

### COSTAR® BIOLOGICAL INSECTICIDE

For Control Of Insect Pests Of Cotton, Soybeans, and Tree/Nut/Wine Crops

**ACTIVE INGREDIENT:**

*Bacillus thuringiensis*, subspecies *kurstaki*\* ..... 18.0%

**INERT INGREDIENTS:** ..... 82.0%

TOTAL ..... 100.0%

Potency units should not be used to adjust use rates beyond those specified in the Directions for Use section.

\* Equivalent to 41 billion International Units per pound

**KEEP OUT OF REACH OF CHILDREN**

**CAUTION**

SEE SIDE PANEL FOR ADDITIONAL PRECAUTIONARY STATEMENTS

Made in the USA

EPA REG. NO.: 55947-152  
EPA EST. NO.: 55947-CA-2

Lot No.:  
Net Contents:

Manufactured by:  
SANDOZ AGRO, INC.  
1300 EAST DEVON AVENUE  
DES PLAINES, IL 60018

**ACCEPTED**  
APR 2 1997  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 55947-152

**ACCEPTED**  
APR 2 1997  
Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under  
EPA Reg. No. 100-871

**COSTAR BIOLOGICAL INSECTICIDE**

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS (AND DOMESTIC ANIMALS)  
CAUTION**

Harmful if inhaled or absorbed through the skin. Avoid breathing vapors or spray mist. Prolonged or frequently repeated skin contact may cause an allergic reaction in some individuals. Avoid contact with skin, eyes or clothing. Discontinue use if reaction occurs. In case of contact immediately flush eyes or skin with plenty of water. Get medical attention if irritation persists.

**STATEMENT OF PRACTICAL TREATMENT**

If on skin: Wash with plenty of soap and water. Get medical attention, if irritation persists.

If in eyes: Immediately flush eyes with plenty of water. Get medical attention if irritation persists.

**Personal Protective Equipment (PPE):**

Applicators and other handlers must wear:

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

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

**Engineering Controls Statements:**

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240 (d) (4-6)], the handler PPE requirements may be reduced or modified as specified in the WPS.

**User Safety Recommendations:**

Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

Do not contaminate water when disposing of equipment washwaters.

### DIRECTIONS FOR USE

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

For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

#### 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 instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE), and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

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.

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 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

Refer to the Directions for Use booklet attached to this container for specific use directions.

Prosper with pesticides by using them properly! Read and follow label directions.

This labeling must be in the possession of the user at the time of application.

**NOTICE:** Read "Limitation of Warranty and Limitation of Liability" on the container or in this Directions for Use section before buying or using. If terms are not acceptable, return at once unopened.

Do not apply this product through any type of irrigation system.

**COSTAR® Biological Insecticide (COSTAR)** is specific for the control of listed lepidopterous insect larvae in cotton, soybeans, and tree, nut, and vine crops.

**COSTAR** attacks the larval gut and must be ingested by the insect to be effective. **COSTAR** may be applied up to and on the day of harvest.

### GENERAL USE INSTRUCTIONS

Close scouting of crop is necessary to detect egg laying. Spray initiation and reapplication should be based on economic thresholds. Threshold recommendations can be determined by consulting local university extension agents or crop consultants.

For most consistent control, apply at first sign of newly hatched worms (1st instar larvae). Use the higher **COSTAR** rate when larger larvae or heavy worm infestations are present. Shorter application intervals and increased water carrier volumes will provide better crop coverage and improved **COSTAR** performance when foliage is dense and/or growing rapidly.

If rapid knockdown of heavy worm or non-lepidopterous populations is necessary, include an effective contact insecticide in combination with **COSTAR**. Tank mix recommendations are for use only in states where the tank mix product and application site are registered. Read and follow all label directions, specific rates, application timing, and precautions for use of other insecticides tank mixed with **COSTAR**.

**COSTAR** in combination with pyrethroid, carbamate, or organic phosphate insecticides is an effective resistance management tool and may allow the use of lower labeled chemical insecticide rates to preserve beneficial insects that aid in control of secondary insects (mites aphids, etc.)

#### Mixing and Application Volumes

Fill spray or mixing tank  $\frac{3}{4}$  full. Begin agitation and pour **COSTAR** into water while maintaining continuous agitation. Add other spray components and balance of water. Agitate as necessary to maintain suspension. Apply prepared spray mixtures within 48 hours.

**COSTAR** is formulated to provide desirable coverage and adherence to leaf surfaces under most circumstances. When heavy dew or rainy conditions are present, additional adjuvants, spreaders, or stickers may be added to improve spray deposition. Combinations with commonly used insecticides, fungicides, or other spray tank adjuvants are generally not deleterious to **COSTAR** if the mix is used promptly. Before mixing in the spray tank, it is advisable to test physical compatibility by mixing all components in a small container in proportional quantities.

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COSTAR can be applied by ground equipment or aircraft. Use sufficient spray volumes for uniform crop coverage and satisfactory insect control. A minimum of 10 and 3 gallons water per acre are recommended for ground and aerial application, respectively. Higher water volumes have demonstrated improved control of targeted pests. Low volume applications may be used, but proper application equipment must be used to insure adequate coverage. Early morning or evening applications, when air is calm, are generally best for aerial applications.

### INSECTS CONTROLLED

When used as directed, COSTAR will control the following insects:

COMMON NAME	SCIENTIFIC NAME
Amyworm	<i>Pseudaletia unipuncta</i> (Haworth)
Beet armyworm	<i>Spodoptera exigua</i>
Blueberry leafrollers	various
Blueberry spanworm	<i>Itame argillacearia</i> (Pack.)
Bollworm	<i>Helicoverpa zea</i> (Boddie)
Cherry fruitworm	<i>Grapholita packardi</i> (Zeller)
Citrus cutworm	<i>Xylomyges curialis</i>
Cotton leafworm	<i>Alabama argillacea</i> (Hubner)
Cotton leafperforator	<i>Bucculatrix thurberiella</i> (Busck)
Cutworm	various, family Noctuidae
Diamondback moth	<i>Plutella xylosteella</i> (Linnaeus)
Filbert webworm leafroller	<i>Melissopus latiferreanus</i> (Walsingham)
Fruittree leafroller	<i>Archips argyrospila</i> (Walker)
Grape leaffolder	<i>Desmia funeralis</i> (Hubner)
Grapeleaf skeletonizer	<i>Harrisina americana</i> (Guerin)
Green cloverworm	<i>Plathypena scabra</i> (Fabricius)
Green fruitworm	<i>Lithophane antennata</i> (Walker)
Helicoverpa spp.	<i>Helicoverpa</i> spp.
Heliothis spp.	<i>Heliothis</i> spp.

Imported cabbageworm	<i>Pieris rapae</i> (Linnaeus)
Loopers	various
Navel orangeworm	<i>Amyelois transitella</i> (Walker)
Obliquebanded leafroller	<i>Choristoneura rosaceana</i> (Harris)
Omniverous leafroller	<i>Platynota stultana</i>
Orangedog	<i>Papilio cressphontes</i> (Cramer)
Orange tortrix	<i>Argyrotaenia citrana</i> (Fernald)
Oriental fruit moth	<i>Grapholita molesta</i> (Busck)
Peach twig borer	<i>Anarsia lineatella</i> (Zeller)
Pecan nut casebearer	<i>Acrobasis nuxvorella</i> (Neunzig)
Pandemis leafroller	<i>Cutko regaliensis</i>
Redhumped caterpillar	<i>Schizura concinna</i> (J.E. Smith)
Saltmarsh caterpillar	<i>Estigmene acrea</i> (Drury)
Tent caterpillar	various, family Lasiocamidae
Tobacco budworm	<i>Heliothis virescens</i> (Fabricius)
Tobacco hornworm	<i>Manduca sexta</i> (Linnaeus)
Tufted apple bud moth	<i>Platynota idaeusalis</i> (Walker)
Variegated leafroller	<i>Platynota flavedana</i> (Clemens)
Velvetbean caterpillar	<i>Anticarsia gemmatilis</i> (Hubner)
Western tussock moth	<i>Orgyia vetusta</i> (Boisduval)

### Rate Selection Considerations

Rate recommendations shown below by crop are typically given as a range:

**Lower rate ranges** are recommended under conditions of light worm infestations or when uniformly small worms are present.

**Medium rate ranges** may be desired when multiple worm life stages are present, continuous egg hatches are occurring, or young or light armyworm infestations exist.

**Upper rate ranges** may be desired for heavy worm infestations, larger worms, or for moderate to heavy infestations of armyworm, bollworm, or other difficult to control worm species.

RECOMMENDED APPLICATION RATES

Cotton and Soybean	LB/ACRE
<p><b>General</b></p> <p>For light to moderate infestations, apply <b>COSTAR</b> alone or with a recommended ovicide at first sign of egg laying or newly hatched larvae (1st instar).</p> <p>When egg laying frequency indicates future moderate to heavy larvae populations, time applications to coincide with first appearance of 2nd instar larvae. During high temperature periods, worm will progress to 3rd instar very rapidly and early application timing is necessary for control.</p> <p>Reapply as necessary throughout season to maintain control.</p> <p><b>COSTAR</b> spray must be deposited at the larval feeding site. For best results, tank mix <b>COSTAR</b> with a labeled larvicide when larger larvae are present or the plant canopy is dense. When plant cover is dense and larvae are feeding in the lower <sup>2</sup>/<sub>3</sub> portion of the plant, aerial application may not provide sufficient penetration for adequate control.</p>	<p>0.12 - 0.75</p>
<p><b>Additional Instructions for:</b></p> <p><b>Tobacco budworm and bollworm</b></p> <p>For added control, tank mixing <b>COSTAR</b> with a labeled ovicide is recommended. For added control of pyrethroid resistant tobacco budworm, include <b>COSTAR</b> as a tank mix partner with pyrethroid applications.</p> <p>- Early Season</p> <p>Begin applications when tobacco budworm and/or bollworm are present at threshold levels. Continue applications as needed based on field scouting, up to pyrethroid spray window.</p> <p>- Mid to Late Season</p> <p><b>COSTAR</b> can be used to manage insect resistance and improve control of listed pests by including with chemical (pyrethroid, organophosphate, or carbamate) insecticides. Repeat as necessary throughout season to maintain control. Time applications for peak egg hatch or 1st instar larvae. If egg laying is heavy and constant over a three to five day period, time application when eggs laid on the first day have developed into 2nd instar larvae.</p> <p><b>Beet armyworm</b></p> <p>Apply when beet armyworm larval population densities are damaging. Time application when the majority of the larvae population is in the egg hatch to 1st instar stage. If populations are dense, use a higher rate.</p>	<p>0.12 - 0.75</p> <p>0.20 - 0.75</p> <p>0.50 - 1.50</p>

FRUIT, NUT, and VINE CROPS	
<b>Apples and Pears</b> Apply when newly hatched larvae appear or before leaves are rolled. Continue applying as a part of the normal cover spray program until pest is adequately controlled.	0.25-2.00
<b>Avocados</b> Begin treatment as soon as possible after hatching and before larvae are protected by leaf folds. Reapply as necessary to maintain control. *	0.25-1.50
<b>Citrus</b> Use 50 to 600 gallons of water per acre when using ground equipment and 10 gallons of water minimum per acre by air. *	0.12-1.50
<b>Blueberries, Caneberries, Currants, Kiwis</b> Apply by ground equipment only. Begin treatment as soon as possible after hatching. For leafrollers, apply before larvae are protected by leaf folds.	0.12-1.50
<b>Grapes</b> Apply in up to 200 gal/A spray by ground equipment. Start treating as soon as possible after hatching and before larvae are protected by leaf folds.	0.25-1.50



**Almonds, Apricots, Cherries, Filberts, Nectarines, Peaches, Pecans,  
Persimmons, Plums, Pomegranates, Prunes, Walnuts**

0.12-2.00

For leafrollers, start treating as soon as possible after hatching before larvae are protected by leaf folds. Apply when caterpillars are actively feeding (2nd to 4th instar).

Additional Instructions for:

**Pecan Nut Casebearer** - Application timing is very important for good suppression. Consult your local university or extension agent for information concerning specific modeling that predicts egg lay, typical application dates, and scouting techniques for your area. **COSTAR** must be present at egg hatch for best control. Make application when the majority of eggs are in the pink stage. For best control, make two applications 7 days apart. If only one application is made, use a minimum of 0.5 lb/A.

**Navel Orangeworm** - Best control will be achieved when using **COSTAR** in conjunction with an effective orchard sanitary program that removes mummy nuts and overwintering larvae sites. Apply **COSTAR** when new larvae hatch in April-May or subsequent generation time periods elapse.

Use scouting or other generation timing tools such as egg traps. **COSTAR** will aid in control of navel orangeworm larvae emerging at hullsplit. Certain varieties are more susceptible than others and careful monitoring is necessary.

**Peach Twigborer** - Follow phenology model with pheromone traps and day-degree timing. To control overwintering larvae, use bracket sprays at popcorn and petal fall. For later generations, apply two sprays at 7 to 10 day intervals.

**Oriental Fruit Moth** - Overwintering populations are asynchronous and difficult to control with biological or chemical insecticides due to the protracted emergence period. April-May and subsequent generation larval emergence is more synchronized and treatment may be more easily determined by day-degree models.

Apply **COSTAR** alone to control newly emerged larvae as determined by scouting and application timing based upon day-degree accumulation in conjunction with the appropriate phenology model. Apply **COSTAR** in combination with other insecticides registered for Oriental Fruit Moth when larger larvae are present or population pressure is more intense

\* *Amorbia* [Mexican leafroller] is suppressed only

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### STORAGE AND DISPOSAL

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

**Storage:** Store in original container in a cool, dry place inaccessible to children and pets and away from heat and direct sunlight. Protect from freezing. Storage at temperatures above 90° F may impair effectiveness.

**Pesticide Disposal:** Pesticide, spray mixture, or rinse water that cannot be used according to label instructions must be disposed of according to federal, state, or local procedures.

**Container Disposal:** Completely empty container into application equipment. Triple rinse or equivalent. Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

### LIMITATION OF WARRANTY AND LIMITATION OF LIABILITY

**Notice:** Read this Limitation of Warranty and Limitation of Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Sandoz or seller. All such risks shall be assumed by buyer or user.

Sandoz warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, under normal use conditions, subject to the risks described above. **Sandoz makes no other express or implied warranty of fitness or of merchantability or any other express or implied warranty.**

In no event shall Sandoz or seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **The exclusive remedy of the user or buyer, and the exclusive liability of Sandoz or seller for any and all claims, losses, injuries or damages (including claims based on breach of warranty, contract, negligence, tort, strict liability or otherwise) resulting from the use or handling of this product, shall be the return of the purchase price of the product or, at the election of Sandoz or seller, the replacement of the product.**

Sandoz and seller offer this product, and buyer and user accept it, subject to the foregoing limitations of warranty and limitation of liability, which may not be modified by any oral or written agreement.

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