

**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 Thermo Trilog Corporation Columbia, MD, USA) active solids and solubles

**Solvent:** 597 g/L LIQUID HYDROCARBON

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

**GROUP 11C INSECTICIDE**

NRA Approval No: 48556/1099

**Pack size: 20 L, 200 L, 1000 L**

## **GENERAL INSTRUCTIONS**

COSTAR OF is a biological insecticide based on a strain of *Bacillus thuringiensis* (Bt) var. *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, honey-bees, wildlife, fish and beneficials.

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**

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, Syngenta Crop Protection Pty Limited 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, Syngenta representative 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-Tron 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.

# **COSTAR**® OF

## **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 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. For a copy phone 1800 067 108 or visit our website at [www.syngenta.com.au](http://www.syngenta.com.au)

## **MANUFACTURER'S WARRANTY AND EXCLUSION OF LIABILITY**

Syngenta has no control over storage, handling and manner of use of this product. Where this material is not stored, handled or used correctly and in accordance with directions, no express or implied representation or warranties concerning this product (other than non-excludable statutory warranties) will apply. Syngenta accepts no responsibility for any loss or damage arising from incorrect storage, handling or use.

® Registered trademark of Thermo Trilog Corporation, Columbia, MD, USA.

\* Registered trademark.

## DIRECTIONS FOR USE

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

Crop	Pests	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.
			450 mL to 900 mL/ha plus Decis* ULV 2.5 L/ha to 3.5 L/ha or Dominex* 16 ULV 2.0 L/ha to 2.5 L/ha or Mavrik® ULV 3.3 L/ha to 5.0 L/ha or Karate* ULV 2.5 L/ha to 3.5 L/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 PERIODS: NOT REQUIRED WHEN USED AS DIRECTED.**

