



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

May 25, 2021

Lael Jimenez  
Regulatory Specialist  
Lonza, LLC  
412 Munt Kemble Ave, Suite 200S  
Morristown, NJ 07960

Subject: Notification per PRN 98-10 – minor spelling and punctuation errors corrected  
Product Name: Cyhella insecticide  
EPA Registration Number: 6836-444  
Application Date: February 26, 2021  
Decision Number: 575956

Dear Ms. Jimenez:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Registration Division (RD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped “Notification” and will be placed in our records.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Compliance.

If you have any questions, you may contact please contact Elizabeth Andrews at 703-347-8770 or by email at [Andrews.Elizabeth@epa.gov](mailto:Andrews.Elizabeth@epa.gov).

Sincerely,

A handwritten signature in black ink that reads "J. Herrick".

Jacquelyn Herrick, Product Manager 03  
Invertebrate & Vertebrate Branch 1  
Registration Division (7505P)  
Office of Pesticide Programs

# RESTRICTED USE PESTICIDE

## DUE TO TOXICITY TO FISH AND AQUATIC ORGANISMS

For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

LAMBDA-CYHALOTHRIN

GROUP

3

INSECTICIDE

# Cyhella® Insecticide

## Micro-Encapsulated Insecticide

For the control of insect pests on a wide range of crops

### ACTIVE INGREDIENT:

(% by Weight)

Lambda-cyhalothrin<sup>1</sup>:

[1  $\alpha$ (S\*),3  $\alpha$ (Z)]-(±)-cyano-(3-phenoxyphenyl)methyl-3-

(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-dimethylcyclopropanecarboxylate..... 23.8%

**OTHER INGREDIENTS:**..... 76.2%

**TOTAL**..... 100.0%

Cyhella Insecticide contains 2.08 lbs. of active ingredient per gallon and is a capsule suspension.

<sup>1</sup> Synthetic pyrethroid

Contains petroleum distillate.

**KEEP OUT OF REACH OF CHILDREN**

## WARNING / AVISO

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted en detalle.  
(If you do not understand the label find someone to explain it to you in detail.)

### FIRST AID

|                               |  |
|-------------------------------|--|
| <b>IF SWALLOWED</b>           | <ul style="list-style-type: none"><li>• Immediately call a Poison Control Center or doctor for treatment advice.</li><li>• Do not induce vomiting unless told to do so by the Poison Control Center or doctor.</li><li>• Do not give any liquid to the person.</li><li>• Do not give anything by mouth to an unconscious person.</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 IN EYES</b>             | <ul style="list-style-type: none"><li>• Hold eye open and rinse slowly and gently for 15-20 minutes.</li><li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing.</li><li>• Call a Poison Control Center or doctor for treatment.</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>                                     |

Have the product container or label with you when you call a Poison Control Center or doctor, or when going for treatment.

### HOTLINE NUMBER

For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire or Accident) Call CHEMTREC 1-800-424-9300 (contract# 864976).

### NOTE TO PHYSICIAN

Contains petroleum distillate – vomiting may cause aspiration pneumonia.

## Net Contents:

(See inside (booklet) for additional (Precautionary Statement), (First Aid) (Directions for Use) and (Storage and Disposal).)

(Made in {insert country of origin})

EPA Reg. No. 6836-444

(Manufactured) (by) (for):

EPA Est. No. 72616-NZL-001

Lonza LLC

412 Mount Kemble Ave, Suite 200S

Morristown, NJ 07960

## NOTIFICATION

6836-444

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

05/25/2021

## PRECAUTIONARY STATEMENTS

### Hazards to Humans and Domestic Animals

## WARNING/AVISO

May be fatal if swallowed. Harmful if absorbed through skin. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Avoid contact with skin, eyes or clothing. Remove and wash contaminated clothing before reuse.

Skin exposure may also result in a sensation described as a tingling, itching, burning, or prickly feeling. Onset may occur immediately to 4 hours after exposure and may last 2-30 hours, without damage. Wash exposed areas once with soap and water. Relief from the skin sensation may be obtained by applying an oil-based cream.

### Environmental Hazards

This product is extremely toxic to fish and other aquatic organisms and toxic to wildlife.

Do not contaminate water when cleaning equipment or disposing of equipment wash water. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Apply this product only as specified on this label.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

## PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for Category G on an EPA chemical resistance category selection chart.

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of: Barrier Laminate, Butyl Rubber  $\geq$  14 mils, Nitrile Rubber  $\geq$  14 mils, or Viton™  $\geq$  14 mils.
- Shoes plus socks
- Protective eyewear

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. DO NOT reuse them. 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.

When handlers use closed systems, enclosed cabs, or aircraft in a manner that meets the requirement 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.

Mixers/loaders supporting aerial applications to wild rice at a rate of 0.04 pound active ingredient per acre, and treating 1200 acres (or more) per day must Wear a minimum of a NIOSH-approved particulate filtering facepiece respirator with any R or P filter; OR a NIOSH-approved elastomeric particulate respirator with any R or P filter; OR a NIOSH-approved powered air purifying respirator with HE filters.

## USER SAFETY RECOMMENDATION

### 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.

## DIRECTIONS FOR USE

### RESTRICTED USE PESTICIDE

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

#### **Shake well before using.**

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

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

#### **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 statement 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 enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 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
- Chemical resistant gloves made of Barrier Laminate, Butyl Rubber  $\geq$  14 mils, Nitrile Rubber  $\geq$  14 mils, or Viton™  $\geq$  14 mils. Shoes plus socks

**FAILURE TO FOLLOW THE DIRECTIONS FOR USE AND PRECAUTIONS ON THIS LABEL MAY RESULT IN POOR INSECT CONTROL, CROP INJURY, OR ILLEGAL RESIDUES.**

#### **USE DIRECTIONS**

Initial and residual control are contingent upon thorough crop coverage. Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. Apply in a minimum of 2 gallons per acre by air or 10 gallons per acre by ground unless otherwise specified in this label. When foliage is dense or pest pressure is high (heavier insect or egg pressure, larger larval stages), the use of higher application volumes and/or higher use rates may improve initial and residual control.

For cutworm control, **{this product}** may be applied before, during, or after planting. For soil-incorporated applications, use higher rates for improved control.

#### **Resistance Management**

For resistance management, Cyhella Insecticide contains a Group 3 Insecticide/acaricide. Any insect/mite population may contain individuals naturally resistant to Cyhella Insecticide and other Group 3 insecticides/acaricide. The resistant individuals may dominate the insect/mite population if this group of insecticides/acaricide is used repeatedly in the same fields. Appropriate resistance management strategies should be followed.

To delay insecticide/acaricide resistance, take the following steps:

- Rotate the use of Cyhella Insecticide or other Group 3 insecticides/acaricides within a growing season, or between growing seasons, with different groups that control the same pests.

- Use tank mixtures with insecticides/acaricides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues (for the targeted pests) between the individual components of a mixture. In addition, consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC):
  - Individual insecticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.
  - Mixtures with components having the same IRAC mode of action classification are not recommended for insect resistance management.
  - When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
  - Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.
  - The insect resistance management benefits of an insecticide mixture are greatest if the two components have similar periods of residual insecticidal activity. Mixtures of resistance management benefit only for the period where both insecticides are active.
- Adopt an integrated pest management program for insecticide/acaricide use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which considers cultural, biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance - management and/or IPM recommendations or to report suspected resistance for the specific site and pest problems in your area.

## Spray Drift Precautions- Aquatic Areas

### BUFFER ZONES

#### Vegetative Buffer strip

Construct and maintain a minimum 10 foot wide vegetative filter strip of grass or other permanent vegetation between the field edge and down gradient aquatic habitat (such as, but not limited to lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish farm ponds).

Only apply products containing **{this product}** onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.

For guidance refer to the following publications for information on constructing and maintaining effective buffers:

*Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. p.21.*

[www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs144p2\\_030970.pdf](http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs144p2_030970.pdf)

In the State of New York, a 25 foot vegetated, non-cropped buffer strip untraversed by drainage tiles must be maintained between a treated field and a coastal salt marsh or stream that drains into a coastal salt marsh, for both aerial and ground application. For aerial applications, the 25 foot vegetated non-cropped buffer strip for runoff protection would be part of the larger 150 foot buffer strip (or 450-foot buffer strip for ULV application) required for spray drift.

#### Buffer Zone for Ground Application (groundboom, overhead chemigation, or airblast)

Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

#### Buffer Zone for ULV Aerial Application

Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

#### **Buffer Zone for Non-ULV Aerial Application**

Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, and commercial fish ponds).

### **SPRAY DRIFT REQUIREMENTS**

#### **Wind Direction and Speed**

Only apply {this product} if the wind direction favors on-target deposition. Do not apply when the wind velocity exceeds 15 mph.

#### **Temperature Inversion**

Do not make aerial or ground applications into temperature inversions.

Inversions are characterized by stable air and increasing temperatures with height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

#### **Droplet Size**

Use only medium or coarser spray nozzles (for ground and non-ULV aerial application) according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size.

#### **Applicator Requirements for Ground Applications**

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application. For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy. For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

#### **Additional Requirements for Aerial Applications**

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% of the rotor diameter. Flight speed and nozzle orientation must be considered in determining drop size. Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety. When applications are made with a cross-wind, the swath will be displaced downward. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

### **TANK MIX APPLICATIONS**

When tank mixing with any other agricultural products, always add {this product} last. Fill the tank with  $\frac{1}{2}$  to  $\frac{2}{3}$  volume of the mixing diluent. Make sure all other products are fully dispersed in the mixing diluent before adding the recommended rate of {this product} to the tank. Add the remainder of the mixing diluent volume. It is recommended that mixing and spray equipment have continuous agitation for the best results. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

While {this product} has good flexibility for tank mixing with other agricultural products, a jar test for physical compatibility is recommended for untried mixtures, using proper ratios and mixing sequences of all ingredients to be included in the mixture.

{this product} is an aqueous based formulation. It is recommended that no type of non-emulsifiable oils be used in combination with {this product}. If adjuvants are used, use only:

- Nonionic Surfactant (NIS) containing at least 75% surface acting agent, or
- Nonphytotoxic Crop Oil Concentrate (COC), including once refined Vegetable Oil Concentrate (VOC), or
- Methylated Seed Oils (MSO) containing a minimum of 17% emulsifier.

Adjuvants other than NIS or COC may be used providing the product meets the following criteria:

- Contains only EPA exempt ingredients.
- Is nonphytotoxic to the target crop.
- Is compatible in mixture. (May be established through a jar test.)
- Is supported locally for use with {this product} on the target crop through proven field trials and through university and extension recommendations.

In addition, the following may be used as diluents:

- Crop Oil Concentrate
- Methylated Seed Oil
- Urea-Ammonium Nitrate

It is recommended that the following not be used in combination with {this product} as diluents or adjuvants:

- Nonemulsifiable Oils
- Diesel Fuel
- Straight Mineral Oil

## CHEMIGATION

### Sprinkler Irrigation Application

Apply {this product} at rates and timing described elsewhere in this label. As local recommendations differ, consult your local State Extension Service or other local experts for recommendations on adjuvant or diluent types, (**see TANK MIX APPLICATION**) rates and mixing instructions. These recommendations should be proven, through university and extension field trials, to be effective with [this product] applied by chemigation.

Check the irrigation system to insure uniformity of water to all areas. Thorough coverage of foliage is required for good control. Good agitation in the pesticide supply tank should be maintained prior to and during the entire application period.

Apply by injecting the recommended rate of {this product} into the irrigation system using a metering device that will introduce a constant flow and by distributing the product to the target area in 0.1-0.2 acre-inch of water. In general, use the least amount of water required for proper distribution and coverage. It is recommended that the product be injected into the main irrigation line ahead of a right angle turn in the line to **ensure** adequate dispersion or mixing in the irrigation water. Once the application is completed, flush the entire irrigation and injection system with clean water before stopping the system.

In addition to the above recommendations, if application is being made during a normal irrigation set of a stationary sprinkler, the recommended rate of {this product} for the area covered should be injected into the system only during the end of the irrigation set for sufficient time to provide adequate coverage and product distribution.

It is not recommended that {this product} be applied through an irrigation system connected to a public water system. 'Public water system' means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly services an average of at least 25 individuals daily at least 60 days out of the year.

### Use Precautions – Sprinkler Irrigation Applications

- A. Apply {this product} only through sprinkler irrigation systems including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move. Do not apply this product through any other type of irrigation system.
- B. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- C. If you have any questions about calibration, you should contact State Extension Service Specialists, equipment manufacturers, or other experts.

- D. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system, unless the pesticide label prescribed safety devices for public water systems are in place.
- E. 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.
- F. 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 back-flow.
- G. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- H. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- I. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- J. 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.
- K. 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 are capable of being fitted with a system interlock.
- L. Any alternatives to the above required safety devices must conform to the list of EPA-approved alternative devices.
- M. **DO NOT** apply when wind speed favors drift beyond the area intended for treatment or non-uniform distribution of treated water.
- N. **DO NOT** apply through chemigation systems connected to public water systems.

Following best management practices can help reduce risk to terrestrial pollinators. Examples of best management practice include applying pesticides in the evening and at night when pollinators are not foraging and checking to confirm hive locations before spraying. For additional resources on pollinator best management practice, visit <https://www.epa.gov/pollinator-protection/find-best-management-practice-protect-pollinators>.

Managed pollinator protection plans are developed by states/tribes to promote communication between growers, landowners, farmers, beekeepers, pesticide users, and other pest management professionals to reduce exposure of bees to pesticides. If available, visit state plans for additional information on how to protect pollinators.

How to report bee kills: It is recommended that users contact both the state and the US Environmental Protection Agency to report bee kills due to pesticide applications. Bee kills can be reported to EPA at [beekill@epa.gov](mailto:beekill@epa.gov). To contact your state lead agency, see the current listing of state pesticide regulatory agencies at the National Pesticide Information Center's website ([http://npic.orst.edu/reg/state\\_agencies.html](http://npic.orst.edu/reg/state_agencies.html))

### SPECIFIC USE DIRECTIONS - AGRICULTURAL USES

| Crop                                      | Target Pests   | Rate                              |                       |
|---|--|-----------------------------------|-----------------------|
|   |  | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>ALFALFA AND ALFALFA GROWN FOR SEED</b> |  |                                   |                       |
|   | Alfalfa Caterpillar<br>Army Cutworm<br>Cutworm species<br>Green Cloverworm<br>Leafhopper species<br>Looper species | 0.015 – 0.025                     | 0.96 – 1.60           |



|   |            |             |
|---|------------|-------------|
| Threecornered Alfalfa Hopper<br>Velvetbean Caterpillar<br>Webworm species   |            |             |
| Alfalfa Seed Chalcid (Adult)<br>Alfalfa Weevil<br>Armyworm<br>Bean Leaf Beetle (Adult)<br>Blister Beetle species<br>Blue Alfalfa Aphid<br>Clover Leaf Weevil species<br>Clover Root Borer (Adult)<br>Clover Root Curculio species (Adult)<br>Clover Stem Borer (Adult)<br>Corn Earworm<br>Cowpea Aphid<br>Cowpea Curculio (Adult)<br>Cowpea Weevil<br>Cucumber Beetle species (Adult)<br>Egyptian Alfalfa Weevil<br>Fall Armyworm <sup>1</sup><br>Grape Colaspis (Adult)<br>Grasshopper species<br>Green June Beetle (Adult)<br>Green Peach Aphid <sup>2</sup><br>Japanese Beetle (Adult)<br>Meadow Spittlebug<br>Mexican Bean Beetle<br>Pea Aphid<br>Pea Weevil (Adult)<br>Plant Bug species including Lygus species <sup>2</sup><br>Spotted Alfalfa Aphid<br>Stink Bug species<br>Sweet Clover Weevil (Adult)<br>Thrips species <sup>3</sup><br>Western Yellowstriped Armyworm<br>Whitefringed Beetle species (Adult)<br>Yellowstriped Armyworm | 0.02 -0.03 | 1.28 – 1.92 |
| Beet Armyworm <sup>1,2</sup><br>Blotch Leafminer <sup>2</sup><br>Spider Mites <sup>4</sup>  | 0.03       | 1.92        |

**Application Instructions for Alfalfa and Alfalfa Grown for Seed:**

- Apply as required by scouting. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. Apply in a minimum of 2 gallons per acre by air or 10 gallons per acre by ground. When foliage is dense and/or pest populations are high 5-10 gallons per acre by air or 20 gallons per acre by ground and higher use rates are recommended. Use higher rates for increased residual control.
- Do not apply when bees are actively foraging by applying during the early morning or during the evening hours. Be aware of bee hazard resulting from a cool evening and/or morning dew. Remove bee shelters during and for 2-3 days following application. Do not apply directly to bee shelters.

- **DO NOT** apply more than (0.03 pound active ingredient) (1.92 fluid ounces or 0.12 pint) per acre per cutting.
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounce or 0.48 pint) per acre per season.
- **DO NOT** apply within 1 day of harvest for forage or within 7 days of harvest for hay.

<sup>1</sup> Use higher rates for large larvae.

<sup>2</sup> See **Resistance** statement under **Use Directions**

<sup>3</sup> Does not include Western Flower Thrips.

<sup>4</sup> Suppression only.

| Crop          | Target Pests  | Rate                              |                       |
|---------------|---|-----------------------------------|-----------------------|
|               |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>CANOLA</b> |   |                                   |                       |
|               | Armyworm species<br>Cabbage Seedpod Weevil<br>Cutworm species<br>Diamondback Moth<br>Flea Beetle<br>Grasshoppers<br>Looper species<br>Lygus Bug | 0.15 – 0.03                       | 0.96 – 1.92           |
|               | Cabbage Aphid   | 0.03                              | 1.92                  |

**Application Instructions for Canola:**

- Apply as required by scouting usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air apply a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.09 pound active ingredient) (5.76 fluid ounces or 0.36 pint) of product per acre per year.
- **DO NOT** apply within 7 days of harvest.

| Crop   | Target Pests  | Rate  |  |
|--|---|---|--|
|  |   | Pounds Active Ingredient per Acre   | Fluid Ounces per Acre                                    |
| <b>CEREAL GRAINS</b>   |   |   |  |
| CORN (at Plant):<br>Field Corn<br>Popcorn<br>Seed Corn<br>Sweet Corn | Corn Rootworm Larvae<br>Mexican<br>Northern<br>Southern<br>Western<br>Cutworm species<br>Lesser Cornstalk Borer<br>Red Imported Fire Ant <sup>1</sup><br>Seedcorn Beetle<br>Seedcorn Maggot<br>White Grub species<br>Wireworm species | 0.005<br>pounds active<br>ingredient per 1000<br>feet of row <sup>2</sup> | 0.33<br>fluid ounce per<br>1000 feet of row <sup>2</sup> |

**Application Instructions for CORN (at plant application):**

**Banded Applications** – Apply at planting as a 5-7 inch T-band sprayed across the open seed furrow between the furrow openers and the press wheels or as a band application behind the press wheel.

- **In-Furrow Applications** – Apply into the seed furrow through spray nozzles or microtubes behind the planter furrow openers and in front of the press wheel.
- Apply a minimum of 3 gallons finished spray per acre.
- **DO NOT** harvest or graze livestock or cut treated crops for feed within 21 days of plant application.
- **DO NOT** apply more than (0.09 lbs. active ingredient) (5.76 fluid ounces or 0.36 pint) of product per acre per crop at plant.
- For field corn, popcorn, and seed corn **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per crop at plant and foliar application. For sweet corn do not apply more than (0.48 pound active ingredient) (30.72 fluid ounces or 1.92 pint) of product per acre per crop from at plant and foliar applications.

<sup>1</sup>Suppression only

| <b><sup>2</sup>Pounds Active Ingredient and Fluid Ounce per Acre of {this product} applied at 0.33 Fluid Ounce per 1000 Feet per row for various row spacings</b> |        |        |        |        |        |        |
|---|--------|--------|--------|--------|--------|--------|
| <b>Row Spacing</b>  | 40"    | 38"    | 36"    | 34"    | 32"    | 30"    |
| <b>Linear Feet per Acre</b>   | 13,068 | 13,756 | 14,520 | 15,374 | 16,335 | 17,424 |
| <b>Pounds active ingredient per Acre</b>  | 0.067  | 0.07   | 0.075  | 0.079  | 0.084  | 0.09   |
| <b>Fluid Ounce per Acre</b>   | 4.3    | 4.55   | 4.8    | 5.05   | 5.4    | 5.75   |

| <b>Crop</b>  | <b>Target Pests</b>   | <b>Rate</b>                              |                              |
|--|---|--|------------------------------|
|  |   | <b>Pounds Active Ingredient per Acre</b> | <b>Fluid Ounces per Acre</b> |
| <b>CEREAL GRAINS</b>                                 |   |  |                              |
| CORN (Foliar):<br>Field Corn<br>Popcorn<br>Seed Corn | Corn Earworm <sup>1</sup><br>Cutworm species<br>Green Cloverworm<br>Meadow Spittlebug<br>Western Bean Cutworm <sup>1</sup>  | 0.015 – 0.025                            | 0.96 – 1.60                  |
|  | Armyworm <sup>2</sup><br>Bean Leaf Beetle<br>Bird Cherry-Oat Aphid <sup>3</sup><br>Cearal Cereal Leaf Beetle<br>Corn Leaf Aphid <sup>3</sup><br>Corn Rootworm Beetle (Adult):<br>Mexican<br>Northern<br>Southern<br>Western<br>English Grain Aphid <sup>3</sup><br>European Corn Borer <sup>1</sup><br>Fall Armyworm <sup>2</sup><br>Flea Beetle species<br>Grasshopper species<br>Hop Vine Borer <sup>1</sup><br>Japanese Beetle (Adult)<br>Lesser Cornstalk Borer<br>Sap Beetle (Adult) | 0.02 -0.03                               | 1.28 - 1.92                  |

|  |   |      |      |
|--|---|------|------|
|  | Seedcorn Beetle<br>Southwestern Corn Borer <sup>1</sup><br>Stalk Borer <sup>1</sup><br>Stink Bug species<br>Tobacco Budworm <sup>1,4</sup><br>Webworm species<br>Yellowstriped Armyworm <sup>2</sup>              |      |      |
|  | Beet Armyworm <sup>4</sup><br>Chinch Bug<br>Greenbug <sup>3,4</sup><br>Mexican Rice Borer <sup>1</sup><br>Rice Stalk Borer <sup>1</sup><br>Southern Corn Leaf Beetle <sup>3</sup><br>Sugarcane Borer <sup>1</sup> | 0.03 | 1.92 |

**Application Instructions for CORN (Foliar):**

- Apply as required by scouting, or locally prescribed corn growth stages, usually at intervals of 7 or more days. Base timing and frequency of applications on insect populations reaching locally determined economic thresholds or other locally recommended methods.
- Apply with ground or aerial equipment using sufficient water and application methods to obtain full coverage of target location. When applying by air, apply in a minimum of 3 gallons of water per acre.
- For chinch bug control, begin applications when bugs migrate from small grains or grass weeds to small corn. Direct spray to the base of corn plants. Repeat applications at 3-5 day intervals if needed. {This product} may only suppress heavy infestations and/or subsequent migrations.
- For control of adult corn rootworm beetles (*Diabrotica* species) as part of an aerial applied corn rootworm control program use a minimum of (0.03 pound active ingredient) (1.92 fluid ounces) of product per acre.
- **DO NOT** apply within 21 days of harvest.
- **DO NOT** allow livestock to graze in treated areas or harvest treated corn forage as feed for meat or dairy animals within 1 day after last treatment.
- **DO NOT** feed treated corn fodder or silage to meat or dairy animals within 21 days after last treatment.
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per crop from at plant and foliar applications.
- **DO NOT** apply more than (0.06 pound active ingredient) (3.84 fluid ounces or 0.24 pint) of product per acre after silk initiation.
- **DO NOT** apply more than (0.03 pound active ingredient) (1.92 fluid ounces or 0.12 pint.) of product per acre after corn has reached the milk stage (yellow kernels with milky fluid).

<sup>1</sup> For control before the larvae bore into the plant stalk or ear.

<sup>2</sup> Use higher rates for large larvae.

<sup>3</sup> Suppression only.

<sup>4</sup> See **Resistance** statement under **Use Directions**.

| Crop                 | Target Pests  | Rate                              |                       |
|----------------------|---|-----------------------------------|-----------------------|
|                      |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>CEREAL GRAINS</b> |   |                                   |                       |
| Sweet Corn (Foliar)  | Aphid species <sup>2,3</sup><br>Armyworm <sup>1</sup><br>Aster Leafhopper<br>Beet Armyworm <sup>1,3</sup><br>Chinch bug<br>Common Cornstalk Borer<br>Corn Earworm<br>Corn Rootworm Beetle (Adult):<br>Mexican<br>Northern | 0.02 – 0.03                       | 1.28 – 1.92           |

|  |   |      |      |
|--|---|------|------|
|  | Southern<br>Western<br>Cutworm species<br>European Corn Borer<br>Fall Armyworm <sup>1</sup><br>Flea Beetle species<br>Grasshopper species<br>Japanese Beetle (adult)<br>Sap Beetle (Adult)<br>Southern Armyworm <sup>1</sup><br>Southwestern Corn Borer<br>Spider Mite species <sup>2</sup><br>Stink Bug species<br>Tarnished Plant Bug<br>Webworm species<br>Western Bean Cutworm<br>Yellowstriped Armyworm <sup>1</sup> |      |      |
|  | Corn Silkfly (Adult) <sup>2</sup>   | 0.03 | 1.92 |

**Application Instructions for Sweet Corn (Foliar):**

- Apply as required by scouting, or locally prescribed corn growth stages, usually at intervals of 4 or more days. Base timing and frequency of applications on insect populations reaching locally determined economic thresholds or other locally recommended methods and should be targeted for control before insects enter the stalk or ear.
- Apply with ground or aerial equipment using sufficient water and application methods to obtain full coverage of foliage and ears (if present). When applying by air, apply in a minimum of 2 gallons of water per acre.
- For control of adult corn rootworm beetles (*Diabrotica* species) as part of an aerial applied corn rootworm control program use a minimum of (0.025 pound active ingredient) (1.60 fluid ounces) of product per acre.
- **DO NOT** apply within 1 day of harvest.
- **DO NOT** allow livestock to graze in treated areas or harvest treated corn forage as feed for meat or dairy animals within 1 day after last treatment.
- **DO NOT** feed treated corn fodder or silage to meat or dairy animals within 21 days after last treatment.
- **DO NOT** apply more than (0.48 pound active ingredient) (30.72 fluid ounces or 1.92 pint) of product per acre per crop from at plant and foliar applications.

<sup>1</sup> Use higher rates for large larvae.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop                 | Target Pests  | Rate                              |                       |
|----------------------|---|-----------------------------------|-----------------------|
|                      |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>CEREAL GRAINS</b> |   |                                   |                       |
| Rice<br>Wild Rice    | Bird Cherry-Oat Aphid<br>Chinch Bug<br>Fall Armyworm<br>Grasshopper species<br>Greenbug<br>Leafhopper species<br>Rice Stink Bug<br>Rice Water Weevil (Adult)<br>Riceworm<br>Sharpshooter species<br>True Armyworm | 0.025 – 0.04                      | 1.6 – 2.56            |

|  |  |             |             |
|--|--|-------------|-------------|
|  | Yellow Sugarcane Aphid<br>Yellowstriped Armyworm   |             |             |
|  | European Corn Borer <sup>1</sup><br>Mexican Rice Borer <sup>1</sup><br>Rice Seed Midge <sup>1</sup><br>Rice Stalk Borer <sup>1</sup><br>Sugarcane Borer <sup>1</sup> | 0.03 – 0.04 | 1.92 – 2.56 |

#### Application Instructions for CEREAL GRAIN: Rice, Wild Rice

- Apply as required by scouting. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds. Determine the need for repeat applications, usually at intervals of 5-7 days, by scouting.
- {This product} can be safely used when propanil products are being used for weed control.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water (or total carrier volume) per acre, but ensure sufficient volume is used to provide adequate coverage. In addition, adding an emulsified crop oil (e.g. 1 pint per acre) when lower aerial application volumes are used is recommended to help improve coverage, reduce evaporation and improve efficacy.
- For control of Rice Water Weevil in dry-seeded rice, make foliar applications as indicated by scouting for the presence of adults and/or feeding scars, usually within a timeframe of 0-5 days after permanent flood establishment. **DO NOT** exceed 10 days from starting permanent flood until insecticide application unless scouting indicates weevils have not been previously present. Adults may also be treated at later stages of rice development to reduce overwintering populations.
- For control of Rice Water Weevil in water-seeded rice, make the first foliar application after pinpoint flood as indicated by scouting for the presence of adults and/or feeding scars, usually when rice has emerged 0.5 inch above the waterline. Under conditions of prolonged migration into the field, start field scouting for Rice Water Weevil adults and/or feeding scars 3-5 days after the initial treatment and, if needed, apply a second application within 7-10 days of the first application. Adults may also be treated at later stages of rice development to reduce overwintering populations.
- California: In addition to above directions for control of Rice Water Weevil in water seeded rice, {this product} may be applied at the 1-3 leaf growth stage, with the majority at the 2 leaf growth stage. Adults are vulnerable on levees and in the water. Larvae are vulnerable while feeding on the leaf prior to entering the soil. Monitor for adults, based upon field history and density of population. Monitor field edges and levee areas for adults. Treat in the following manner: a) spray the inside perimeter of the field, or b) spray the entire field.
- Greenbug is known to have many biotypes. {this product} may only provide suppression. If satisfactory control is not achieved with the first application of {this product}, a resistant biotype may be present. Use alternate chemistry for control.
- For control of stem borers, scout fields when rice growth is near panicle differentiation, for early symptoms of damaging populations exhibited as discoloration (orange-tan) and the junction of the leaf sheath and leaf blade which is caused by feeding of young larvae within the sheath. Applications must be made before larvae bore into rice stems. Make the first application at panicle differentiation to 2 inch panicle for partial control. Make the second application at boot to heading for maximum control. All rice varieties are susceptible to stem borer damage, but Cocodrie and Priscilla are particularly susceptible.
- Mixers/loaders supporting aerial applications to wild rice at a rate of 0.04 pound active ingredient per acre, and treating 1200 acres (or more) per day should wear a minimum of a NIOSH-approved particulate filtering facepiece respirator with any R or P filter; OR a NIOSH-approved elastomeric particulate respirator with any R or P filter; OR a NIOSH-approved powered air purifying respirator with HE filters.
- **DO NOT** release flood water within 7 days of an application.
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per season.
- **DO NOT** apply more than (0.04 pound active ingredient) (2.56 fluid ounces or 0.16 pint) of product per acre within 21 to 27 days of harvest.
- **DO NOT** apply within 21 days of harvest.
- **DO NOT** use treated rice fields for the aquaculture of edible fish or crustacea.
- **DO NOT** apply as an ultra-low volume (ULV) spray.

<sup>1</sup> For control before the larvae bore into the plant stalk.

| Crop                 | Target Pests  | Rate                              |                       |
|----------------------|---|-----------------------------------|-----------------------|
|                      |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>CEREAL GRAINS</b> |   |                                   |                       |
| Sorghum (Grain)      | Cutworm species<br>Sorghum Midge  | 0.015 – 0.02                      | 0.96 – 1.28           |
|                      | Armyworm<br>Beet Armyworm <sup>3</sup><br>Corn Earworm<br>European Corn Borer <sup>2</sup><br>Fall Armyworm<br>Flea Beetle species<br>Grasshopper species<br>Lesser Cornstalk Borer <sup>2</sup><br>Southwestern Corn Borer <sup>2</sup><br>Stink Bug species<br>Webworm species<br>Yellowstriped Armyworm <sup>1</sup> | 0.02 - 0.03                       | 1.28 – 1.92           |
|                      | Chinch Bug<br>Mexican Rice Borer <sup>2</sup><br>Rice Stalk Borer <sup>2</sup><br>Sugarcane Borer <sup>2</sup>  | 0.03                              | 1.92                  |

**Application Instructions for CEREAL GRAINS: Sorghum (Grain):**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water and application methods to obtain full coverage of target location. When applying by air, apply in a minimum of 2 gallons of water per acre.
- For Sorghum Midge control, begin applications when 25% of the sorghum heads have emerged and are in tip bloom. Repeat applications at 5 day intervals if needed.
- For Chinch Bug control, begin applications when bugs migrate from small grains or grass weeds to small sorghum. Direct spray to the base of Sorghum plants. Repeat applications at 3-5 day intervals if needed. {This product} may only suppress heavy infestations and/or subsequent migrations.
- **DO NOT** apply more than (0.08 pound active ingredient) (5.12 fluid ounces or 0.32 pint) of product per acre per season.
- **DO NOT** apply more than (0.06 pound active ingredient) (3.84 fluid ounces or 0.24 pint) of product per acre per season after crop emergence.
- **DO NOT** apply more than (0.02 pound active ingredient) (1.28 fluid ounces or 0.08 pint) of product per acre per season once crop is in soft-dough stage.
- **DO NOT** apply within 30 days of harvest.

<sup>1</sup> Use higher rates for large larvae.

<sup>2</sup> For control before the larva bore into the plant stalk.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop   | Target Pests   | Rate                              |                       |
|--|--|-----------------------------------|-----------------------|
|  |  | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>CEREAL GRAINS</b>                           |  |                                   |                       |
| Barley<br>Buckwheat                            | Army Cutworm<br>Cutworm species  | 0.015 – 0.025                     | 0.96 – 1.60           |
| Oats<br>Rye<br>Triticale<br>Wheat<br>Wheat Hay | Armyworm<br>Bird Cherry-Oat Aphid <sup>1</sup><br>Cereal Leaf Beetle<br>English Grain Aphid <sup>1</sup><br>Fall Armyworm<br>Flea Beetle species<br>Grasshopper species<br>Hessian Fly <sup>4</sup><br>Orange Blossom Wheat Midge<br>Russian Wheat Aphid <sup>1</sup><br>Stink Bug species<br>Yellowstriped Armyworm | 0.02 - 0.03                       | 1.28 – 1.92           |
|  | Grass Sawfly   | 0.025 – 0.03                      | 1.60 - 1.92           |
|  | Chinch Bug<br>Corn Leaf Aphid <sup>2</sup><br>Greenbug <sup>1,3</sup><br>Mite species <sup>2</sup>   | 0.03                              | 1.92                  |

**Application Instructions for Barley, Buckwheat, Oats, Rye, Triticale, Wheat, Wheat Hay:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water and application methods to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- For Chinch Bug control, repeat applications at 3-5 day intervals if needed. {this product} may only suppress heavy infestations and/or migrations.
- Greenbug is known to have many biotypes. {This product} may provide suppression only. In this situation, a second application using an alternative chemistry may be needed.
- **DO NOT** allow livestock to graze in treated areas or harvest treated wheat forage as feed for meat or dairy animals within 7 days after treatment. **DO NOT** feed treated straw to meat or dairy animals within 30 days after the last treatment.
- **DO NOT** apply more than (0.06 pound active ingredient) (3.84 fluid ounces or 0.24 pint) of product per acre per season.
- **DO NOT** apply within 30 days of harvest.

<sup>1</sup> Best control is obtained before insects begin to roll leaves. Once crop has started to boot, {this product} may provide suppression only. Higher rates and increased coverage will be necessary.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

<sup>4</sup> Make applications when adults emerge.

| Crop                                       | Target Pests                     | Rate                              |                       |
|--|----------------------------------|-----------------------------------|-----------------------|
|  |                                  | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>COLE CROPS (HEAD AND STEM BRASSICA)</b> |                                  |                                   |                       |
| Broccoli<br>Brussels Sprouts               | Alfalfa Looper<br>Cabbage Looper | 0.015 – 0.025                     | 0.96 – 1.60           |



|   |   |             |             |
|---|---|-------------|-------------|
| Cabbage<br>Cavalo Broccolo<br>Cauliflower<br>Chinese Broccoli<br>(Gai Lon)<br>Chinese Cabbage<br>(Napa)<br>Chinese Mustard<br>Cabbage (Gai<br>Choy)<br>Kohlrabi | Cabbage Webwrom<br>Cutworm species<br>Imported Cabbageworm<br>Southern Cabbageworm  |             |             |
|   | Aphid species <sup>2,3</sup><br>Armyworm<br>Beet Armyworm <sup>1,3</sup><br>Corn Earworm<br>Diamondback Moth <sup>3</sup><br>Fall Armyworm <sup>1</sup><br>Flea Beetle species<br>Grasshopper species<br>Japanese Beetle (Adult)<br>Leafhopper species<br>Meadow Spittlebug<br>Plant Bug species<br>Including Lygus species <sup>3</sup><br>Spider Mite species <sup>2</sup><br>Stink Bug Species<br>Thrips species <sup>2</sup><br>Vegetable weevil (Adult)<br>Whitefly species <sup>2,3</sup><br>Yellowstriped Armyworm | 0.02 - 0.03 | 1.28 – 1.92 |

**Application Instructions for COLE CROPS (HEAD AND STEM BRASSICA):**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect population reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.24 pound active ingredient) (15.36 fluid ounces or 0.96 pint) of product per acre per season.
- **DO NOT** apply within 1 day of harvest.

<sup>1</sup> For control of first and second instar only.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop          | Target Pests   | Rate                              |                       |
|---------------|--|-----------------------------------|-----------------------|
|               |  | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>COTTON</b> |  |                                   |                       |
|               | Cutworm species<br>Soybean Thrips<br>Tobacco Thrips  | 0.015 – 0.02                      | 0.96 – 1.28           |
|               | Cabbage Looper<br>Cotton Fleahopper<br>Cotton Leaf Perforator<br>Cotton Leafworm<br>Lygus Bug species <sup>3</sup><br>Pink Bollworm<br>Saltmarsh Caterpillar | 0.02 - 0.03                       | 1.28 – 1.92           |
|               | Banded Wing Whitefly <sup>2,3</sup><br>Beet Armyworm <sup>1,3</sup><br>Boil Weevil<br>Brown Stink Bug  | 0.025 – 0.04                      | 1.60 – 2.56           |

|  |  |  |  |
|--|--|--|--|
|  | Cotton Aphid <sup>2,3</sup><br>Cotton Bollworm<br>European Corn Borer<br>Fall Armyworm<br>Green Stink Bug<br>Southern Green Stink Bug<br>Sweet Potato Whitefly <sup>2,3</sup><br>Tobacco Budworm <sup>3</sup><br>Twospotted Spider Mite <sup>2</sup> |  |  |
|--|--|--|--|

**Application Instructions for COTTON:**

- Apply as required by scouting, usually at intervals of 5-7 days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage.
- Applications may also be made with equipment adapted and calibrated for ULV sprays. {this product} may be mixed with once-refined vegetable oil and applied in a minimum of at least one quart of finished spray per acre.
- Under light bollworm/budworm infestation levels, (0.02 pound active ingredient) (1.28 fluid ounces) of product per acre may be applied in conjunction with intense field monitoring. For boll weevil control, spray on a 3-5 day schedule.
- When applied according to label directions for control of cotton bollworm and tobacco budworm, {this product} also provides ovicidal control of unhatched *Heliothine* species eggs.
- **DO NOT** graze livestock in treated areas.
- **DO NOT** apply more than (0.2 pound active ingredient) (12.8 fluid ounces or 0.8 pint) of product per acre per season.
- **DO NOT** make more than a total of 10 synthetic pyrethroid applications(of one product or combination of products) to a cotton crop in one growing season.
- **DO NOT** apply within 21 days of harvest.

<sup>1</sup> For control of first and second instar only.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop   | Target Pests  | Rate                              |                       |
|--|---|-----------------------------------|-----------------------|
|  |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>CUCURBIT VEGETABLES</b>   |   |                                   |                       |
| Chayote (fruit)<br>Chinese Waxgourd (Chinese preserving melon)<br>Citron Melon<br>Cucumber<br>Gherkin<br>Gourd (edible)<br><i>Lagenaria</i> species - includes: hyotan, cucuzza<br><i>Luffa acutangula</i> , <i>L. cylindrical</i> - includes: hechima, Chinese okra<br><i>Momordica</i> species - includes: balsam apple, balsam pear, bitter | Armyworm species <sup>1</sup><br>Blister Beetle species<br>Cabbage Looper<br>Corn Earworm<br>Cricket species<br>Cucumber Beetle species (Adults)<br>Cutworm species<br>Flea Beetle species<br>Grasshopper species<br>June Beetle species<br>Leaffooted Bug<br>Leafhopper species<br>Lygus Bug species <sup>1</sup><br>Melonworm<br>Pickleworm | 0.02 – 0.03                       | 1.28 – 1.92           |

|  |   |      |      |
|--|---|------|------|
| melon, Chinese cucumber<br>Muskmelon (hybrids and/or cultivars of <i>Cucumis melo</i> ) - includes: true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon<br>Pumpkin<br>Squash, summer ( <i>Cucurbita pepo</i> var. <i>melopepo</i> ) - includes: crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini<br>Squash, winter ( <i>Cucurbita maxima</i> ; <i>C. moschata</i> ) - includes butternut squash, calabaza, hubbard squash ( <i>C. mixta</i> ; <i>C. pepo</i> ) - includes: acorn squash, spaghetti squash<br>Watermelon —includes: hybrids and/or varieties of <i>Citrullus lanatus</i> | Plant Bug species<br>Rindworm species complex<br>Saltmarsh Caterpillar<br>Squash Beetle<br>Squash Bug species<br>Squash Vine Borer species<br>Stink Bug species<br>Thrips species <sup>1,2</sup><br>Tobacco Budworm <sup>1</sup><br>Webworm species |      |      |
|  | Aphid species <sup>1</sup><br>Leafminer species <sup>1,3</sup><br>Whitefly species <sup>1,3</sup><br>Spider Mite species <sup>3</sup>   | 0.03 | 1.92 |

**Application Instructions for CUCURBIT VEGETABLES:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water and application methods to obtain full coverage of all plant parts. When applying by air, apply in a minimum of 2 gallons total solution per acre. When applying by ground, a minimum of 10 gallons total solution per acre is recommended.
- Use higher application volumes and/or rates when foliage is dense, pest populations are high, larvae are large, weather conditions are adverse and/or as plant size increases. Use higher rates for longer residual.
- Insects that bore or tunnel into leaves, vines, stems or fruit must be controlled before penetration. Only exposed insects (larvae and/or adults) can be controlled with foliar applications of {this product}.
- **DO NOT** apply more than (0.18 pound active ingredient) (11.5 fluid ounces or 0.72 pint) of product per acre per season.
- **DO NOT** apply within 1 day of harvest.

<sup>1</sup> See **Resistance** statement under **Use Directions**.

<sup>2</sup> Does not include Western Flower Thrips.

<sup>3</sup> Suppression only.

| Crop                       | Target Pests | Rate                              |                       |
|----------------------------|--------------|-----------------------------------|-----------------------|
|                            |              | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>FRUITING VEGETABLES</b> |              |                                   |                       |

|   |  |               |             |
|---|--|---------------|-------------|
| Eggplant<br>Ground cherry<br>Pepino<br>Peppers (bell and non-bell)<br>Tomatillo<br>Tomato | Cabbage Looper<br>Cutworm species<br>Hornworm species  | 0.015 – 0.025 | 0.96 – 1.60 |
|   | Aphid species <sup>2,3</sup><br>Beet Armyworm <sup>1,3</sup><br>Blister Beetle species<br>Colorado Potato Beetle <sup>3</sup><br>Cucumber Beetle species (Adult)<br>European Corn Borer <sup>4</sup><br>Fall Armyworm <sup>1</sup><br>Flea Beetle species<br>Grasshopper species<br>Japanese Beetle (Adult)<br>Leafhopper species<br>Leafminer species <sup>2</sup><br>Meadow Spittlebug<br>Pepper Weevil (Adult) <sup>2</sup><br>Plant Bug species<br>Southern Armyworm <sup>1</sup><br>Spider Mite species <sup>2</sup><br>Stalk Borer <sup>4</sup><br>Stink Bug species<br>Thrips <sup>5</sup><br>Tobacco Budworm <sup>3</sup><br>Tomato Fruitworm<br>Tomato Pinworm<br>Tomato Psyllid <sup>2,3</sup><br>Vegetable Weevil (Adult)<br>Whitefly species <sup>2,3</sup><br>Yellowstriped Armyworm <sup>1</sup> | 0.02 - 0.03   | 1.28 - 1.92 |

**Application Instructions for FRUITING VEGETABLES:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.36 pound active ingredient) (23.04 fluid ounces or 1.44 pint) of product per acre per season.
- **DO NOT** apply within 5 days of harvest.

<sup>1</sup> For control of first and second instar only.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

<sup>4</sup> For control before the larva bore into the plant stalk or fruit.

<sup>5</sup> Does not include Western Flower Thrips.

| Crop  | Target Pests  | Rate                              |                       |
|---|---|-----------------------------------|-----------------------|
|   |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>GRASS FORAGE, FODDER AND HAY</b>   |   |                                   |                       |
| Pasture and Rangeland<br>Grass, Grass Grown for Hay or Silage, and Grass Grown for Seed | Army Cutworm<br>Cutworm species<br>Essex Skipper<br>Range Caterpillar<br>Striped Grass Looper | 0.015 – 0.025                     | 0.96 – 1.60           |

|  |  |             |             |
|--|--|-------------|-------------|
|  | Beet Armyworm<br>Billbug species <sup>3</sup><br>Bird Cherry-Oat Aphid <sup>1</sup><br>Black Grass Bug<br>Black Turfgrass Beetle (Adult)<br>Blue Stem Midge<br>Cereal Leaf Beetle<br>Chinch Bug<br>Crane Fly species<br>Cricket species<br>English Grain Aphid <sup>1</sup><br>Fall Armyworm<br>Flea Beetle species<br>Grass Mealybug<br>Grass Sawfly (Adult)<br>Grasshopper species<br>Green June Beetle (Adult)<br>Greenbug <sup>1,2</sup><br>Japanese Beetle (Adult)<br>Katydid species<br>Leafhopper species<br>Mite species <sup>3</sup><br>Russian Wheat Aphid <sup>1</sup><br>Southern Armyworm<br>Spittlebug species<br>Stink Bug species<br>Sugarcane Aphid<br>Thrips species<br>Tick species<br>True Armyworm<br>Webworm species<br>Yellowstriped Armyworm | 0.02 - 0.03 | 1.28 - 1.92 |
|--|--|-------------|-------------|

**Application Instructions for GRASS FORAGE, FODDER AND HAY:**

- Apply as required by scouting. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water and application methods to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons total solution per acre. When applying by ground, a minimum of 7 gallons total solution per acre is recommended.
- Use higher application volumes and rates when foliage is dense, pest populations are high, larvae are large and/or weather conditions are adverse. Use higher rates for longer residual.
- For Chinch Bug control, {this product} may only suppress heavy infestations and/or migrations. In this situation, a second application using an alternative chemistry may be needed.
- Greenbug is known to have many biotypes. {This product} may provide suppression only. In this situation, a second application using an alternative chemistry may be needed.
- Pasture and rangeland grass may be used for grazing or cut for forage 0 days after application.
- **DO NOT** cut grass to be dried and harvested for hay until 7 days after the last application.
  - Grass grown for seed:
    - Straw, hay and mature seed (seed screenings) may be used as feed 7 days after the last application. Regrowth of grass grown for seed may be used for grazing, cut for forage or cut to be dried and harvested for hay.
- **DO NOT** apply more than (0.03 pound active ingredient) (1.92 fluid ounces or 0.12 pint) of product per acre per cutting for pastures, rangeland and grasses grown for seed. A minimum re-treatment interval (RTI) of 30 days is required for pastures and rangeland receiving 0.03 pound active ingredient per acre which have not been cut between applications.
- **DO NOT** apply more than (0.09 pound active ingredient) (5.76 fluid ounces or 0.36 pint) of product per acre per season.

<sup>1</sup> Best control is obtained before insects begin to roll leaves.

<sup>2</sup> See **Resistance** statement under **Use Directions**.

<sup>3</sup> Suppression only.

| Crop   | Target Pests  | Rate  |                       |
|--|---|---|-----------------------|
|  |   | Pounds Active Ingredient per Acre   | Fluid Ounces per Acre |
| <b>LEGUME VEGETABLES (BEANS AND PEAS)</b>  |   |   |                       |
| <b>Edible Podded (Only)</b><br><br><i>Canavalia ensiformis</i><br>- jack bean<br><i>Canavalia gladiata</i><br>- sword bean<br>Glycine max<br>- soybean (immature seed) | Cutworm species<br>Green Cloverworm<br>Imported Cabbageworm<br>Mexican Bean Beetle<br>Saltmarsh Caterpillar<br>Velvetleaf Caterpillar   | 0.015 – 0.025   | 0.96 – 1.60           |
|  | <b>Edible Podded, Succulent Shelled or Dried Shelled</b><br><br><i>Cajanus cajan</i> – Pigeon pea<br><i>Phaseolus</i> species<br>includes: field, kidney, lima, navy, pinto, runner, snap, tepary and wax beans<br><i>Pisum</i> species - includes: dwarf, edible-pod, English, field, garden, green, snow and sugar snap peas<br><i>Vigna</i> species - includes: adzuki, asparagus, moth, mung, rice, urd and yardlong beans, black-eye pea, catjang, Chinese longbean, cowpea, Crowder pea, and Southern Pea<br><br><b>Succulent Shelled or Dried Shelled</b><br><i>Cicer arietinum</i> – chickpea (garbanzo bean)<br><i>Cyamopsis tetragonoloba</i> – guar<br><i>Lablab purpureus</i> – Lablab bean (hyacinth bean)<br><i>Lupinus</i> species – Includes: grain, sweet, | Alfalfa Caterpillar<br>Aphid species <sup>4</sup><br>Armyworm <sup>2</sup><br>Bean Leaf Beetle<br>Bean Leaf Skeletonizer<br>Blister Beetle species<br>Corn Earworm<br>Corn Rootworm Beetle species (Adult)<br>Cucumber Beetle species (Adult)<br>Curculio and Weevil species <sup>1</sup> (foliage and pod feeding adults and larvae)<br>European Corn Borer<br>Fall Armyworm <sup>2</sup><br>Flea Beetle species (Adult)<br>Flea Hopper species<br>Grasshopper species<br>Japanese Beetle (Adult)<br>Leafhopper species<br>Leaf-tier species<br>Looper species<br>Meadow Spittlebug<br>Painted Lady Butterfly (Larva)<br>Plant Bug species including Lygus species <sup>4</sup><br>Stalk Borer <sup>1</sup><br>Stink Bug species<br>Threecornered Alfalfa Hopper<br>Thrips species <sup>4,5</sup><br>Tobacco Budworm <sup>4</sup><br>Webworm species<br>Western Bean Cutworm<br>Western Yellowstriped Armyworm <sup>2</sup><br>Yellowstriped Armyworm <sup>2</sup> | 0.02 - 0.03           |

|   |   |      |      |
|---|---|------|------|
| white and sweet white lupines<br><i>Lens esculata</i> - Lentils | Beet Armyworm <sup>3,4</sup><br>Leafminer species <sup>3,4</sup><br>Lesser Cornstalk Borer <sup>3</sup><br>Soybean Looper <sup>3,4</sup><br>Spider Mite species <sup>3</sup><br>Whitefly species <sup>3,4</sup> | 0.03 | 1.92 |
|---|---|------|------|

**Application Instructions for LEGUME VEGETABLES (BEAN AND PEAS):**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply within 7 days of harvest for edible podded and succulent shelled legume vegetables.
- **DO NOT** apply within 21 days of harvest for dried shelled legume vegetables.
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per season.
- **DO NOT** graze livestock or harvest vines for forage or hay in treated areas of succulent and dried shelled peas and beans.

<sup>1</sup> For control before the larva bore into the plant stalk or pods.

<sup>2</sup> Use higher rates for large larvae.

<sup>3</sup> Suppression only.

<sup>4</sup> See **Resistance** statement under **Use Directions**.

<sup>5</sup> Does not include Western Flower Thrips.

| Crop                                | Target Pests   | Rate                              |                       |
|-------------------------------------|--|-----------------------------------|-----------------------|
|                                     |  | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>LEGUME VEGETABLES (SOYBEANS)</b> |  |                                   |                       |
|                                     | Bean Leaf Beetle<br>Cabbage Looper<br>Corn Earworm<br>Corn Rootworm Beetle (Adult)<br>Mexican<br>Northern<br>Southern<br>Western<br>Cutworm species<br>Green Cloverworm<br>Mexican Bean Beetle<br>Painted Lady (Thistle) Caterpillar<br>Potato Leafhopper<br>Saltmarsh Caterpillar<br>Soybean Aphids <sup>4</sup><br>Threecornered Alfalfa Hopper<br>Thrips species <sup>5</sup><br>Velvetbean Caterpillar<br>Woollybear Caterpillar | 0.015 – 0.025                     | 0.96 – 1.60           |
|                                     | Armyworm <sup>1</sup><br>Blister Beetle species<br>European Corn Borer<br>Fall Armyworm <sup>1</sup><br>Grasshopper species<br>Japanese Beetle (Adult)<br>Plant Bug species  | 0.025 - 0.03                      | 1.60 - 1.92           |

|  |  |      |      |
|--|--|------|------|
|  | Silverspotted Skipper<br>Stink Bug species<br>Tobacco Budworm <sup>3</sup><br>Webworm species<br>Yellowstriped Armyworm <sup>1</sup>     |      |      |
|  | Beet Armyworm <sup>2,3</sup><br>Lesser Cornstalk Borer <sup>2</sup><br>Soybean Looper <sup>2,3</sup><br>Spider Mite species <sup>2</sup> | 0.03 | 1.92 |

**Application Instructions for LEGUME VEGETABLES (SOYBEAN):**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- For control of adult Corn Rootworm Beetles (*Diabrotica* species) as part of an aerial-applied corn Rootworm Control Program use a minimum of (0.02 pound active ingredient) (1.28 fluid ounces) of product per acre.
- **DO NOT** graze or harvest treated soybean forage, straw, or hay for livestock feed.
- **DO NOT** apply within 30 days of harvest.
- **DO NOT** apply more than (0.06 pound active ingredient) (3.84 fluid ounces or 0.24 pint) of product per acre per season.

<sup>1</sup> Use higher rates for large larvae.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

<sup>4</sup> Use lower rates for early season applications and/or lighter populations.

<sup>5</sup> Does not include Western Flower Thrips.

| Crop                           | Target Pests  | Rate                              |                       |
|--------------------------------|---|-----------------------------------|-----------------------|
|                                |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>LETTUCE (HEAD AND LEAF)</b> |   |                                   |                       |
|                                | Alfalfa Looper<br>Cabbage Looper<br>Cutworm species<br>Green Cloverworm<br>Imported Cabbageworm<br>Saltmarsh Caterpillar  | 0.015 – 0.025                     | 0.96 – 1.60           |
|                                | Aphid species <sup>2,3</sup><br>Armyworm<br>Beet Armyworm <sup>1,3</sup><br>Corn Earworm<br>Diamondback Moth <sup>3</sup><br>European Corn Borer<br>Fall Armyworm <sup>1</sup><br>Flea Beetle species<br>Grasshopper species<br>Japanese Beetle (Adult)<br>Leafhopper species<br>Meadow Spittlebug<br>Plant Bug species including<br>Lygus species <sup>3</sup><br>Southern Armyworm<br>Spider Mite Species <sup>2</sup><br>Stink Bug species | 0.02 - 0.03                       | 1.28 - 1.92           |



|  |   |  |  |
|--|---|--|--|
|  | Tobacco Budworm <sup>3</sup><br>Vegetable Weevil (Adult)<br>Whitefly species <sup>2,3</sup> |  |  |
|--|---|--|--|

**Application Instructions for LETTUCE (HEAD AND LEAF):**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.3 pound active ingredient) (19.2 fluid ounces or 1.2 pint) of product per acre per season.
- **DO NOT** apply within 1 day of harvest.

<sup>1</sup> For control of first and second instar only.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop                           | Target Pests  | Rate                              |                       |
|--------------------------------|---|-----------------------------------|-----------------------|
|                                |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>ONION (BULB) AND GARLIC</b> |   |                                   |                       |
|                                | Cutworm species<br>Leafminer species (Adult)<br>Onion Maggot (Adult)<br>Seedcorn Maggot (Adult)   | 0.015 – 0.025                     | 0.96 – 1.60           |
|                                | Aphid species <sup>2</sup><br>Armyworm species <sup>1</sup><br>Flower Thrips <sup>2,3</sup><br>Onion Thrips <sup>3</sup><br>Plant Bug species<br>Stink Bug species<br>Tobacco Thrips <sup>3</sup><br>Western Flower Thrips <sup>2,3</sup> | 0.02 - 0.03                       | 1.28 - 1.92           |

**Application Instructions for ONION (BULB) AND GARLIC:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- Use the higher label rates as thrips population increases and avoid rescue situations.
- For thrips control by aerial application, the addition of 1% COC v/v, 0.25% NIS v/v or a silicone adjuvant (follow manufacturers use directions) may enhance the deposition of the spray and increase plant coverage.
- **DO NOT** apply more than (0.24 pound active ingredient) (15.36 fluid ounces or 0.96 pint) of product per acre per season.
- **DO NOT** apply within 14 days of harvest.

<sup>1</sup> For control of first and second instars only.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop           | Target Pests  | Rate                              |                       |
|----------------|---|-----------------------------------|-----------------------|
|                |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>PEANUTS</b> |   |                                   |                       |
|                | Cutworm species<br>Green Cloverworm<br>Potato Leafhopper<br>Rednecked Peanut Worm<br>Threecornered Alfalfa Hopper<br>Velvetbean Caterpillar   | 0.015 – 0.025                     | 0.96 – 1.60           |
|                | Bean Leaf Beetle<br>Corn Earworm<br>Fall Armyworm <sup>1</sup><br>Grasshopper species<br>Southern Corn Rootworm (Adult)<br>Stink Bug species<br>Tobacco Thrips<br>Vegetable Weevil<br>Whitefringed Beetle (Adult) | 0.02 - 0.03                       | 1.28 - 1.92           |
|                | Aphid species <sup>2</sup><br>Beet Armyworm <sup>2,3</sup><br>Lesser Cornstalk Borer <sup>2</sup><br>Soybean Looper <sup>2,3</sup><br>Spider Mite species <sup>2</sup>  | 0.03                              | 1.92                  |

**Application Instructions for PEANUTS:**

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per season.
- **DO NOT** apply within 14 days of harvest.

<sup>1</sup> Use higher rates for large larvae.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop               | Target Pests | Rate                              |                       |
|--------------------|--------------|-----------------------------------|-----------------------|
|                    |              | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>POME FRUITS</b> |              |                                   |                       |

|   |   |             |             |
|---|---|-------------|-------------|
| Apple<br>Crabapple<br>Loquat<br>Mayhaw<br>Oriental Pear<br>Pear<br>Quince | Apple Aphid<br>Apple Maggot (Adult)<br>Cherry Fruit Fly species (Adult)<br>Codling Moth<br>Green Fruitworm<br>Japanese Beetle<br>Leafhopper species<br>Leafroller species<br>Lesser Appleworm<br>Omnivorous Leafroller<br>Orange Tortrix<br>Oriental Fruit Moth<br>Pear Psylla <sup>1</sup><br>Pear Sawfly<br>Periodical Cicada<br>Plant Bug species<br>Plum Curculio<br>Rosy Apple Aphid<br>San Jose Scale (fruit infestation only)<br>Spirea Aphid <sup>1</sup><br>Stink Bug species<br>Tent Caterpillar species<br>Tentiform Leaf Miner species<br>Tree Borer species<br>Tufted Apple Budworm<br>Webworm species | 0.02 – 0.04 | 1.28 - 2.56 |
|---|---|-------------|-------------|

**Application Instructions for POME FRUITS:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds and IPM recommendations.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of the foliage or target area. When applying by air, apply in a minimum of 5 gallons of water per acre but use higher volumes as appropriate for thorough coverage.
- **DO NOT** apply more than (0.2 pound active ingredient) (12.8 fluid ounces or 0.80 pint) of product per acre per year.
- **DO NOT** apply more than (0.16 pound active ingredient) (10.24 fluid ounces or 0.64 pint) of product per acre per year post-bloom.
- **DO NOT** apply within 21 days of harvest.

<sup>1</sup> Suppression only.

| Crop                | Target Pests | Rate                              |                       |
|---------------------|--------------|-----------------------------------|-----------------------|
|                     |              | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>STONE FRUITS</b> |              |                                   |                       |

|  |   |             |             |
|--|---|-------------|-------------|
| Apricot<br>Chickasaw Plum<br>Damson Plum<br>Japanese Plum<br>Nectarine<br>Peach<br>Plum<br>Plumcot<br>Prune<br>Sweet and Tart Cherry | American Plum Borer<br>Apple Maggot (Adult)<br>Black Cherry Aphid<br>Cherry Fruit Fly species<br>(Adult)<br>Codling Moth<br>Green Fruitworm<br>Japanese Beetle<br>June Beetle<br>Leafhopper species<br>Leafroller species<br>Oriental Fruit Moth<br>Peach Twig Borer<br>Peachtree Borer species<br>Pear Sawfly<br>Periodical Cicada<br>Plant Bug species<br>Plum Curculio<br>Rose Chafer<br>Stink Bug species<br>Tent Caterpillar species<br>Thrips species | 0.02 – 0.04 | 1.28 - 2.56 |
|--|---|-------------|-------------|

**Application Instructions for STONE FRUITS:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds and IPM recommendations.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage or target area. When applying by air, apply in a minimum of 5 gallons of water per acre but use higher volumes as appropriate for thorough coverage.
- **DO NOT** apply more than (0.2 pound active ingredient) (12.8 fluid ounces or 0.80 pint) of product per acre per year.
- **DO NOT** apply more than (0.16 pound active ingredient) (10.24 fluid ounces or 0.64 pint) of product per acre per year post bloom.
- **DO NOT** apply within 14 days of harvest.

| Crop             | Target Pests  | Rate                              |                       |
|------------------|---|-----------------------------------|-----------------------|
|                  |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>SUGARCANE</b> |   |                                   |                       |
|                  | Mexican Rice Borer <sup>1</sup><br>Pygmy Mole Cricket<br>Rice Stalk Borer <sup>1</sup><br>Sugarcane Aphid <sup>3</sup><br>Sugarcane Beetle (Adult) <sup>2</sup><br>Sugarcane Borer <sup>1</sup><br>West Indian Crane fly<br>Yellow Sugarcane Aphid <sup>3</sup> | 0.025 – 0.04                      | 1.60 - 2.56           |

**Application Instructions for SUGARCANE:**

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage or target area. When applying by air, apply in a minimum of 2 gallons of water per acre.

- **DO NOT** apply more than (0.16 pound active ingredient) (10.24 fluid ounces or 0.64 pint) of product per acre per season.
- **DO NOT** apply within 21 days of harvest.

<sup>1</sup> For control before the larva bore into the plant stalk.

<sup>2</sup> Suppression only of beetles active above ground.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop             | Target Pests  | Rate                              |                       |
|------------------|---|-----------------------------------|-----------------------|
|                  |   | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>SUNFLOWER</b> |   |                                   |                       |
|                  | Cutworm species<br>Sunflower Beetle   | 0.015 – 0.025                     | 0.96 - 1.60           |
|                  | Banded Sunflower Moth<br>Fall Armyworm <sup>1</sup><br>Grasshopper species<br>Head-Clipper Weevil (Adult)<br>Japanese Beetle (Adult)<br>Leafhopper species<br>Meadow Spittlebug<br>Painted Lady (Thistle)<br>Caterpillar<br>Seed Weevil (Adult)<br>Spotted Cabbage Looper<br>Stem Weevil (Adult)<br>Stink Bug species<br>Sunflower Maggot (Adult)<br>Sunflower Moth<br>Woollybear Caterpillar | 0.02 – 0.03                       | 1.28 – 1.92           |
|                  | Beet Armyworm <sup>2,3</sup><br>Spider Mite species <sup>2</sup>  | 0.03                              | 1.92                  |

**Application Instructions for SUNFLOWER:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of sunflower heads and/or foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per season.
- **DO NOT** apply more than (0.09 pound active ingredient) (5.76 fluid ounces or 0.36 pint) of product per acre per season after bloom initiation.
- **DO NOT** apply within 45 days of harvest.
- **DO NOT** apply as an ultra-low volume (ULV) spray.

<sup>1</sup> Use higher rate for large larvae.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop | Target Pests | Rate                              |                       |
|------|--------------|-----------------------------------|-----------------------|
|      |              | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |

| <b>TOBACCO</b> |   |              |             |
|----------------|---|--------------|-------------|
|                | Armyworm species <sup>1</sup><br>Blister Beetle species<br>Cabbage Looper<br>Corn Earworm<br>Cucumber Beetle species (Adult)<br>Cutworm species<br>Grasshopper species<br>Japanese Beetle (Adult)<br>Katydid species<br>Plant Bug species <sup>3</sup><br>Potato Tuberworm<br>Salt Marsh Caterpillar<br>Stinkbug species<br>Tobacco Aphid species <sup>2,3</sup><br>Tobacco Budworm <sup>3</sup><br>Tobacco Flea Beetle (Adult)<br>Tobacco Hornworm<br>Tobacco Thrips species <sup>2</sup><br>Tobacco Hornworm<br>Tree Cricket species<br>Vegetable Weevil (Adult)<br>Webworm species | 0.015 – 0.03 | 0.96 – 1.92 |

**Application Instructions for TOBACCO:**

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.09 pound active ingredient) (5.76 fluid ounces or 0.36 pint) of product per acre per season.
- **DO NOT** apply within 40 days of harvest.

<sup>1</sup> For control of first and second instars only.

<sup>2</sup> Suppression only.

<sup>3</sup> See **Resistance** statement under **Use Directions**.

| Crop             | Target Pests | Rate                              |                       |
|------------------|--------------|-----------------------------------|-----------------------|
|                  |              | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>TREE NUTS</b> |              |                                   |                       |

|   |  |             |             |
|---|--|-------------|-------------|
| Almonds<br>Beech Nut<br>Brazil Nut<br>Butternut<br>Cashew<br>Chestnut<br>Chinquapin<br>Filbert (Hazelnut)<br>Hickory Nut<br>Macadamia Nut (Bush Nut)<br>Pistachio<br>Walnut, Black<br>Walnut, English (Persian) | Ants<br>Chinch Bug<br>Codling Moth<br>Filbertworm<br>Leaffooted Bug<br>Leafroller species<br>Navel Orangeworm<br>Peach Twig Borer<br>Plant Bug species<br>Stink Bug species<br>Walnut Aphid<br>Walnut Husk Fly species (Adult) | 0.02 – 0.04 | 1.28 – 2.56 |
| Pecan   | Hickory Shuckworm<br>Pecan Aphid species<br>Pecan Casebearer species<br>Pecan Phylloxera species<br>Pecan Spittlebug<br>Pecan Weevil<br>Stink Bug species  | 0.02 – 0.04 | 1.28 – 2.56 |

**Application Instructions for TREE NUTS:**

- Apply as required by scouting, usually at intervals of 5 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of foliage or target area. When applying by air, apply in a minimum of 5 gallons of water per acre, but use higher rates as appropriate for thorough coverage.
- **DO NOT** apply more than (0.16 pound active ingredient) (10.24 fluid ounces or 0.64 pint) of product) per acre per season.
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per year post bloom.
- **DO NOT** apply within 14 days of harvest.

| Crop | Target Pests | Rate                         |                       |
|------|--------------|------------------------------|-----------------------|
|      |              | Pounds Active Ingredient per | Fluid Ounces per Acre |

|  |  | <b>Acre</b>   |             |
|--|--|---------------|-------------|
| <b>TUBEROUS AND CORM VEGETABLES<br/>(Potato, Sweet Potato, Yams and Related)</b>   |  |               |             |
| Arracacha<br>Arrowroot<br>Artichoke (Chinese and<br>Jerusalem only)<br>Canna (edible)<br>Cassava (bitter and<br>sweet)<br>Chayote (root)<br>Chufa<br>Dasheen<br>Ginger<br>Leren<br>Potato<br>Sweet Potato<br>Tanier<br>Turmeric<br>Yam (bean and true) | Cutworm species<br>Leafhopper species<br>Saltmarsh Caterpillar<br>Sweet Potato Hornworm<br>Woollybear Caterpillar species  | 0.015 – 0.025 | 0.96 – 1.60 |
|  | Aphid species <sup>1</sup><br>Armyworm species <sup>1</sup><br>Blister Beetle species<br>Colorado Potato Beetle <sup>1</sup><br>Corn Earworm<br>Cricket species<br>Cucumber Beetle species<br>(Adult)<br>European Corn Borer<br>Flea Beetle species (Adult)<br>Grasshopper species<br>Looper species <sup>1</sup><br>Lygus Bug species <sup>1</sup><br>Plant Bug species<br>Potato Psyllid<br>Potato Tuberworm<br>Stink Bug species<br>Sweet Potato Leaf Beetle<br>(Adult)<br>Sweet Potato Vine Borer<br>Thrips species <sup>1,2</sup><br>Tortoise Beetle species<br>Webworm species<br>Weevil species (Adult) | 0.02 – 0.03   | 1.28 – 1.92 |
|  | Leafminer species <sup>1,3</sup><br>Spider Mite species <sup>3</sup><br>Whitefly species <sup>1,3</sup>  | 0.03          | 1.92        |

**Application Instructions for TUBEROUS AND CORM VEGETABLES:**

- Apply as required by scouting, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground or aerial equipment using sufficient water to obtain full coverage of all above ground plant parts. When applying by air, apply in a minimum of 2 gallons total solution per acre. When applying by ground, a minimum of 10 gallons total solution per acre is recommended.
- Use higher application volumes and/or rates when foliage is dense, pest populations are high, larvae are large, weather conditions are adverse and/or as plant size increases. Use higher rates for longer residual.
- Insects that bore or tunnel into leaves, vines, stems, tubers, roots or corms must be controlled before penetration. Only exposed insects (larvae and/or adults) can be controlled with foliar applications of {this product}
- **DO NOT** apply more than (0.12 pound active ingredient) (7.68 fluid ounces or 0.48 pint) of product per acre per season.
- **DO NOT** apply within 7 days of harvest.

<sup>1</sup> See **Resistance** statement under **Use Directions**.

<sup>2</sup> Does not include Western Flower Thrips.

<sup>3</sup> Suppression only.



### SPECIFIC USE DIRECTIONS - NON-AGRICULTURAL USES

| Crop                               | Target Pests   | Rate                              |                       |
|------------------------------------|--|-----------------------------------|-----------------------|
|                                    |  | Pounds Active Ingredient per Acre | Fluid Ounces per Acre |
| <b>CONIFER AND DECIDUOUS TREES</b> |  |                                   |                       |
| Plantations and Nurseries          | Bagworm<br>Balsam Twig Aphid<br>Balsam Woolly Aphid<br>Birch Leafminer<br>Black Pine Weevil<br>Elm Leaf Beetle<br>European Elm Bark Beetle<br>Gypsy Moth<br>Japanese Beetle<br>June Beetle species<br>Leaf Beetle species<br>Leafroller species<br>May Beetle species<br>Mealybug species <sup>1</sup><br>Pales Weevil<br>Pine Chafer<br>Pine Colaspis Beetle<br>Pine Conelet Bug<br>Pine Leaf Chermid<br>Pine Needle Scale<br>Pine Sawfly species<br>Pine Tip Moth species<br>Pine Tortoise Scale<br>Pine Weevil species<br>Poplar Aphid species<br>Sawfly species<br>Spittlebug species<br>Spruce Budworm<br>Tent Caterpillar species<br>Tussock Moth species<br>Webworm species | 0.02 – 0.04                       | 1.28 – 2.56           |

**Application Instructions for CONIFER AND DECIDUOUS TREES:**

- To control exposed foliage, flower, cone, seed and bark feeding insects, apply as required by scouting. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.
- Apply with ground equipment using sufficient water to obtain full coverage of target site. When applying by air, apply in a minimum of 2 gallons of water per acre.
- **DO NOT** apply more than (0.24 pound active ingredient) (15.36 fluid ounces or 0.96 pint) of product per acre per year.

<sup>1</sup> Suppression only.

| Crop                               | Target Pests | Rate |
|------------------------------------|--------------|------|
| <b>CONIFER AND DECIDUOUS TREES</b> |              |      |

|               |  |                                 |                                 |
|---------------|--|---------------------------------|---------------------------------|
| Seed Orchards | Coneworm species<br>Seed Bug species<br>Thrips species | See Application<br>Instructions | See Application<br>Instructions |
|---------------|--|---------------------------------|---------------------------------|

**Application Instructions for CONIFER AND DECIDUOUS TREES: Seed Orchards**

- For high volume sprayers, dilute 2.56 fluid ounces per 100 gallons of water and apply 5-10 gallons of finished spray per tree.
- For low volume sprayers, dilute 10 fluid ounces per 100 gallons of water and apply 100 gallons of finished spray per acre.
- For aerial applications, apply 7.5 fluid ounces per acre in a minimum of 10 gallons of finished spray per acre.
- **DO NOT** apply more than (0.5 pound active ingredient) (32 fluid ounces or 2 pints) of product per acre per year.

| Crop   | Target Pests   | Rate              |                   |
|--|--|-------------------|-------------------|
|  |  |                   |                   |
| Non-Cropland<br>(Excluding Public<br>Land in areas<br>adjacent to<br>agricultural areas) | See Crop Listings on this {this<br>product} label for target<br>pests and rates. | See Crop Listings | See Crop Listings |

**Application Instructions for NON-CROPLAND (EXCLUDING PUBLIC LAND):**

- Spray non-cropland adjacent to agricultural areas to control migratory insects, which may threaten crops.
- Follow **Use Directions**, rates and spray recommendations found elsewhere in this label for the adjacent crop listings and target pests.
- Use highest labeled rates for dense/large foliage, high insect populations and larger larval stages.
- Repeat as necessary to maintain control.
- **DO NOT** exceed (0.21 pound active ingredient) (12.8 fluid ounces or 0.8 pint) of product per acre per year.
- **DO NOT** graze livestock in treated areas.

**Rate Conversion Chart**

| Pounds Active<br>Ingredient Per Acre | Fluid ounces Per<br>Acre | Pints Per Acre | Treated Acres per<br>Gallon |
|--------------------------------------|--------------------------|----------------|-----------------------------|
| 0.015                                | 0.96                     | 0.06           | 133                         |
| 0.02                                 | 1.28                     | 0.08           | 100                         |
| 0.025                                | 1.60                     | 0.10           | 80                          |
| 0.03                                 | 1.92                     | 0.12           | 67                          |
| 0.035                                | 2.24                     | 0.14           | 57                          |
| 0.04                                 | 2.56                     | 0.16           | 50                          |

## **STORAGE AND DISPOSAL**

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

**PESTICIDE STORAGE:** Store in a cool, dry place in the original containers only. Keep container tightly closed when not in use. Store in a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. In case of spill or leak on floor or paved surfaces, absorb spilled material with absorbing-type compound and dispose of as directed for pesticide below. In spill or leak incidents, keep unauthorized people away. **DO NOT ALLOW PRODUCT TO FREEZE.**

**PESTICIDE DISPOSAL:** Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency, or the Hazardous Waste representative at the nearest EPA Regional Office for guidance.

### **CONTAINER HANDLING:**

{Please use applicable statement}

#### **{Nonrefillable Plastic Containers < 5 gallons**

Nonrefillable Container. Do not reuse or refill this container. Triple rinse container promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill.}

#### **{Nonrefillable Plastic Containers > 5 gallons**

For plastic containers greater than 5 gallons: Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple Rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container ¼ full with water. Recap and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration.}

#### **{Non-refillable Bulk Containers > 100 gallons**

Nonrefillable Container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with a pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Offer for recycling if available or reconditioning if appropriate.}

**CONTAINERS ARE NEVER SAFE FOR FOOD, FEED, OR DRINKING WATER**

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