recommended amount of CoStar OF in a minimum of 50 L water/ha.

Low-Volume Aerial Application

Use recommended amount of CoStar OF in a minimum of 20 L water/ha.

Ultra Low-Volume Aerial Application

Use Ampol DC-Iron spray oil (or equivalent) to make up to minimum ULV volume (4.0 L/ha). Thorough coverage is more readily achieved at higher volumes of application.

As this product must be ingested, thorough spray coverage is essential. If rain falls shortly after treatment, retreatment may be necessary. To obtain maximum assistance from beneficial insects, avoid use of broad-spectrum insecticides during a program of the above sprays.

For most consistent control, apply at first sign of newly hatched larvae.

Re-apply as necessary under a pest management program that includes frequent scouting.

For heavy larval infestations, use a higher CoStar OF rate. During situations of dense foliage and rapid growth, increasing carrier volumes will provide more complete crop coverage and may improve CoStar OF performance. If rapid knockdown of heavy larval populations is necessary, include an effective contact insecticide in combination with CoStar OF.

During periods of high temperatures, larvae will progress through early instars very rapidly and early application timing is necessary for control.

To be effective, CoStar OF spray must be deposited at the larval feeding site. When plant cover is dense and larvae are feeding in the lower 2/3 portion of the plant, aerial application of CoStar OF may not provide adequate control.

Compatibility

With the exception of alkaline materials (spray pH >10.5), commonly used acaricides, insecticides, fungicides, spreaders, adhesives and wetting agents are compatible with CoStar OF if mixed in the spray tank and used promptly. As it is impossible to know all the commercial products on sale, we cannot assume any responsibility for tank-mix compatibility. We can only recommend to the user that a preliminary compatibility test be carried out with the planned mixture to observe the physical aspect of the spray and the reaction it may produce on the plants. Larval behaviour may also be modified by some products.

PROTECTION OF LIVESTOCK, WILDLIFE, CRUSTACEANS AND ENVIRONMENT

Do NOT contaminate ponds, waterways and drains with CoStar OF or used containers.

STORAGE AND DISPOSAL

KEEP OUT OF REACH OF CHILDREN. Store in the closed, original container in a dry, cool, well-ventilated area out of direct sunlight. As CoStar OF is a biological insecticide, it can be damaged by heat and so should be protected at all times from high temperatures. Triple or preferably pressure rinse containers before disposal. Add rinsings to the spray tank. DO NOT dispose of undiluted chemicals on site. If recycling, replace cap and return clean containers to recycler or designated collection point. If not recycling, break, crush or puncture and bury empty containers in a local authority landfill. If no landfill is available, bury the containers below 500 mm in a disposal pit specifically marked and set up for this purpose clear of waterways, desirable vegetation and tree roots. Empty containers and product should not be burnt.

SAFETY DIRECTIONS

Will irritate the eyes and skin. Avoid contact with eyes, skin and open wounds. Do NOT inhale spray mist. When preparing spray and using the prepared spray, wear:

- cotton overalls buttoned to the neck and wrist,
- a washable hat,
- elbow-length PVC gloves and
- face shield or goggles.

If product gets on skin, immediately wash area with soap and water. After use and before eating, drinking or smoking, wash hands, arms and face thoroughly with soap and water. After use and before eating drinking or smoking, wash hands, arms and face thoroughly with soap and water. After each day's use, wash gloves, face shield or goggles and contaminated clothing.

FIRST AID

If poisoning occurs, contact a doctor or Poisons Information Centre. Phone 131 126. If swallowed, Do NOT induce vomiting. Give a glass of water.

MATERIAL SAFETY DATA SHEET

If additional hazard information is required, refer to the Material Safety Data Sheet.

MANUFACTURER'S WARRANTY AND EXCLUSION OF LIABILITY

This product as supplied is of a high grade and suitable for the purpose for which it is expressly intended and must be used in accordance with the directions. The user must monitor the performance of any product as climatic, geographical or biological variables and/or developed resistance may affect the results obtained. No responsibility is accepted in respect of this product, save for those non-excludable conditions implied by the Trade Practices Act or any State or Federal legislation.

IN A TRANSPORT EMERGENCY
DIAL 000
POLICE OR FIRE BRIGADE

FOR 24 HOUR SPECIALIST ADVICE IN
EMERGENCY ONLY PHONE -(02)
8448 8155

[Bar Code (if required)]

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Drummuster Logo

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