

MASTER LABEL

XENTARI®  
BIOLOGICAL INSECTICIDE  
DRY FLOWABLE



For Organic Production

Active Ingredient:

<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain ABTS-1857 fermentation solids, spores, and insecticidal toxins.....	54%
Other Ingredients.....	46%
Total:.....	100%

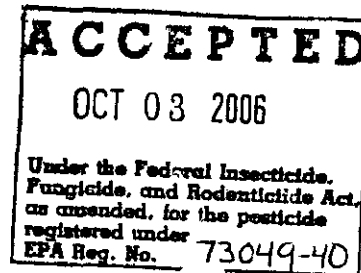
Potency: 35,000 Diamondback Moth Units per mg of product or 15.9 billion Diamondback Moth Units per pound of product.

The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

KEEP OUT OF REACH OF CHILDREN  
CAUTION

Valent BioSciences Corporation  
870 Technology Way, Suite 100  
Libertyville, IL 60048

EPA Registration No. 73049-40  
EPA Est. No. 33762-IA-1



<b>FIRST AID</b>	
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open, and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>HOT LINE NUMBER</b>	
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-892-0099 for emergency medical treatment and/or transport emergency information. For all other information call 1-800-6-Valent..</p>	

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

Harmful if inhaled, or absorbed through the skin. Causes moderate eye irritation. Avoid breathing dust or spray mist. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

**PERSONAL PROTECTIVE EQUIPMENT**

Applicators and other handlers must wear:

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

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.

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

Mixers/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95 or P-95. Repeated exposure to high concentrations of high microbial of microbial proteins can cause allergic sensitization.

#### **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**

This product is toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

This product is toxic to the green lacewing and the predatory mite *Metaseiulus occidentalis*.

This product must not be applied aurally within ¼ mile of any habitats of endangered species or threatened lepidoptera. No manual application can be made within 300 feet of any threatened or endangered lepidoptera.

#### **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 intervals. 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 and shoes plus socks.

**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

**STORAGE AND DISPOSAL**

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

**Storage:** Reclose containers of unused XenTari. Store in a dry place inaccessible to children and out of sunlight.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal:**

**Plastic Bottle:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and

dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Plastic Bags:** 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.

## DIRECTIONS FOR USE

See Chemigation Section for Chemigation use directions.

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

**Days to Harvest:** There are no restrictions on applying XenTari up to the time of harvest. Individual state regulations may vary and should be consulted for allowable pre-harvest application intervals.

**Sites:** XenTari may be used for any labeled pest in both field and greenhouse use.

XenTari is an insecticide for use against listed caterpillars (larvae) of lepidopterous insects. Close scouting and early attention to infestations is highly recommended. Larvae must eat deposits of XenTari to be affected. Always follow these directions:

- Treat when larvae are young (early instars) before the crop is damaged.
- Larvae must be actively feeding on treated, exposed plant surfaces.

Thorough spray coverage is needed to provide a uniform deposit of XenTari at the site of larval feeding. Use overhead and drop nozzles to obtain good spray coverage on both sides of foliage. Use sufficient spray volume to insure uniform deposition on all plant surfaces.

- Under heavy pest population pressure, use the higher label rates, shorten the spray interval, and/or raise spray volume to improve spray coverage.
- Repeat applications at an interval sufficient to maintain control, usually 3 to 14 days depending on plant growth rate, moth activity, rainfall after treating, and other factors. If attempting to control a pest with a single spray, make the treatment when egg hatch is essentially complete, but before crop damage occurs.
- A spreader-sticker which has been approved for use on growing and harvested crops should be added for hard-to-wet crops such as cabbage, or to improve weather-fastness of the spray deposits.
- XenTari may be tank mixed with other labeled insecticides to enhance control. Use of the resulting tank mix must be in accordance with the more restrictive label limitations and precautions. No dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. Before tank mixing XenTari with other labeled products, including spreader stickers, check for tank mix compatibility.

After ingesting a lethal dose of XenTari, larvae stop feeding within the hour, and will die within several hours to 3 days. Mortality varies with larval size (instar), lepidopteran species, and dose consumed. Following ingestion, larvae become sluggish, discolor, then shrivel, blacken and die. Smaller larvae die more quickly.

XenTari may be applied in conventional ground or aerial equipment with quantities of water sufficient to provide uniform coverage of infested plant parts. The volume of water needed per acre will depend on crop development, relative humidity, spray equipment, and local experience. Usually, selection of moderate to high spray volume will provide the best results in most equipment. For optimal results, use at least 2 gallons of water per acre by air; except in arid areas, where 5 to 10 gallons are required. Add water to the mix tank and provide moderate agitation. With agitating, add the required amount of XenTari. Continue agitation, and add other spray materials, if any. Add remaining water, if any, and agitate until fully mixed. Maintain the suspension with moderate agitation while loading and spraying. Do not mix more XenTari than can be used in a 3 day period.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all of these factors when making decisions.

For Smaller Spray Volumes:

<u>If Rate is</u>	<u>Use This Amount</u>	
	<u>Per Gallon (wt)</u>	
1/4 lb./acre or 100 gals.	1/2 tsp.	(0.04 oz)
1/2 lb./acre or 100 gals.	1 tsp.	(0.08 oz)
1 lb./acre or 100 gals.	2 tsps.	(0.16 oz)
2 lb./acre or 100 gals.	4 tsps.	(0.32 oz)

## CHEMIGATION USE DIRECTIONS

Refer to these label sections under **General Instructions** for application rate information when chemigation is used.

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system.

### Spray Preparation

First prepare a suspension of XenTari in a mix tank. Fill tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of XenTari, and then the remaining volume of water. Then set the sprinkler to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of XenTari into the irrigation water line so as to deliver the desired rate per acre. The suspension of XenTari should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

**NOTE:** When treatment with XenTari has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the material off the crop.

## General Precautions for Applications Through Sprinkler Irrigation Systems

Maintain continuous agitation in the mix tank during the mixing and application to insure a uniform suspension.

Greater accuracy in calibration and distribution will be achieved by injecting a larger volume for a more dilute solution per unit time.

Crop injury, lack of effectiveness, or illegal residues in the crop can result from nonuniform distribution of treated water. 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. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water.

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.

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 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.

Do not apply when wind speed favors drift, when system connections or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.



## GENERAL INSTRUCTIONS/APPLICATION RATE

Crop Group (Miscellaneous)	Pests	Pound/Acre
<b>Alfalfa (Hay and Seed), Hay and Other Forage Crops</b>	Loopers Alfalfa Caterpillar* European Skipper* (Essex Skipper) Armyworms <sup>1</sup>	1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 2
<b>Berries and Small Fruit</b> such as Grapes, Strawberries, and Blackberries, Cranberries, Raspberries and Blueberries	Grapeleaf Skeletonizer Grape Leafroller* Achemia Sphinx Moth* (Hornworm) Saltmarsh Caterpillar* Omnivorous Leafroller* Loopers Orange Tortrix* Oblique Banded Leafroller* Armyworms <sup>1</sup> Tobacco Budworm Grape Berry Moth Melonworms* Cutworm* Spanworm	1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 2 1/4 - 2 1/4 - 2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2
<b>Bulb</b> such as Garlic and Onions (green and bulb)	Loopers Omnivorous Leafroller* Hornworms Imported Cabbageworm Diamondback Moth <sup>4</sup> Green Cloverworm* Webworm Saltmarsh Caterpillar* Armyworms <sup>1</sup> Cutworms* Cross-striped Cabbageworm <i>Heliothis</i>	1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 2 1/2 - 1 1/2 1/4 - 1 1/2 1/4 - 2

## APPLICATION RATE (Continued)

Crop Group (Miscellaneous)	Pest	Pounds/Acre
Curcubit Vegetables such as Melons, Cucumbers and Squash	Loopers	1/4 - 1
	Melonworms*	1/4 - 1
	Rindworm complex*	1/4 - 1
	Armyworms <sup>1</sup>	1/4 - 2
	Cutworms	1/4 - 2
Flowers, Bedding Plants and Ornamentals (Ground application only)	Loopers	1/4 - 1 1/2
	Tobacco Budworm	1/4 - 1 1/2
	Omnivorous Looper*	1/4 - 1 1/2
	Omnivorous Leafroller*	1/4 - 1 1/2
	Diamondback Moth <sup>4</sup>	1/4 - 1 1/2
	Armyworms <sup>1</sup>	1/4 - 2
	Ello Moth* (Hornworm)	1/4 - 1 1/2
	Io Moth*	1/4 - 1 1/2
	Oleander Moth*	1/4 - 1 1/2
Azalea Caterpillar*	1/4 - 1 1/2	
Fruiting Vegetables such as Tomatoes, Peppers and Eggplant	Loopers	1/4 - 1 1/2
	Hornworm	1/4 - 1 1/2
	Tomato Fruitworm	1/4 - 1 1/2
	Variegated Cutworm*	1/4 - 1 1/2
	Saltmarsh Caterpillar*	1/4 - 1 1/2
	Armyworms <sup>1</sup>	1/4 - 2
Greenhouse/Shadehouse and Outdoor Nursery Crops such as Leafy Herbs, Brassica and Fruiting groups	Loopers	1/4 - 1 1/2
	<i>Heliothis</i>	1/4 - 2
	Armyworms <sup>1</sup>	1/4 - 2
Herbs, Spices and Mints such as Basil, Chives, Dill, Leeks and Peppermint	Looper	1/4 - 1 1/2
	Saltmarsh Caterpillar*	1/4 - 1 1/2
	Armyworms <sup>1</sup>	1/4 - 2

APPLICATION RATE (Continued)

Crop Group (Miscellaneous)	Pests	Pounds/Acre
<b>Leafy and Cole Crops</b> such as Lettuce (head and leaf), Kale, Celery, Spinach, Broccoli, Cabbage, Mustard Greens, Brussel Sprouts, Cauliflower, Collards, Chinese Cabbage, Endive Kohlrabi and Parsley	Loopers Omnivorous Leafroller* Hornworms* Imported Cabbageworm Diamondback Moth <sup>4</sup> Green Cloverworm* Webworm Saltmarsh Caterpillar* Armyworms <sup>1</sup> Cutworms* Cross-striped Cabbageworm <i>Heliothis</i>	1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 2
<b>Legume Vegetables (succulent or dried)</b> and foliage of legume vegetables such as Beans, Peas, Lentils and Soybeans	Loopers Soybean Looper Green Cloverworm* Velvetbean Caterpillar* Armyworms <sup>1</sup> Podworms <sup>1*</sup>	1/4 - 1 1/2 1/4 - 2 1/4 - 1 1/2 1/4 - 2 1/4 - 2 1/4 - 2
<b>Root and Tuber</b> such as Artichokes, Carrots, Potatoes, Beets and Sugar beets  Leaves of Root and Tuber vegetables (human food or animal feed) such as Turnip, Garden Beet or Sugar Beet	Loopers Omnivorous Leafroller* Hornworms* Imported Cabbageworm Diamondback Moth <sup>4</sup> Green Cloverworm* Webworm Saltmarsh Caterpillar* Armyworms <sup>1</sup> Cutworms* Cross-striped Cabbageworm <i>Heliothis</i>	1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 2 1/4 - 1 1/2 1/4 - 1 1/2 1/4 - 2

APPLICATION RATE (Continued)

Crop Group (Miscellaneous)	Pest	Pounds/Acre
<b>Stone Fruit</b> such as Cherry, Plum, Peach, Prune and Nectarine <b>Pome Fruit</b> such as Apples and Pear <b>Tree Nuts</b> such as Almond, Pecan, Walnut and Filbert <b>Pomegranates</b>	Redhumped Caterpillar*	1/4 - 2
	Tent Caterpillars*	1/4 - 2
	Omnivorous Leafroller*	1/4 - 2
	Fall Webworm*	1/4 - 2
	Walnut Caterpillar*	1/4 - 2
	Cankerworms*	1/4 - 2
	Gypsy Moth*	1/4 - 2
	Variegated Leafroller*	1/4 - 2
	Redbanded Leafroller*	1/4 - 2
	Tufted Apple Budmoth*	1/4 - 2
	Fruittree Leafroller*	1/4 - 2
	Oriental Fruit Moth*	1/4 - 2
	Cutworms*	1/4 - 2
	Filbert Leafroller*	1/4 - 2
	Obliquebanded Leafroller*	1/4 - 2
	Codling Moth*	1/4 - 2
Armyworms <sup>1</sup>	1/4 - 2	
Twig Borer*	1/4 - 2	
<b>Cereal Grains</b> (Ground Application only)	Loopers	1/4 - 2
	Armyworms <sup>1</sup>	1/4 - 2
<b>Tropical Fruits</b>	Armyworms <sup>1</sup>	1/4 - 2
	Hornworm*	1/4 - 2
	Leafrollers*	1/4 - 2
	Omnivorous Looper*	1/4 - 2
	Loopers	1/4 - 2

APPLICATION RATE (Continued)

Other Crops:	Pests	Pounds/Acre
Asparagus	Armyworms <sup>1</sup>	1/4 - 2
Avocado	Armyworms <sup>1</sup>	1/4 - 2
	Amorbia Moth*	1/4 - 2
	Omnivorous Leafroller*	1/4 - 2
	Omnivorous Looper*	1/4 - 2
	Orange Tortrix*	1/4 - 2
	Spanworm*	1/4 - 2
Bananas	Armyworms <sup>1</sup>	1/4 - 2
	Banana Skipper*	1/4 - 1 1/2
Canola (Rape)	Looper	1/4 - 2
	Armyworms <sup>1</sup>	1/4 - 2
	<i>Heliothis</i>	1/4 - 2
Citrus Fruits	Armyworms <sup>1</sup>	1/4 - 2
	Fruittree Leafroller*	1/4 - 2
	Orangedog*	1/4 - 2
	Citrus Cutworm <sup>3*</sup>	1/4 - 2
Corn (Sweet, Field, Seed and Popcorn) Sorghum	<i>Heliothis</i> <sup>5</sup>	1/2 - 2
	Armyworms <sup>1</sup>	1/4 - 2
	Headworms*	1/4 - 2
	European Corn Borer	1/4 - 2
Cotton	Tobacco Budworm <sup>2*</sup>	1/4 - 2
	Cotton Bollworm <sup>2*</sup>	1/4 - 2
	Loopers	1/4 - 2
	Saltmarsh Caterpillar*	1/4 - 2
	Armyworms <sup>1</sup>	1/4 - 2
Hops	Loopers	1/4 - 2
	Armyworms <sup>1</sup>	1/4 - 2
Kiwi Fruit	Armyworms <sup>1</sup>	1/4 - 2
	Omnivorous Leafroller*	1/4 - 2
Malanga	Saltmarsh Caterpillar*	1/4 - 2
	Armyworms <sup>1</sup>	1/4 - 2
Peanuts	Armyworms <sup>1</sup>	1/4 - 2
	Loopers	1/4 - 1 1/2
	Velvetbean Caterpillar*	1/4 - 1 1/2
	Green Cloverworm*	1/4 - 1 1/2
	Podworms <sup>1</sup>	1/4 - 1 1/2

APPLICATION RATE (Continued)

Other Crops	Pests	Pounds/Acre
Pineapple	Armyworms <sup>1</sup>	1/4 - 2
	Gummosos-Batrachedra comosae (Hodges)	1/4 - 1 1/2
	Thecla-Thecla basilides (Geyr)	1/4 - 1 1/2
Safflower	Loopers	1/4 - 2
	Saltmarsh Caterpillar*	1/4 - 2
	Armyworms <sup>1</sup>	1/4 - 2
Sunflowers (Ground Application only)	Armyworms <sup>1</sup>	1/4 - 2
	Loopers	1/4 - 2
	Head Moth*	1/4 - 2
Tobacco	Armyworms <sup>1</sup>	1/4 - 2
	Tobacco Budworm	1/4 - 2
	Hornworms*	1/4 - 2
	Loopers	1/4 - 2
Turf	Armyworms <sup>1</sup>	1/4 - 2
	Sod Webworm	1/2 - 2
Watercress (spray only when there is no standing water in the bed)	Loopers	1/2 - 2
	Armyworms <sup>1</sup>	1/2 - 2
	Diamondback Moth	1/2 - 1 1/2

\*For all uses except California

<sup>1</sup>XenTari may be used to control armyworms and/or podworms. For best results, apply full coverage sprays when 1st or 2nd instar larvae are present. Repeat treatment as necessary. Under rapidly increasing populations, use the highest labeled rate, or tank-mix with a contact insecticide. Against heterogeneous armyworm populations where 4th and 5th instar larvae are present, a contact insecticide in combination with XenTari should be used to enhance control.

<sup>2</sup>Use to control light to moderate populations of newly hatched worms in integrated pest management conditions. Repeat treatments at 4 to 5-day intervals as long as necessary and results are acceptable. Use in combination with ovicidal rates of labeled *Heliothis* ovicides.

<sup>3</sup>Apply to light to moderate populations of newly-hatched worms.

<sup>4</sup>For best results, use a ground applicator, a minimum of 50 gallons total mix per acre, 50-100 psi and 3-7 nozzles per bed.

<sup>5</sup>Use XenTari alone to suppress light to moderate populations of *Heliothis* on corn or sorghum. A contact insecticide in combination with XenTari is recommended to control moderate to heavy populations.

## APPLICATION RATE

XenTari for Trees and Forests<sup>6</sup> (For all states except California)

Crop	Pest	lbs/100 gallons <sup>7</sup>
Forest, Shade, Sugar Maple Trees and Ornamentals  (Ground Application Only)	Gypsy Moth	1/4 - 1
	Bagworm	1/4 - 1
	Redhumped Caterpillar	1/4 - 1
	Spring & Fall Cankerworm	1/4 - 1
	Fall Webworm	1/4 - 1
	Elm Spanworm	1/4 - 1
	Tent Caterpillars	1/4 - 1
	California Oakworm	1/4 - 1
	Pine Butterfly	1/4 - 1
	Spruce Budworms	1/4 - 1
	Saddle Prominent Caterpillar	1/4 - 1
	Douglas Fir Tussock Moth	1/4 - 1
	Western Tussock Moth	1/4 - 1
	Fruittree Leafroller	1/4 - 1
	Blackheaded Budworm	1/4 - 1
	Mimosa Webworm	1/4 - 1
Jack Pine Budworm	1/4 - 1	
Saddleback Caterpillar	1/4 - 1	
Greenstriped Mapleworm	1/4 - 1	
Hemlock Looper	1/4 - 1	

<sup>6</sup>Forest, Shade, Sugar Maple Trees and Ornamentals.<sup>7</sup>Rate for hydraulic sprayer. For mist blowers, mix the applicable amount (lbs.) in 10 gallons of water.

Note: Inclusion of a suitable spreader-sticker approved for forest insect control is recommended to improve coverage, rain fastness and/or resist wash-off.

## APPLICATION RATE

**XenTari FOR STORED AGRICULTURAL COMMODITIES** (For all States except California)

**GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES, HERBS, BIRDSEED AND POPCORN**

**Pest**

**Rate**

Indian Meal Moth<sup>8</sup>  
Almond Moth<sup>8</sup>

3/8 lb. 100 bu (undiluted  
and diluted)\*

\*As a surface treatment, apply 1/2 lb. XenTari in 5-10 gal. of water per 500 sq. ft of grain surface area, mix into top 4 inches. For commodities coarser than shelled corn, increase depth of treatment according to the habit of the pest.

<sup>8</sup>For the control and prevention of these pests, apply XenTari in a constantly agitated water suspension to the top four inch surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the suspension into the grain stream as the last (top) four inch layer is augered into the bin. Mix 1/20 lb. XenTari per gallon of water. Apply 0.6 pint of this mixture per bushel as grain is augered into storage. Or, sprinkle the suspension onto the surface of the grain in the bin and mix thoroughly with a scoop or rake to the depth of four inches. More thorough coverage may be achieved by dividing the recommended concentration into three applications and mixing the grain between applications.

For the protection of bagged grain including popcorn, apply the suspension to the entire grain mass and mix thoroughly prior to bagging.

Treatments can be applied to stored grain at any time, but for best results, make application immediately after harvest before moth activity occurs. In areas where late fall harvested grain is not subject to infestation because of low temperatures, application can be delayed until late winter or early spring before moth activity begins. Control for a full storage season should normally be expected; however, repeat application if infestation recurs.



**APPLICATION RATE (Continued)**

**XenTari FOR STORED AGRICULTURAL COMMODITIES (Continued)** (For all states except California)

**GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES, HERBS, BIRDSEED AND POPCORN. (Continued)**

This treatment controls the moth larvae. If an infestation is present when the grain is treated, moth emergence may continue for several days. If immediate control of severe infestations is desired, grain should be fumigated prior to application of this treatment. XenTari **will not control weevils or other beetles.**

**PEANUTS (For all states except California)**

<u>Pest</u>	<u>Rate</u>
Indian Meal Moth,	1/4 lb./ton*
Almond Moth	

\*Apply this rate to the top four to eight feet of nuts when filling the warehouse.

To prevent and control these pests, spray an even coating of XenTari on the farmer stock peanuts while filling the warehouse. To make the spray solution, mix 3-3/4 lbs. XenTari per 5 gallons of water. Apply to 15 tons of commodity. Do not pre-mix more spray solution than will be used within 12 hours. Keep the spray suspension agitated during application, and use pressures and nozzles sufficient to handle this suspension.

Before filling the warehouse, clean thoroughly, then spray interior of the facility with a XenTari suspension at the rate of 1/2 lb. XenTari per 100 gallons water. Spray enough suspension to wet all cracks and crevices.

For bagged peanuts, treat the entire quantity at the rate indicated above.

**APPLICATION RATE****XenTari FOR STORED AGRICULTURAL COMMODITIES (Continued)****FLUE-CURED TOBACCO (For all states except California)**

<u>Pest</u>	<u>Rate</u>
Tobacco Moth	0.2 oz./100 lbs*

\*Apply 0.2 ounce (approximately 2 1/2 tsps.) of XenTari in one quart of water per 100 pounds of tobacco as a fine mist spray. Avoid overwetting. Tobacco should have just enough moisture to be handled without shattering at the time of application.

**Tobacco to be Stored up to Twelve Months.**

Spray loose leaves as the tobacco is being bundled from the curing barn. For tobacco on sticks, treat both sides of leaves.

**Stored Tobacco.**

For tobacco which is to be carried over, rebundle or restack sticks, fluff up tobacco and spray loose leaves.

For tobacco that has been stored over three weeks, apply at first signs of infestation; promptly open bundles, spray loose leaves, then bundle.

**Treatment of Storage Barns.**

If tobacco has been treated, or is going to be treated, treatment of the floors and walls may be made to aid in control. Sweep out the area, especially cracks and corners, and all of the loose tobacco pieces in which the moth might breed. Make a spray mixture containing 1/2 oz. (6 tsps.) XenTari per 2 1/2 gallons of water. Apply this at a rate of 1/2 gallon per 1000 sq. ft. of surface area. Be sure to spray into cracks and between floorboards.

**NOTICE TO BUYER**

Seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

-2006

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**SUB LABEL 1**

For use on all crops listed on the master label with changes in the initial application rates for commercial purposes.

**XENTARI®  
BIOLOGICAL INSECTICIDE  
DRY FLOWABLE**



**For Organic Production**

Active Ingredient:

<i>Bacillus thuringiensis</i> subsp. <i>aizawai</i> strain ABTS-1857 fermentation solids, spores, and insecticidal toxins.....	54%
Other Ingredients.....	46%
Total:.....	100%

Potency: 35,000 Diamondback Moth Units per mg of product or 15.9 billion Diamondback Moth Units per pound of product.

The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

**KEEP OUT OF REACH OF CHILDREN  
CAUTION**

Valent BioSciences Corporation  
870 Technology Way, Suite 100  
Libertyville, IL 60048

EPA Registration No. 73049-40  
EPA Est. No. 33762-IA-1

<b>FIRST AID</b>	
<b>If in eyes</b>	<ul style="list-style-type: none"> <li>• Hold eye open, and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>
<b>HOT LINE NUMBER</b>	
<p>Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-892-0099 for emergency medical treatment and/or transport emergency information. For all other information call 1-800-6-Valent..</p>	

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

Harmful if inhaled, or absorbed through the skin. Causes moderate eye irritation. Avoid breathing dust or spray mist. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash clothing before reuse.

**PERSONAL PROTECTIVE EQUIPMENT**

Applicators and other handlers must wear:

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

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.

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

Mixers/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95 or P-95. Repeated exposure to high concentrations of high microbial of microbial proteins can cause allergic sensitization.

#### **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**

This product is toxic to aquatic invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment washwaters.

This product is toxic to the green lacewing and the predatory mite *Metaseiulus occidentalis*.

This product must not be applied aerially within ¼ mile of any habitats of endangered species or threatened lepidoptera. No manual application can be made within 300 feet of any threatened or endangered lepidoptera.

#### **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 intervals. 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 and shoes plus socks.

**NON-AGRICULTURAL USE REQUIREMENTS**

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR Part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses.

Keep unprotected persons out of treated areas until sprays have dried.

**STORAGE AND DISPOSAL**

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

**Storage:** Reclose containers of unused Xen Tari. Store in a dry place inaccessible to children and out of sunlight.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Disposal:**

**Plastic Bottle:** Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and

dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

**Plastic Bags:** 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.

## DIRECTIONS FOR USE

See Chemigation Section for Chemigation use directions.

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

**Days to Harvest:** There are no restrictions on applying XenTari up to the time of harvest. Individual state regulations may vary and should be consulted for allowable pre-harvest application intervals.

**Sites:** XenTari may be used for any labeled pest in both field and greenhouse use.

XenTari is an insecticide for use against listed caterpillars (larvae) of lepidopterous insects. Close scouting and early attention to infestations is highly recommended. Larvae must eat deposits of XenTari to be affected. Always follow these directions:

- Treat when larvae are young (early instars) before the crop is damaged.
- Larvae must be actively feeding on treated, exposed plant surfaces.

Thorough spray coverage is needed to provide a uniform deposit of XenTari at the site of larval feeding. Use overhead and drop nozzles to obtain good spray coverage on both sides of foliage. Use sufficient spray volume to insure uniform deposition on all plant surfaces.

- Under heavy pest population pressure, use the higher label rates, shorten the spray interval, and/or raise spray volume to improve spray coverage.
- Repeat applications at an interval sufficient to maintain control, usually 3 to 14 days depending on plant growth rate, moth activity, rainfall after treating, and other factors. If attempting to control a pest with a single spray, make the treatment when egg hatch is essentially complete, but before crop damage occurs.
- A spreader-sticker which has been approved for use on growing and harvested crops should be added for hard-to-wet crops such as cabbage, or to improve weather-fastness of the spray deposits.
- XenTari may be tank mixed with other labeled insecticides to enhance control. Use of the resulting tank mix must be in accordance with the more restrictive label limitations and precautions. No dosage rates should be exceeded. This product cannot be mixed with any product containing a label prohibition against such mixing. Before tank mixing XenTari with other labeled products, including spreader stickers, check for tank mix compatibility.

After ingesting a lethal dose of XenTari, larvae stop feeding within the hour, and will die within several hours to 3 days. Mortality varies with larval size (instar), lepidopteran species, and dose consumed. Following ingestion, larvae become sluggish, discolor, then shrivel, blacken and die. Smaller larvae die more quickly.

XenTari may be applied in conventional ground or aerial equipment with quantities of water sufficient to provide uniform coverage of infested plant parts. The volume of water needed per acre will depend on crop development, relative humidity, spray equipment, and local experience. Usually, selection of moderate to high spray volume will provide the best results in most equipment. For optimal results, use at least 2 gallons of water per acre by air; except in arid areas, where 5 to 10 gallons are required. Add water to the mix tank and provide moderate agitation. With agitating, add the required amount of XenTari. Continue agitation, and add other spray materials, if any. Add remaining water, if any, and agitate until fully mixed. Maintain the suspension with moderate agitation while loading and spraying. Do not mix more XenTari than can be used in a 3 day period.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment-and-weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all of these factors when making decisions.



For Smaller Spray Volumes:

<u>If Rate is</u>	<u>Use This Amount</u>	
	<u>Per Gallon (wt)</u>	
1/4 lb./acre or 100 gals.	1/2 tsp.	(0.04 oz)
1/2 lb./acre or 100 gals.	1 tsp.	(0.08 oz)
1 lb./acre or 100 gals.	2 tsps.	(0.16 oz)
2 lb./acre or 100 gals.	4 tsps.	(0.32 oz)

**CHEMIGATION USE DIRECTIONS**

Refer to these label sections under **General Instructions** for application rate information when chemigation is used.

Apply this product only through sprinkler including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move irrigation systems. Do not apply this product through any other type of irrigation systems. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system.

**Spray Preparation**

First prepare a suspension of XenTari in a mix tank. Fill tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of XenTari, and then the remaining volume of water. Then set the sprinkler to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of XenTari into the irrigation water line so as to deliver the desired rate per acre. The suspension of XenTari should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. Any questions on calibration should be directed to your State Extension Service Specialists, to equipment manufacturers or other experts.

**NOTE:** When treatment with XenTari has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the material off the crop.

## General Precautions for Applications Through Sprinkler Irrigation Systems

Maintain continuous agitation in the mix tank during the mixing and application to insure a uniform suspension.

*Greater accuracy in calibration and distribution will be achieved by injecting a larger volume for a more dilute solution per unit time.*

Crop injury, lack of effectiveness, or illegal residues in the crop can result from nonuniform distribution of treated water. 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. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water.

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.

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 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.

Do not apply when wind speed favors drift, when system connections or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

## GENERAL INSTRUCTIONS/APPLICATION RATE

Crop Group (Miscellaneous)	Pests	Pound/Acre
<b>Alfalfa (Hay and Seed), Hay and Other Forage Crops</b>	Loopers	1/2 - 1 1/2
	Alfalfa Caterpillar*	1/2 - 1 1/2
	European Skipper* (Essex Skipper)	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2
<b>Berries and Small Fruit</b> such as Grapes, Strawberries, and Blackberries, Cranberries, Raspberries and Blueberries	Grapeleaf Skeletonizer	1/2 - 1 1/2
	Grape Leafroller*	1/2 - 1 1/2
	Achema Sphinx Moth* (Hornworm)	1/2 - 1 1/2
	Saltmarsh Caterpillar*	1/2 - 1 1/2
	Omnivorous Leafroller*	1/2 - 1 1/2
	Loopers	1/2 - 1 1/2
	Orange Tortrix*	1/2 - 1 1/2
	Oblique Banded Leafroller*	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2
	Tobacco Budworm	1/2 - 2
	Grape Berry Moth	1/2 - 2
	Melonworms*	1/2 - 1 1/2
Cutworm*	1/2 - 1 1/2	
Spanworm	1/2 - 1 1/2	
<b>Bulb</b> such as Garlic and Onions (green and bulb)	Loopers	1/2 - 1 1/2
	Omnivorous Leafroller*	1/2 - 1 1/2
	Hornworms	1/2 - 1 1/2
	Imported Cabbageworm	1/2 - 1 1/2
	Diamondback Moth <sup>4</sup>	1/2 - 1 1/2
	Green Cloverworm*	1/2 - 1 1/2
	Webworm	1/2 - 1 1/2
	Saltmarsh Caterpillar*	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2
	Cutworms*	1/2 - 1 1/2
Cross-striped Cabbageworm	1/2 - 1 1/2	
<i>Heliothis</i>	1/2 - 2	

## APPLICATION RATE (Continued)

Crop Group (Miscellaneous)	Pest	Pounds/Acre
Curcubit Vegetables such as Melons, Cucumbers and Squash	Loopers	1/2 - 1
	Melonworms*	1/2 - 1
	Rindworm complex*	1/2 - 1
	Armyworms <sup>1</sup>	1/2 - 2
	Cutworms	1/2 - 2
Flowers, Bedding Plants and Ornamentals (Ground application only)	Loopers	1/2 - 1 1/2
	Tobacco Budworm	1/2 - 1 1/2
	Omnivorous Looper*	1/2 - 1 1/2
	Omnivorous Leafroller*	1/2 - 1 1/2
	Diamondback Moth <sup>4</sup>	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2
	Ello Moth* (Hornworm)	1/2 - 1 1/2
	Io Moth*	1/2 - 1 1/2
	Oleander Moth*	1/2 - 1 1/2
Azalea Caterpillar*	1/2 - 1 1/2	
Fruiting Vegetables such as Tomatoes, Peppers and Eggplant	Loopers	1/2 - 1 1/2
	Hornworm	1/2 - 1 1/2
	Tomato Fruitworm	1/2 - 1 1/2
	Variegated Cutworm*	1/2 - 1 1/2
	Saltmarsh Caterpillar*	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2
Greenhouse/Shadehouse and Outdoor Nursery Crops such as Leafy Herbs, Brassica and Fruiting groups	Loopers	1/2 - 1 1/2
	<i>Heliothis</i>	1/2 - 2
	Armyworms <sup>1</sup>	1/2 - 2
Herbs, Spices and Mints such as Basil, Chives, Dill, Leeks and Peppermint	Looper	1/2 - 1 1/2
	Saltmarsh Caterpillar*	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2

## APPLICATION RATE (Continued)

Crop Group (Miscellaneous)	Pests	Pounds/Acre
<b>Leafy and Cole Crops</b> such as Lettuce (head and leaf), Kale, Celery, Spinach, Broccoli, Cabbage, Mustard Greens, Brussel Sprouts, Cauliflower, Collards, Chinese Cabbage, Endive Kohlrabi and Parsley	Loopers	1/2 - 1 1/2
	Omnivorous Leafroller*	1/2 - 1 1/2
	Hornworms*	1/2 - 1 1/2
	Imported Cabbageworm	1/2 - 1 1/2
	Diamondback Moth <sup>4</sup>	1/2 - 1 1/2
	Green Cloverworm*	1/2 - 1 1/2
	Webworm	1/2 - 1 1/2
	Saltmarsh Caterpillar*	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2
	Cutworms*	1/2 - 1 1/2
	Cross-striped Cabbageworm	1/2 - 1 1/2
	<i>Heliothis</i>	1/2 - 2
<b>Legume Vegetables (succulent or dried)</b> and foliage of legume vegetables such as Beans, Peas, Lentils and Soybeans	Loopers	1/2 - 1 1/2
	Soybean Looper	1/2 - 2
	Green Cloverworm*	1/2 - 1 1/2
	Velvetbean Caterpillar*	1/2 - 2
	Armyworms <sup>1</sup>	1/2 - 2
Podworms <sup>1*</sup>	1/2 - 2	
<b>Root and Tuber</b> such as Artichokes, Carrots, Potatoes, Beets and Sugar beets  Leaves of Root and Tuber vegetables (human food or animal feed) such as Turnip, Garden Beet or Sugar Beet	Loopers	1/2 - 1 1/2
	Omnivorous Leafroller*	1/2 - 1 1/2
	Hornworms*	1/2 - 1 1/2
	Imported Cabbageworm	1/2 - 1 1/2
	Diamondback Moth <sup>4</sup>	1/2 - 1 1/2
	Green Cloverworm*	1/2 - 1 1/2
	Webworm	1/2 - 1 1/2
	Saltmarsh Caterpillar*	1/2 - 1 1/2
	Armyworms <sup>1</sup>	1/2 - 2
	Cutworms*	1/2 - 1 1/2
	Cross-striped Cabbageworm	1/2 - 1 1/2
<i>Heliothis</i>	1/2 - 2	

## APPLICATION RATE (Continued)

Crop Group (Miscellaneous)	Pest	Pounds/Acre
<b>Stone Fruit</b> such as Cherry, Plum, Peach, Prune and Nectarine <b>Pome Fruit</b> such as Apples and Pear <b>Tree Nuts</b> such as Almond, Pecan, Walnut and Filbert <b>Pomegranates</b>	Redhumped Caterpillar*	1/2 - 2
	Tent Caterpillars*	1/2 - 2
	Omnivorous Leafroller*	1/2 - 2
	Fall Webworm*	1/2 - 2
	Walnut Caterpillar*	1/2 - 2
	Cankerworms*	1/2 - 2
	Gypsy Moth*	1/2 - 2
	Variegated Leafroller*	1/2 - 2
	Redbanded Leafroller*	1/2 - 2
	Tufted Apple Budmoth*	1/2 - 2
	Fruittree Leafroller*	1/2 - 2
	Oriental Fruit Moth*	1/2 - 2
	Cutworms*	1/2 - 2
	Filbert Leafroller*	1/2 - 2
	Obliquebanded Leafroller*	1/2 - 2
Codling Moth*	1/2 - 2	
Armyworms <sup>1</sup>	1/2 - 2	
Twig Borer*	1/2 - 2	
<b>Cereal Grains</b> (Ground Application only)	Loopers	1/2 - 2
	Armyworms <sup>1</sup>	1/2 - 2
<b>Tropical Fruits</b>	Armyworms <sup>1</sup>	1/2 - 2
	Hornworm*	1/2 - 2
	Leafrollers*	1/2 - 2
	Omnivorous Looper*	1/2 - 2
	Loopers	1/2 - 2

## APPLICATION RATE (Continued)

Other Crops:	Pests	Pounds/Acre
<b>Asparagus</b>	Armyworms <sup>1</sup>	1/2 - 2
<b>Avocado</b>	Armyworms <sup>1</sup> Amorbia Moth* Omnivorous Leafroller* Omnivorous Looper* Orange Tortrix* Spanworm*	1/2 - 2 1/2 - 2 1/2 - 2 1/2 - 2 1/2 - 2 1/2 - 2
<b>Bananas</b>	Armyworms <sup>1</sup> Banana Skipper*	1/2 - 2 1/2 - 1 1/2
<b>Canola (Rape)</b>	Looper Armyworms <sup>1</sup> <i>Heliothis</i>	1/2 - 2 1/2 - 2 1/2 - 2
<b>Citrus Fruits</b>	Armyworms <sup>1</sup> Fruittree Leafroller* Orangedog* Citrus Cutworm <sup>3*</sup>	1/2 - 2 1/2 - 2 1/2 - 2 1/2 - 2
<b>Corn (Sweet, Field, Seed and Popcorn)</b> <b>Sorghum</b>	<i>Heliothis</i> <sup>5</sup> Armyworms <sup>1</sup> Headworms* European Corn Borer	1/2 - 2 1/2 - 2 1/2 - 2 1/2 - 2
<b>Cotton</b>	Tobacco Budworm <sup>2*</sup> Cotton Bollworm <sup>2*</sup> Loopers Saltmarsh Caterpillar* Armyworms <sup>1</sup>	1/2 - 2 1/2 - 2 1/2 - 2 1/2 - 2 1/2 - 2
<b>Hops</b>	Loopers Armyworms <sup>1</sup>	1/2 - 2 1/2 - 2
<b>Kiwi Fruit</b>	Armyworms <sup>1</sup> Omnivorous Leafroller*	1/2 - 2 1/2 - 2
<b>Malanga</b>	Saltmarsh Caterpillar* Armyworms <sup>1</sup>	1/2 - 2 1/2 - 2
<b>Peanuts</b>	Armyworms <sup>1</sup> Loopers Velvetbean Caterpillar* Green Cloverworm* Podworms <sup>1</sup>	1/2 - 2 1/2 - 1 1/2 1/2 - 1 1/2 1/2 - 1 1/2 1/2 - 1 1/2

## APPLICATION RATE (Continued)

Other Crops	Pests	Pounds/Acre
Pineapple	Armyworms <sup>1</sup>	1/2 - 2
	Gummosos-Batrachedra comosae (Hodges)	1/2 - 1 1/2
	Thecla-Thecla basilides (Geyr)	1/2 - 1 1/2
Safflower	Loopers	1/2 - 2
	Saltmarsh Caterpillar*	1/2 - 2
	Armyworms <sup>1</sup>	1/2 - 2
Sunflowers (Ground Application only)	Armyworms <sup>1</sup>	1/2 - 2
	Loopers	1/2 - 2
	Head Moth*	1/2 - 2
Tobacco	Armyworms <sup>1</sup>	1/2 - 2
	Tobacco Budworm	1/2 - 2
	Hornworms*	1/2 - 2
	Loopers	1/2 - 2
Turf	Armyworms <sup>1</sup>	1/2 - 2
	Sod Webworm	1/2 - 2
Watercress (spray only when there is no standing water in the bed)	Loopers	1/2 - 2
	Armyworms <sup>1</sup>	1/2 - 2
	Diamondback Moth	1/2 - 1 1/2

\*For all uses except California

<sup>1</sup>XenTari may be used to control armyworms and/or podworms. For best results, apply full coverage sprays when 1st or 2nd instar larvae are present. Repeat treatment as necessary. Under rapidly increasing populations, use the highest labeled rate, or tank-mix with a contact insecticide. Against heterogeneous armyworm populations where 4th and 5th instar larvae are present, a contact insecticide in combination with XenTari should be used to enhance control.

<sup>2</sup>Use to control light to moderate populations of newly hatched worms in integrated pest management conditions. Repeat treatments at 4 to 5-day intervals as long as necessary and results are acceptable. Use in combination with ovicidal rates of labeled *Heliothis* ovicides.

<sup>3</sup>Apply to light to moderate populations of newly-hatched worms.

<sup>4</sup>For best results, use a ground applicator, a minimum of 50 gallons total mix per acre, 50-100 psi and 3-7 nozzles per bed.

<sup>5</sup>Use XenTari alone to suppress light to moderate populations of *Heliothis* on corn or sorghum. A contact



insecticide in combination with XenTari is recommended to control moderate to heavy populations.

## APPLICATION RATE

XenTari for Trees and Forests<sup>6</sup> (For all states except California)

Crop	Pest	lbs/100 gallons <sup>7</sup>
Forest, Shade, Sugar Maple Trees and Ornamentals  (Ground Application Only)	Gypsy Moth	1/2 - 1
	Bagworm	1/2 - 1
	Redhumped Caterpillar	1/2 - 1
	Spring & Fall Cankerworm	1/2 - 1
	Fall Webworm	1/2 - 1
	Elm Spanworm	1/2 - 1
	Tent Caterpillars	1/2 - 1
	California Oakworm	1/2 - 1
	Pine Butterfly	1/2 - 1
	Spruce Budworms	1/2 - 1
	Saddle Prominent Caterpillar	1/2 - 1
	Douglas Fir Tussock Moth	1/2 - 1
	Western Tussock Moth	1/2 - 1
	Fruittree Leafroller	1/2 - 1
	Blackheaded Budworm	1/2 - 1
	Mimosa Webworm	1/2 - 1
	Jack Pine Budworm	1/2 - 1
Saddleback Caterpillar	1/2 - 1	
Greenstriped Mapleworm	1/2 - 1	
Hemlock Looper	1/2 - 1	

<sup>6</sup>Forest, Shade, Sugar Maple Trees and Ornamentals.<sup>7</sup>Rate for hydraulic sprayer. For mist blowers, mix the applicable amount (lbs.) in 10 gallons of water.

Note: Inclusion of a suitable spreader-sticker approved for forest insect control is recommended to improve coverage, rain fastness and/or resist wash-off.

## APPLICATION RATE

**XenTari FOR STORED AGRICULTURAL COMMODITIES** (For all States except California)

**GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES,  
HERBS, BIRDSEED AND POPCORN**

**Pest**

**Rate**

Indian Meal Moth<sup>8</sup>  
Almond Moth<sup>8</sup>

3/8 lb. 100 bu (undiluted  
and diluted)\*

\*As a surface treatment, apply 1/2 lb. XenTari in 5-10 gal. of water per 500 sq. ft of grain surface area, mix into top 4 inches. For commodities coarser than shelled corn, increase depth of treatment according to the habit of the pest.

<sup>8</sup>For the control and prevention of these pests, apply XenTari in a constantly agitated water suspension to the top four inch surface layer of grain in the bin. Use a sprinkler can or sprayer to apply the suspension into the grain stream as the last (top) four inch layer is augered into the bin. Mix 1/20 lb. XenTari per gallon of water. Apply 0.6 pint of this mixture per bushel as grain is augered into storage. Or, sprinkle the suspension onto the surface of the grain in the bin and mix thoroughly with a scoop or rake to the depth of four inches. More thorough coverage may be achieved by dividing the recommended concentration into three applications and mixing the grain between applications.

For the protection of bagged grain including popcorn, apply the suspension to the entire grain mass and mix thoroughly prior to bagging.

Treatments can be applied to stored grain at any time, but for best results, make application immediately after harvest before moth activity occurs. In areas where late fall harvested grain is not subject to infestation because of low temperatures, application can be delayed until late winter or early spring before moth activity begins. Control for a full storage season should normally be expected; however, repeat application if infestation recurs.

**APPLICATION RATE (Continued)**

**XenTari FOR STORED AGRICULTURAL COMMODITIES (Continued)** (For all states except California)

**GRAINS, SOYBEANS, SUNFLOWER SEED, CROP SEED, CONDIMENTAL SEEDS, SPICES, HERBS, BIRDSEED AND POPCORN. (Continued)**

This treatment controls the moth larvae. If an infestation is present when the grain is treated, moth emergence may continue for several days. If immediate control of severe infestations is desired, grain should be fumigated prior to application of this treatment. XenTari **will not control weevils or other beetles.**

**PEANUTS** (For all states except California)

<u>Pest</u>	<u>Rate</u>
Indian Meal Moth, Almond Moth	1/4 lb./ton*

\*Apply this rate to the top four to eight feet of nuts when filling the warehouse.

To prevent and control these pests, spray an even coating of XenTari on the farmer stock peanuts while filling the warehouse. To make the spray solution, mix 3-3/4 lbs. XenTari per 5 gallons of water. Apply to 15 tons of commodity. Do not pre-mix more spray solution than will be used within 12 hours. Keep the spray suspension agitated during application, and use pressures and nozzles sufficient to handle this suspension.

Before filling the warehouse, clean thoroughly, then spray interior of the facility with a XenTari suspension at the rate of 1/2 lb. XenTari per 100 gallons water. Spray enough suspension to wet all cracks and crevices.

For bagged peanuts, treat the entire quantity at the rate indicated above.

**APPLICATION RATE**

**XenTari FOR STORED AGRICULTURAL COMMODITIES (Continued)**

**FLUE-CURED TOBACCO (For all states except California)**

<u>Pest</u>	<u>Rate</u>
Tobacco Moth	0.2 oz./100 lbs*

\*Apply 0.2 ounce (approximately 2 1/2 tsps.) of XenTari in one quart of water per 100 pounds of tobacco as a fine mist spray. Avoid overwetting. Tobacco should have just enough moisture to be handled without shattering at the time of application.

**Tobacco to be Stored up to Twelve Months.**

Spray loose leaves as the tobacco is being bundled from the curing barn. For tobacco on sticks, treat both sides of leaves.

**Stored Tobacco.**

For tobacco which is to be carried over, rebundle or restack sticks, fluff up tobacco and spray loose leaves.

For tobacco that has been stored over three weeks, apply at first signs of infestation; promptly open bundles, spray loose leaves, then bundle.

**Treatment of Storage Barns.**

If tobacco has been treated, or is going to be treated, treatment of the floors and walls may be made to aid in control. Sweep out the area, especially cracks and corners, and all of the loose tobacco pieces in which the moth might breed. Make a spray mixture containing 1/2 oz. (6 tsps.) XenTari per 2 1/2 gallons of water. Apply this at a rate of 1/2 gallon per 1000 sq. ft. of surface area. Be sure to spray into cracks and between floorboards.

**NOTICE TO BUYER**

Seller makes no warranty, express or implied, of merchantability, fitness or otherwise concerning the use of this product other than as indicated on the label. User assumes all risks of use, storage or handling not in strict accordance with accompanying directions.

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