



OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

January 27, 2026

Victoria Kleczewski Ph.D.
Regulatory Manager
Syngenta Crop Protection, LLC
P.O. Box 18300
Greensboro, NC 27419

Subject: Label Amendment - Registration Review Mitigation for Lambda-Cyhalothrin
Product Name: KARATE EC-W INSECTICIDE
EPA Registration Number: 100-1086
Case Number: 474549
Application Dates: February 18, 2022

Dear Victoria Kleczewski:

The Agency, in accordance with the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, has completed reviewing all the information submitted with your application to support the Registration Review of the above referenced product in connection with the Lambda-Cyhalothrin Interim Decision, and has concluded that your submission is acceptable. The label referred to above, submitted in connection with registration under FIFRA, as amended, is acceptable.

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 Assurance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling and must be used at your next label printing. You must submit one copy of the final printed labeling before you release the product for

shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

If you have any questions about this letter, please contact Caleb Carr by phone at 202-566-0636, or via email at carr.caleb@epa.gov.

Sincerely,



Julie Javier, Team Leader
Risk Mitigation and Implementation Branch 4
Pesticide Re-Evaluation Division
Office of Pesticide Programs

ENCLOSURE: Stamped label

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 3A INSECTICIDE

Karate® EC-W Insecticide

[Alternate Brand Name: Ballista™ LFC Insecticide]

For Use to Control Certain Insects on Selected Crops [A Liquid Fertilizer-Compatible Insecticide to Control Soil Insects in Corn]

Active Ingredient:

Lambda-cyhalothrin^{1,2}

[1 α (S*),3 α (Z)]-(\pm)-cyano-(3-phenoxyphenyl)methyl-
3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,2-

dimethylcyclopropanecarboxylate

13.1%

Other Ingredients:

86.9%

Total:

100.0%

¹CAS No. 91465-08-6

²Synthetic pyrethroid

Contains petroleum distillates

Karate® EC-W Insecticide contains 1 pound of active ingredient per gallon and is an emulsifiable concentrate.

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.)

EPA Reg. No. 100-1086

EPA Est.

Net Contents

A C C E P T E D

Jan 27, 2026

Under the Federal Insecticide, Fungicide
and Rodenticide Act as amended, for the
pesticide registered under
EPA Reg. No. 100-1086

FIRST AID	
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Do not give any liquid to the person. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. • Call a poison control center or doctor for further treatment advice.
NOTE TO PHYSICIAN	
Contains petroleum distillate - vomiting may cause aspiration pneumonia.	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
SYNGENTA HOTLINE NUMBER	
<p style="text-align: center;">For 24-Hour Medical Emergency Assistance (Human or Animal) or Chemical Emergency Assistance (Spill, Leak, Fire, or Accident), Call 1-800-888-8372</p>	

PRECAUTIONARY STATEMENTS

Hazards to Humans and Domestic Animals

WARNING/AVISO

May be fatal if swallowed. Causes moderate eye irritation. Causes skin irritation. Harmful if absorbed through skin or inhaled. Avoid contact with eyes, skin, or clothing. Avoid breathing spray mist. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. 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 to 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.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber \geq 14 mils, butyl rubber \geq 14 mils, or VitonTM \geq 14 mils
- Chemical-resistant footwear plus socks
- Chemical-resistant apron (when mixing/loading product or cleaning equipment)
- Chemical-resistant headgear

In addition to the above, for foliar broadcast spray treatment using a mechanically pressurized handgun in nurseries (conifer and deciduous trees), mixers, loaders, and applicators must also 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

Mixers/loaders supporting aerial applications to wild rice at a rate of 0.04 lb ai 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 Requirements

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 exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

Engineering Controls

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

User Safety Recommendations

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

Environmental Hazards

This pesticide is extremely toxic to fish and aquatic invertebrates.

For terrestrial uses: Do not apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwater or rinsate.

Non-Target Organism Advisory

This product is highly toxic to bees and other pollinating insects exposed to direct treatment or residues in/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. **Protect pollinating insects by following label directions intended to minimize drift and to reduce risk to these organisms.**

Physical and Chemical Hazards

Do not use or store near heat or open flame.

CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

NOTICE: Read the entire Directions for Use and Conditions of Sale and Limitation of Warranty and Liability before buying or using this product. If the terms are not acceptable, return the product at once, unopened, and the purchase price will be refunded.

The Directions for Use of this product must be followed carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of SYNGENTA CROP PROTECTION, LLC or Seller. To the extent permitted by applicable law, Buyer and User agree to hold SYNGENTA and Seller harmless for any claims relating to such factors.

SYNGENTA warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. To the extent permitted by applicable law: (1) this warranty does not extend to the use of the product contrary to label instructions, or under conditions not reasonably foreseeable to or beyond the control of Seller or SYNGENTA, and (2) Buyer and User assume the risk of any such use. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, SYNGENTA MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS WARRANTED BY THIS LABEL.**

To the extent permitted by applicable law, in no event shall SYNGENTA be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **TO THE EXTENT PERMITTED BY APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF SYNGENTA AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, SHALL BE THE RETURN OF THE PURCHASE PRICE OF THE PRODUCT OR, AT THE ELECTION OF SYNGENTA OR SELLER, THE REPLACEMENT OF THE PRODUCT.**

SYNGENTA and Seller offer this product, and Buyer and User accept it, subject to the foregoing Conditions of Sale and Limitation of Warranty and Liability, which may not be modified except by written agreement signed by a duly authorized representative of SYNGENTA.

DIRECTIONS FOR USE

RESTRICTED USE PESTICIDE

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

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.

Removable chemical extraction probes (also known as "stingers") used in suction/extraction systems must be rinsed within the pesticide container prior to removal.

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours.

For hand detasseling or mechanically assisted detasseling of corn (field, pop, and sweet) grown for seed, and for hand harvesting of sweet corn, a 48-hour REI is required.

PPE is 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. Re-entry workers must wear:

- Coveralls over short-sleeved shirt and short pants
- Chemical-resistant gloves made of barrier laminate, nitrile rubber \geq 14 mils, butyl rubber \geq 14 mils, or Viton \geq 14 mils
- Chemical-resistant footwear plus socks and headgear

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

PRODUCT INFORMATION

Initial and residual control are contingent upon thorough crop coverage. Apply with ground or air 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), use of higher application volumes and/or higher use rates may improve initial and residual control.

For cutworm control, Karate EC-W Insecticide may be applied before, during or after planting. For soil incorporated applications, use higher rates for improved control.

[Apply as an at-plant soil application only, using one of the following methods:

- **In-Furrow Application:** Apply at planting into the seed furrow through spray nozzles or microtubes, behind the planter furrow openers and in front of the press wheels.
- **Banded Application:** Apply at planting as a 5- to 7-inch T-band sprayed across the open seed furrow, behind the planter furrow openers and in front of the press wheels.]

RESISTANCE MANAGEMENT

For resistance management, Karate EC-W Insecticide contains a Group 3A insecticide. Any insect population may contain individuals naturally resistant to Karate EC-W Insecticide and other Group 3A insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance, take the following steps:

- Rotate the use of Karate EC-W Insecticide or other Group 3A insecticides within a growing season, or among growing seasons, with different groups that control the same pests.
- Use tank mixtures with insecticides 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 insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.
- Adopt an integrated pest management program for insecticide 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 for the specific site and pest problems in your area.
- For further information or to report suspected resistance, contact Syngenta at 1-866-796-4368.

SPRAY DRIFT MANAGEMENT

MANDATORY SPRAY DRIFT MANAGEMENT

Aerial Applications:

- **Do not** release spray at a height greater than 10 feet above the vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to select nozzle and pressure that deliver medium or coarser droplets according to the most current version of the American Society of Agricultural & Biological Engineers Standard 641 (ASABE S641).
- **Do not** apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- If the windspeed is 10 miles per hour or less, applicators must use $\frac{1}{2}$ swath displacement upwind at the downwind edge of the field. When the windspeed is between 11-15 miles per hour, applicators must use $\frac{3}{4}$ swath displacement upwind at the downwind edge of the field.
- **Do not** apply during temperature inversions.

Airblast Applications:

- Sprays must be directed into the canopy.
- **Do not** apply when wind speeds exceed 15 mph at the application site.
- User must turn off outward pointing nozzles at row ends and when spraying outer row.
- **Do not** apply during temperature inversions.

Ground Boom Applications:

- User must only apply with the release height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to use a Medium or coarser droplet size according to the most current version of the American Society of Agricultural & Biological Engineers Standard 572 (ASABE S572).
- **Do not** apply when wind speeds exceed 15 mph at the application site.
- **Do not** apply during temperature inversions.

Boomless Ground Applications:

- Applicators are required to select nozzle and pressure that deliver a Medium or coarser droplet size according to the most current version of the American Society of Agricultural & Biological Engineers Standard 572 (ASABE S572) for all applications.
- **Do not** apply when wind speeds exceed 15 miles per hour at the application site.
- **Do not** apply during temperature inversions.

SPRAY DRIFT ADVISORIES

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT.
BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

Importance of Droplet Size

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

Controlling Droplet Size – Ground Boom

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

Controlling Droplet Size – Aircraft

- Adjust Nozzles - Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

Boom Height – Ground Boom

For ground equipment, the boom should remain level with the crop and have minimal bounce.

Release Height - Aircraft

Higher release heights increase the potential for spray drift.

Shielded Sprayers

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

Temperature and Humidity

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

Temperature Inversions

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind

conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

Wind

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.

Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

Handheld Technology Applications

Take precautions to minimize spray drift.

VEGETATIVE FILTER STRIPS*

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

Only apply products containing Lambda-cyhalothrin onto fields where a maintained vegetative filter strip of **at least 25** feet exists between the field edge and where a down gradient aquatic habitat exists. This minimum required width of 25 feet may be reduced or removed under the following conditions:

- For Western irrigated agriculture, a maintained vegetative filter strip of at least 10 feet wide is required. Western irrigated agriculture is defined as irrigated farmland in the following states: WA, OR, CA, ID, NV, UT, AZ, MT, WY, CO, NM, and TX (west of I-35).
 - For Western irrigated agriculture, if a sediment control basin is present, a vegetative filter strip is not required.
- In all other areas, a vegetative filter strip with a minimum width of 25 feet is required, unless the following conditions are met. The vegetative filter strip requirement may be reduced from 25 feet to 15 feet if at least one of the following applies:
 - The area of application is considered prime farmland (as defined in 7 CFR § 657.5).
 - Conservation tillage is being implemented on the area of application. Conservation tillage is defined as any system that leaves at least 30% of the soil surface covered by residue after planting. Conservation tillage practices can include mulch-till, no-till, or strip-till.
 - A functional terrace system is maintained on the area of application.
 - Water sediment control basins for the area of application are functional and maintained.
 - The area of application is less than or equal to 10 acres.

For further guidance on vegetated filter strips, refer to the following publication for

information on constructing and maintaining effective buffers: Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services.
<https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0331-0175>

In the state of New York, a 25 ft 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 aerial, ground application, and soil applications, including in-furrow and T-band applications. For aerial applications, the 25 ft vegetated non-cropped buffer strip for runoff protection would be part of the larger 150 ft buffer strip (or 450 ft buffer strip for ULV application) required for spray drift.

Ground Application

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

Ultra Low Volume (ULV) Aerial Application

- Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds). Applications made by mosquito control districts and other public health officials are exempt from this requirement.

Non-ULV Aerial Application

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

*Vegetative filter strip requirements are not intended for use on rice.

CHEMIGATION

Sprinkler Irrigation Application

Apply Karate EC-W Insecticide 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, rates, and mixing instructions. These recommendations should be proven, through university and extension field trials, to be effective with Karate EC-W Insecticide applied by chemigation.

Check the irrigation system to ensure uniform application 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 Karate EC-W Insecticide 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 Karate EC-W Insecticide 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 Karate EC-W Insecticide 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 serves an average of at least 25 individuals daily at least 60 days out of the year.

Use Precautions - Sprinkler Irrigation Application

- A. Apply this product only through (sprinkler including center pivot, lateral move, end tow, side [wheel] roll, traveler, big gun, solid set, or hand move) irrigation system(s). 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 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 backflow.
- 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 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.

Pollinator Best Management Practices

Following best management practices can help reduce risk to terrestrial pollinators. Examples of best management practices 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 practices, visit <https://www.epa.gov/pollinator-protection/find-best-management-practices-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 lead agency and the U.S. Environmental Protection Agency to report bee kills due to pesticide application. Bee kills can be reported to EPA at 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.

SPECIFIC USE DIRECTIONS**AGRICULTURAL USES**

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
ALFALFA AND ALFALFA GROWN FOR SEED	Alfalfa Caterpillar Army Cutworm Cutworm species Green Cloverworm Leafhopper species Looper species Threecornered Alfalfa Hopper Velvetbean Caterpillar Webworm species	0.015-0.025	1.92-3.20
	Alfalfa Seed Chalcid (Adult) Alfalfa Weevil Armyworm Bean Leaf Beetle (Adult) Blister Beetle species Blue Alfalfa Aphid Clover Leaf Weevil species Clover Root Borer (Adult) Clover Root Curculio species (Adult) Clover Stem Borer (Adult) Corn Earworm Cowpea Aphid Cowpea Curculio (Adult) Cowpea Weevil (Adult) Cucumber Beetle species (Adult) Egyptian Alfalfa Weevil Fall Armyworm ¹ Grape Colaspis (Adult) Grasshopper species Green June Beetle (Adult) Green Peach Aphid ³ Japanese Beetle (Adult) Meadow Spittlebug Mexican Bean Beetle Pea Aphid Pea Weevil (Adult) Plant Bug species including Lygus species ³ Spotted Alfalfa Aphid Stink Bug species Sweet Clover Weevil (Adult) Thrips species ⁴ Western Yellowstriped Armyworm Whitefringed Beetle species (Adult) Yellowstriped Armyworm	0.02-0.03	2.56-3.84
	Beet Armyworm ^{1,3} Blotch Leafminer ³ Spider Mites ²	0.03	3.84

¹ Use higher rates for large larvae.² Suppression only³ See **Resistance Management** under **Directions for Use**.

⁴ Does not include Western Flower Thrips

Remarks

- 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 air 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.
- Avoid application 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. It may be advisable to remove bee shelters during and for 2-3 days following application. Avoid direct application to bee shelters.

Use Restrictions

- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per cutting.
- **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per season.
- **Do not** apply within 1 day of harvest for forage or within 7 days of harvest for hay.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CANOLA	Armyworm species Cabbage Seedpod Weevil Cutworm species Diamondback Moth Flea Beetle Grasshoppers Looper species Lygus Bug	0.015-0.03	1.92-3.84
	Cabbage Aphid	0.03	3.84

Remarks

- 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 threshold.
- Apply with ground or air equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply a minimum of 2 gallons of water per acre.

Use Restrictions

- **Do not** apply within 7 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.09 lb ai (11.52 fl oz or 0.72 pt of product) per acre per year.

Crop	Pest	Application Rate
CORN (At-plant) Field Corn Popcorn Seed Corn Sweet Corn	Corn Rootworm Larvae: Mexican Northern Southern Western Seedcorn Beetle Seedcorn Maggot White Grub species Wireworm species	11.5 fl oz/A (0.66 fl oz per 1000 ft of row <u>or</u> 0.005 lb active ingredient per 1000 ft of row) ¹

¹ Based on a typical row spacing of 30 inches. See table below for information on other row spacings.

Remarks

- **In-Furrow Applications** - Apply at planting into the seed furrow through spray nozzles or microtubes, behind the planter furrow openers and in front of the press wheels.
- **T –Band Applications** - Apply at planting as a 5- to 7-inch T-band sprayed across the open seed furrow behind the planter furrow openers and in front of the press wheels.
- Apply a minimum of 3 gallons finished spray per acre.

Use Restrictions

- **Do not** harvest or graze livestock or cut treated crops for feed within 21 days of at plant application.
- **Do not** apply more than 0.09 lb ai of this product (11.5 fl oz) per acre per crop at plant.
- For field corn, popcorn, and seed corn, **do not** apply more than 0.12 lb ai per acre per crop from at-plant and foliar applications of any lambda-cyhalothrin-containing products. For sweet corn, **do not** apply more than 0.48 lb ai per acre per crop from at-plant and foliar applications of any lambda-cyhalothrin-containing products.

fl oz of Karate EC-W Insecticide per 1000 ft row for various row spacings when applied at a rate of 11.5 fl oz/A ²						
Row Spacing	36"	34"	30"	22"	20"	15"
Linear ft per Acre	14,520	15,374	17,424	23,760	26,136	34,848
fl oz/1000 ft row ³	0.79	0.75	0.66	0.48	0.44	0.33

² It is recommended to apply 11.5 fl oz/A regardless of row spacing.

³ For row spacings more narrow than 30", the amount of Karate EC-W Insecticide applied is lower than the recommended rate of 0.66 fl oz/1000 row ft, and may result in a reduced level of control of target insects.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CEREAL GRAINS	Corn Earworm ¹ Cutworm species Green Cloverworm Meadow Spittlebug Western Bean Cutworm ¹	0.015-0.025	1.92-3.20
Corn (Foliar) Field Corn Popcorn Seed Corn	Armyworm ² Bean Leaf Beetle Bird Cherry-Oat Aphid ³ Cereal Leaf Beetle Corn Leaf Aphid ³ English Grain Aphid ³ European Corn Borer ¹ Fall Armyworm ² Flea Beetle species Grasshopper species Hop Vine Borer ¹ Japanese Beetle (Adult) Lesser Cornstalk Borer Sap Beetle (Adult) Seedcorn Beetle Southwestern Corn Borer ¹ Stalk Borer ¹ Stink Bug species Tobacco Budworm ^{1,4} Webworm species Yellowstriped Armyworm ²	0.02-0.03	2.56-3.84
	Beet Armyworm ⁴ Chinch Bug Corn Rootworm Beetle (Adult): Mexican Northern Southern Western Greenbug ^{3,4} Mexican Rice Borer ¹ Rice Stalk Borer ¹ Southern Corn Leaf Beetle ³ Sugarcane Borer ¹	0.03	3.84

¹For control before the larva bores into the plant stalk or ear

²Use higher rates for large larvae.

³Suppression only

⁴See **Resistance Management** under **Directions for Use**.

Remarks

- Apply as required by scouting, or locally prescribed corn growth stages, usually at intervals of 7 or more days. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds or other locally recommended methods.
- Apply with ground or air 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 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- to 5-day intervals if needed. Karate EC-W Insecticide may only suppress heavy infestations and/or subsequent migrations.

Use Restrictions

- **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 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per crop from at plant and foliar applications.
- **Do not** apply more than a total of 0.06 lb ai (7.68 fl oz or 0.48 pt of product) per acre after silk initiation with no more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) applied per acre per application.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre after corn has reached the milk stage (yellow kernels with milky fluid).
- For hand detasseling or mechanically assisted detasseling of field corn and popcorn grown for seed, a 48-hour REI is required.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CEREAL GRAINS Sweet Corn (Foliar)	Aphid species ^{2,3} Armyworm ¹ Aster Leafhopper Beet Armyworm ^{1,3} Chinch Bug Common Cornstalk Borer Corn Earworm Cutworm species European Corn Borer Fall Armyworm ¹ Flea Beetle species Grasshopper species Japanese Beetle (Adult) Sap Beetle (Adult) Southern Armyworm ¹ Southwestern Corn Borer Spider Mite species ² Stink Bug species Tarnished Plant Bug Webworm species Western Bean Cutworm Yellowstriped Armyworm ¹	0.02-0.03	2.56-3.84
	Corn Rootworm Beetle (Adult): Mexican Northern Southern Western Corn Silkfly (Adult) ²	0.03	3.84

¹Use higher rates for large larvae.

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- Apply as required by scouting, or locally prescribed corn growth stages, usually at intervals of 4 or more days. Timing and frequency of applications should be based upon 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 air 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.

Use Restrictions

- **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 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.48 lb ai (61.44 fl oz or 3.84 pt of product) per acre per crop from at-plant and foliar applications.
- For hand detasseling or mechanically assisted detasseling of sweet corn grown for seed, a 48-hour REI is required.
- For hand harvesting of sweet corn, a 48-hour REI is required.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CEREAL GRAINS Rice Wild Rice	Bird Cherry-Oat Aphid Chinch Bug Fall Armyworm Grasshopper species Greenbug Leafhopper species Rice Stink Bug Riceworm Rice Water Weevil (Adult) Sharpshooter species True Armyworm Yellow Sugarcane Aphid Yellowstriped Armyworm	0.025-0.04	3.20-5.12
	European Corn Borer ¹ Mexican Rice Borer ¹ Rice Seed Midge ¹ Rice Stalk Borer ¹ Sugarcane Borer ¹	0.03-0.04	3.84-5.12

¹ For control before the larvae bores into the plant stalk

Remarks

- Apply as required by scouting. Timing and frequency of application 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.
- Karate EC-W Insecticide can be safely used when propanil products are being used for weed control.
- Apply by air or by ground equipment using sufficient water to obtain full coverage of foliage. When applying by air, apply in a minimum of 2 gallons of water (or a total carrier volume) per acre but ensure sufficient volume is used to provide adequate coverage. In addition, adding an emulsifiable crop oil (e.g., 1 pt 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 a foliar application as indicated by scouting for the presence of adults and/or feeding scars, usually within a time-frame 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, Karate EC-W Insecticide may be applied at the 1- to 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. Karate EC-W Insecticide may only provide suppression. If satisfactory control is not achieved with the first application of Karate EC-W Insecticide 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) around 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.

Use Restrictions

- Mixers/loaders supporting aerial applications to wild rice at a rate of 0.04 lb ai 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.
- **Do not** release flood water within 7 days of an application.
- **Do not** apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt of product) per acre per application.
- **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per season.
- **Do not** apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt 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 and crustaceans.
- **Do not** apply as an ultra-low volume (ULV) spray.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CEREAL GRAINS Sorghum (Grain)	Cutworm species Sorghum Midge	0.015-0.02	1.92-2.56
	Armyworm Beet Armyworm ³ Corn Earworm European Corn Borer ² Fall Armyworm ¹ Flea Beetle species Grasshopper species Lesser Cornstalk Borer ² Southwestern Corn Borer ² Stink Bug species Webworm species Yellowstriped Armyworm ¹	0.02-0.03	2.56-3.84
	Chinch Bug Mexican Rice Borer ² Rice Stalk Borer ² Sugarcane Borer ²	0.03	3.84

¹Use higher rates for large larvae.

²For control before the larva bores into the plant stalk

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 air 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- to 5-day intervals if needed. Karate EC-W Insecticide may only suppress heavy infestations and/or subsequent migrations.

Use Restrictions

- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.08 lb ai (10.24 fl oz or 0.64 pt of product) per acre per season.
- **Do not** apply more than 0.06 lb ai (7.68 fl oz or 0.48 pt of product) per acre per season after crop emergence.
- **Do not** apply more than 0.02 lb ai (2.56 fl oz or 0.16 pt of product) per acre per season once crop is in soft dough stage.
- **Do not** apply within 30 days of harvest.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CEREAL GRAINS	Army Cutworm Cutworm species	0.015-0.025	1.92-3.20
Barley Buckwheat Oats Rye Triticale Wheat Wheat Hay	Armyworm Bird Cherry-Oat Aphid ¹ Cereal Leaf Beetle English Grain Aphid ¹ Fall Armyworm Flea Beetle species Grasshopper species Hessian Fly ⁴ Orange Blossom Wheat Midge Russian Wheat Aphid ¹ Stink Bug species Yellowstriped Armyworm	0.02-0.03	2.56-3.84
	Grass Sawfly	0.025-0.03	3.20-3.84
	Chinch Bug Corn Leaf Aphid ² Greenbug ^{1,3} Mite species ²	0.03	3.84

¹Best control is obtained before insects begin to roll leaves. Once crop has started to boot, Karate EC-W Insecticide may provide suppression only. Higher rates and increased coverage will be necessary.

²Suppression only

³See **Resistance Management** under **Directions for Use**.

⁴Make applications when adults emerge.

Remarks

- 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 air 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- to 5-day intervals if needed. Karate EC-W Insecticide may only suppress heavy infestations and/or migrations.
- Greenbug is known to have many biotypes. Karate EC-W Insecticide may provide suppression only. In this situation, a second application using an alternative chemistry may be needed.

Use Restrictions

- **Do not** apply within 30 days of harvest.
- **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 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.06 lb ai (7.68 fl oz or 0.48 pt of product) per acre per season.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
COLE CROPS (Head and Stem <i>Brassica</i>) Broccoli Brussels Sprouts Cabbage Cauliflower Cavalo Broccolo Chinese Broccoli (gai lon) Chinese Cabbage (napa) Chinese Mustard Cabbage (gai choy) Kohlrabi	Alfalfa Looper Cabbage Looper Cabbage Webworm Cutworm species Imported Cabbageworm Southern Cabbageworm Aphid species ^{2,3} Armyworm Beet Armyworm ^{1,3} Corn Earworm Diamondback Moth ³ Fall Armyworm ¹ Flea Beetle species Grasshopper species Japanese Beetle (Adult) Leafhopper species Meadow Spittlebug Plant Bug species including Lygus species ³ Spider Mite species ² Stink Bug species Thrips species ² Vegetable Weevil (Adult) Whitefly species ^{2,3} Yellowstriped Armyworm	0.015-0.025	1.92-3.20 0.02-0.03 2.56-3.84

¹For control of first and second instar only

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 air 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 Restrictions

- **Do not** apply within 1 day of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.24 lb ai (30.72 fl oz or 1.92 pt of product) per acre per season.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on *Brassica* (head and stem) Cole Crops.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
COTTON	Cutworm species Soybean Thrips Tobacco Thrips	0.015-0.02	1.92-2.56
	Cabbage Looper Cotton Fleahopper Cotton Leafperforator Cotton Leafworm Lygus Bug species ³ Pink Bollworm Saltmarsh Caterpillar	0.02-0.03	2.56-3.84
	Bandedwing Whitefly ^{2,3} Beet Armyworm ^{1,3} Boll Weevil Brown Stink Bug Cotton Aphid ^{2,3} Cotton Bollworm European Corn Borer Fall Armyworm Green Stink Bug Southern Green Stink Bug Sweetpotato Whitefly ^{2,3} Tobacco Budworm ³ Twospotted Spider Mite ²	0.025-0.04	3.20-5.12

¹For control of first and second instar only

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 air equipment using sufficient water to obtain full coverage of foliage.
- Applications may also be made with equipment adapted and calibrated for ULV sprays. Karate EC-W Insecticide may be mixed with once-refined vegetable oil and applied in a minimum of at least one qt of finished spray/A.
- Under light bollworm/budworm infestation levels, 0.02 lb ai (2.56 fl oz.of product) per acre may be applied in conjunction with intense field monitoring.
- For boll weevil control spray on a 3- to 5-day schedule.
- When applied according to label directions for control of cotton bollworm and tobacco budworm, Karate EC-W Insecticide also provides ovicidal control of unhatched *Heliothis* species eggs.

Use Restrictions

- **Do not** apply within 21 days of harvest.
- **Do not** graze livestock in treated areas.
- **Do not** apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt of product) per acre per application.
- **Do not** apply more than 0.2 lb ai (25.6 fl oz or 1.6 pt 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.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CUCURBIT VEGETABLES	Armyworm species ¹ Blister Beetle species Cabbage Looper Corn Earworm Cricket species Cucumber Beetle species (adults) Cutworm species Flea Beetle species Grasshopper species June Beetle species Leaffooted Bug Leafhopper species Lygus Bug species ¹ Melonworm Pickleworm Plant Bug species Rindworm species complex Saltmarsh Caterpillar Squash Beetle Squash Bug species Squash Vine Borer species Stink Bug species Thrips species ^{1, 2} Tobacco Budworm ¹ Webworm species	0.02-0.03	2.56-3.84
Pumpkin Squash, summer (<i>Cucurbita pepo</i> var. <i>meopepo</i>) – includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini 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 Watermelon – includes hybrids and/or varieties of <i>Citrullus lanatus</i>	Aphid species ¹ Leafminer species ^{1, 3} Spider Mite species ³ Whitefly species ^{1, 3}	0.03	3.84

¹See Resistance Management under Directions for Use.

²Does not include Western Flower Thrips

³Suppression only

Remarks:

- 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 air 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 Karate EC-W Insecticide.

Use Restrictions

- **Do not** apply within 1 day of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.18 lb ai (23 fl oz or 1.44 pt of product) per acre per season.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Cucurbit Vegetables.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
FRUITING VEGETABLES Eggplant Ground cherry Pepino Peppers (bell and nonbell) Tomatillo Tomato	Cabbage Looper Cutworm species Hornworm species	0.015-0.025	1.92-3.20
	Aphid species ^{2,3} Beet Armyworm ^{1,3} Blister Beetle species Colorado Potato Beetle ³ Cucumber Beetle species (Adult) European Corn Borer ⁴ Fall Armyworm ¹ Flea Beetle species Grasshopper species Japanese Beetle (Adult) Leafhopper species Leafminer species ² Meadow Spittlebug Pepper Weevil (Adult) ² Plant Bug species Southern Armyworm ¹ Spider Mite species ² Stalk Borer ⁴ Stink Bug species Thrips ⁵ Tobacco Budworm ³ Tomato Fruitworm Tomato Pinworm Tomato Psyllid ^{2,3} Vegetable Weevil (Adult) Whitefly species ^{2,3} Yellowstriped Armyworm ¹	0.02-0.03	2.56-3.84

¹For control of first and second instar only

²Suppression only

³See **Resistance Management** under **Directions for Use**.

⁴For control before the larva bores into the plant stalk or fruit

⁵Does not include Western Flower Thrips

Remarks

- 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 air 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 Restrictions

- **Do not** apply within 5 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.36 lb ai (46.08 fl oz or 2.88 pt of product) per acre per season.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Fruiting Vegetables.

Crop	Target Pests	Rate	
		Ib ai/A	fl oz/A
GRASS FORAGE, FODDER, AND HAY Pasture and Rangeland Grass, Grass Grown for Hay or Silage and Grass Grown for Seed	Army Cutworm Cutworm species Essex Skipper Range Caterpillar Striped Grass Looper	0.015-0.025	1.92-3.2
	Beet Armyworm Billbug species ³ Bird Cherry-Oat Aphid ¹ Black Grass Bug Black Turfgrass Beetle (adult) Blue Stem Midge Cereal Leaf Beetle Chinch Bug Crane Fly species Cricket species English Grain Aphid ¹ Fall Armyworm Flea Beetle species Grass Mealybug Grass Sawfly (adult) Grasshopper species Green June Beetle (adult) Greenbug ^{1, 2} Japanese Beetle (adult) Katydid species Leafhopper species Mite species ³ Russian Wheat Aphid ¹ Southern Armyworm Spittlebug species Stink Bug species Sugarcane Aphid Thrips species Tick species True Armyworm Webworm species Yellowstriped Armyworm	0.02-0.03	2.56-3.84

¹Best control is obtained before insects begin to roll leaves.

²See **Resistance Management** under **Directions for Use**.

³Suppression only

Remarks

- 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 air 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, Karate EC-W Insecticide 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. Karate EC-W Insecticide may provide suppression only. In this situation, a second application using an alternative chemistry may be needed.

Use Restrictions

- 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 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 lb ai (3.84 fl oz or 0.24 pt 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 lb ai/A which have not been cut between applications.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.09 lb ai (11.52 fl oz or 0.72 pt of product) per acre per season.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
LEGUME VEGETABLES (Beans and Peas)	Cutworm species Green Cloverworm Imported Cabbageworm Mexican Bean Beetle Saltmarsh Caterpillar Velvetleaf Caterpillar	0.015-0.025	1.92-3.20
Edible Podded (Only) <i>Canavalia ensiformis</i> - jackbean <i>Canavalia gladiata</i> - sword bean <i>Glycine max</i> - Soybean (immature seed)			
Edible Podded, Succulent Shelled or Dried Shelled <i>Cajanus cajan</i> - Pigeon pea <i>Phaseolus</i> species - includes: field, kidney, lima, navy, pinto, runner, snap, tepary and wax beans <i>Pisum</i> species - includes: dwarf, edible-pod, English, field, garden, green, snow and sugar snap peas <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	Alfalfa Caterpillar Aphid species ⁴ Armyworm ² Bean Leaf Beetle Bean Leaf skeletonizer Blister Beetle species Corn Earworm Corn Rootworm Beetle species (Adult) Cucumber Beetle species (Adult) Curculio and Weevil species ¹ (foliage- and pod-feeding adults and larvae) European Corn Borer Fall Armyworm ² Flea Beetle species (Adult) Flea Hopper species Grasshopper species Japanese Beetle (Adult) Leafhopper species Leaftier species Looper Species Meadow Spittlebug Painted Lady Butterfly (Larva) Plant Bug species including <i>Lygus</i> species ⁴ Stalk Borer ¹ Stink Bug species Threecornered Alfalfa Hopper Thrips species ^{4,5} Tobacco Budworm ⁴ Webworm species Western Bean Cutworm Western Yellowstriped Armyworm ² Yellowstriped Armyworm ²	0.02-0.03	2.56-3.84
Succulent Shelled or Dried Shelled <i>Vicia faba</i> . - broadbean (favabean)			
Dried Shelled (Only) <i>Cicer arietinum</i> - chickpea (garbonzo bean) <i>Cyamopsis tetragonoloba</i> – guar <i>Lablab purpureus</i> - Lablab bean (hyacinth bean) <i>Lupinus</i> species - includes: grain, sweet, white and sweet white lupines <i>Lens esculata</i> - Lentils	Beet Armyworm ^{3,4} Leafminer species ^{3,4} Lesser Cornstalk Borer ³ Soybean Looper ^{3,4} Spider Mite species ³ Whitefly species ^{3,4}	0.03	3.84

¹For control before the larva bores into the plant stalk or pods

²Use higher rates for large larvae.

³For suppression only

⁴See Resistance Management under Directions for Use.

⁵Does not include Western Flower Thrips

Remarks

- 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 air 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 Restrictions

- For edible podded and succulent shelled legume vegetables, **do not** apply within 7 days of harvest.
- For dried shelled legume vegetables, **do not** apply within 21 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per season.
- For succulent and dried shelled peas and beans, **do not** graze livestock in treated areas or harvest vines for forage or hay.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Legume Vegetables (Beans and Peas).

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
LEGUME VEGETABLES (SOYBEANS) Soybean	Bean Leaf Beetle Cabbage Looper Corn Earworm Corn Rootworm Beetle (Adult): Mexican Northern Southern Western Cutworm species Green Cloverworm Mexican Bean Beetle Painted Lady (Thistle) Caterpillar Potato Leafhopper Saltmarsh Caterpillar Soybean Aphid ⁴ Threecornered Alfalfa Hopper Thrips species ⁵ Velvetbean Caterpillar Woollybear Caterpillar	0.015-0.025	1.92-3.20
	Armyworm ¹ Blister Beetle species European Corn Borer Fall Armyworm ¹ Grasshopper species Japanese Beetle (Adult) Plant Bug species Silverspotted Skipper Stink Bug species Tobacco Budworm ³ Webworm species Yellowstriped Armyworm ¹	0.025-0.03	3.20-3.84
	Beet Armyworm ^{2,3} Lesser Cornstalk Borer ² Soybean Looper ^{2,3} Spider Mite species ²	0.03	3.84

¹Use higher rates for large larvae.

²Suppression only

³See **Resistance Management** under **Directions for Use**.

⁴Use lower rates for early-season applications and/or lighter populations.

⁵Does not include Western Flower Thrips

Remarks

- 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.
- **Do not** graze or harvest treated soybean forage, straw or hay for livestock feed.
- Apply with ground or air 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 lb ai (2.56 fl oz of product) per acre.

Use Restrictions

- **Do not** apply within 30 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.06 lb ai (7.68 fl oz or 0.48 pt of product) per acre per season.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Legume Vegetables (Soybeans).

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
LETTUCE (HEAD AND LEAF)	Alfalfa Looper Cabbage Looper Cutworm species Green Cloverworm Imported Cabbageworm Saltmarsh Caterpillar	0.015-0.025	1.92-3.20
	Aphid species ^{2,3} Armyworm Beet Armyworm ^{1,3} Corn Earworm Diamondback Moth ³ European Corn Borer Fall Armyworm ¹ Flea Beetle species Grasshopper species Japanese Beetle (Adult) Leafhopper species Meadow Spittlebug Plant Bug species including <i>Lygus</i> species ³ Southern Armyworm Spider Mite species ² Stink Bug species Tobacco Budworm ³ Vegetable Weevil (Adult) Whitefly species ^{2,3}	0.02-0.03	2.56-3.84

¹For control of first and second instar only

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 air 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 Restrictions

- **Do not** apply within 1 day of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.3 lb ai (38.4 fl oz or 2.4 pt of product) per acre per season.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Lettuce (head and leaf).

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
ONION (BULB) AND GARLIC	Cutworm species Leafminer species (Adult) Onion Maggot (Adult) Seedcorn Maggot (Adult)	0.015-0.025	1.92-3.20
	Aphid species ² Armyworm species ¹ Flower Thrips ^{2,3} Onion Thrips ³ Plant Bug species Stink Bug species Tobacco Thrips ³ Western Flower Thrips ^{2,3}	0.02-0.03	2.56-3.84

¹For control of the first and second instar only

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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.
- Use the higher label rates as thrips population increases and avoid rescue situations.
- Apply with ground or air 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 thrips control by aerial application, the addition of 1% COC v/v, 1/4% NIS v/v or a silicone adjuvant (follow manufacturers use directions) may enhance the deposition of the spray and increase plant coverage.

Use Restrictions

- **Do not** apply within 14 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.24 lb ai (30.72 fl oz or 1.92 pt of product) per acre per season.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Onion (bulb) and Garlic.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
PEANUTS	Cutworm species Green Cloverworm Potato Leafhopper Rednecked Peanut Worm Threecornered Alfalfa Hopper Velvetbean Caterpillar	0.015-0.025	1.92-3.20
	Bean Leaf Beetle Corn Earworm Fall Armyworm ¹ Grasshopper species Southern Corn Rootworm (Adult) Stink Bug species Tobacco Thrips Vegetable Weevil Whitefringed Beetle (Adult)	0.02-0.03	2.56-3.84
	Aphid species ² Beet Armyworm ^{2,3} Lesser Cornstalk Borer ² Soybean Looper ^{2,3} Spider Mite species ²	0.03	3.84

¹Use higher rates for large larvae.

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 air 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 Restrictions

- **Do not** apply within 14 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per season.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Legume Vegetables (Peanuts).

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
POME FRUITS			
Apple	Apple Aphid	0.02-0.04	2.56-5.12
Crabapple	Apple Maggot (Adult)		
Loquat	Cherry Fruit Fly species (Adult)		
Mayhaw	Codling Moth		
Oriental Pear	Green Fruitworm		
Pear	Japanese Beetle		
Quince	Leafhopper species		
	Leafroller species		
	Lesser Appleworm		
	Omnivorous Leafroller		
	Orange Tortrix		
	Oriental Fruit Moth		
	Pear Psylla ¹		
	Pear Sawfly		
	Periodical Cicada		
	Plant Bug species		
	Plum Curculio		
	Rosy Apple Aphid		
	San Jose Scale (fruit infestations only)		
	Spirea Aphid ¹		
	Stink Bug species		
	Tent Caterpillar species		
	Tentiform Leaf Miner species		
	Tree Borer species		
	Tufted Apple Budworm		
	Webworm species		

¹Suppression only

Remarks

- 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 air 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.

Use Restrictions

- **Do not** apply within 21 days of harvest.
- **Do not** apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt of product) per acre per application.
- **Do not** apply more than 0.2 lb ai (25.6 fl oz or 1.6 pt of product) per acre per year. **Do not** apply more than 0.16 lb ai (20.48 fl oz or 1.28 pt of product) per acre per year post-bloom.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on orchards.
- **Do not** apply as a soil, drench, or ground-directed application using a mechanically pressurized handgun on orchards.

Crop	Target Pests	Rate	
		Ib ai/A	fl oz/A
STONE FRUITS	American Plum Borer Apple Maggot (Adult) Black Cherry Aphid Cherry Fruit Fly species (Adult) Codling Moth Green Fruitworm Japanese Beetle June Beetle Leafhopper species Leafroller species Oriental Fruit Moth Peach Twig Borer Peachtree Borer species Pear Sawfly Periodical Cicada Plant Bug species Plum Curculio Rose Chafer Stink Bug species Tent Caterpillar species Thrips species	0.02-0.04	2.56-5.12

Remarks

- 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 threshold and IPM recommendations.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage or target area. When applying by air, apply a minimum of 5 gallons of water per acre, but use higher volumes as appropriate for thorough coverage.

Use Restrictions

- **Do not** apply within 14 days of harvest.
- **Do not** apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt of product) per acre per application.
- **Do not** apply more than 0.2 lb ai (25.6 fl oz or 1.6 pt of product) per acre per year. **Do not** apply more than 0.16 lb ai (20.48 fl oz or 1.28 pt of product) per acre per year post-bloom.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on orchards.
- **Do not** apply as a soil, drench, or ground-directed application using a mechanically pressurized handgun on orchards.

Crop	Target Pest	Rate	
		lb ai/A	fl oz/A
SUGARCANE	Mexican Rice Borer ¹ Pygmy Mole Cricket Rice Stalk Borer ¹ Sugarcane Aphid ³ Sugarcane Beetle (Adult) ² Sugarcane Borer ¹ West Indian Cranefly Yellow Sugarcane Aphid ³	0.025-0.04	3.20-5.12

¹For control before the larva bores into the plant stalk

²Suppression only of beetles active above ground

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 threshold.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage or target area. When applying by air, apply a minimum of 2 gallons of water per acre.

Use Restrictions

- **Do not** apply within 21 days of harvest.
- **Do not** apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt of product) per acre per application.
- **Do not** apply more than 0.16 lb ai (20.48 fl oz or 1.28 pt of product) per acre per season.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
SUNFLOWER	Cutworm species Sunflower Beetle	0.015-0.025	1.92-3.20
	Banded Sunflower Moth Fall Armyworm ¹ Grasshopper species Head-Clipper Weevil (Adult) Japanese Beetle (Adult) Leafhopper species Meadow Spittlebug Painted Lady (Thistle) Caterpillar Seed Weevil (Adult) Spotted Cabbage Looper Stem Weevil (Adult) Stink Bug species Sunflower Maggot (Adult) Sunflower Moth Woollybear Caterpillar	0.02-0.03	2.56-3.84
	Beet Armyworm ^{2,3} Spider Mite species ²	0.03	3.84

¹Use higher rates for large larvae.

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 air 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.

Use Directions

- **Do not** apply within 45 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per season. **Do not** apply more than 0.09 lb ai (11.52 fl oz or 0.72 pt of product) per acre per season after bloom initiation.
- **Do not** apply as an ultra-low volume (ULV) spray.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
TOBACCO	Armyworm species ¹ Blister Beetle species Cabbage Looper Corn Earworm Cucumber Beetle species (Adult) Cutworm species Grasshopper species Japanese Beetle (Adult) Katydid species Plant Bug species ³ Potato Tuberworm Salt Marsh Caterpillar Stinkbug species Tobacco Aphid species ^{2,3} Tobacco Budworm ³ Tobacco Flea Beetle (Adult) Tobacco Hornworm Tobacco Thrips species ² Tomato Hornworm Tree Cricket species Vegetable Weevil (Adult) Webworm species	0.015-0.03	1.92-3.84

¹For control of first and second instars only

²Suppression only

³See **Resistance Management** under **Directions for Use**.

Remarks

- 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 threshold.
- Apply with ground or air equipment using sufficient water to obtain full coverage of the foliage. When applying by air, apply in a minimum of 2 gallons of water per acre.

Use Restrictions

- **Do not** apply within 40 days of harvest.
- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.09 lb ai (11.52 fl oz or 0.72 pt of product) per acre per year.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Tobacco.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
TREE NUTS			
Almond Beech Nut Brazil Nut Butternut Cashew Chestnut Chinquapin Filbert (Hazlenut) Hickory Nut Macadamia Nut (Bush Nut) Pistachio Walnut, Black Walnut, English (Persian)	Ants Chinch Bug Codling Moth Filbertworm Leaffooted Bug Leafroller species Navel Orangeworm Peach Twig Borer Plant Bug species Stink Bug species Walnut Aphid Walnut Husk Fly species (Adult)	0.02-0.04	2.56-5.12
Pecan	Hickory Shuckworm Pecan Aphid species Pecan Casebearer species Pecan Phylloxera species Pecan Spittlebug Pecan Weevil Stink Bug species	0.02-0.04	2.56-5.12

Remarks

- 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 threshold.
- Apply with ground or air 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 rates as appropriate for thorough coverage.

Use Restrictions

- **Do not** apply within 14 days of harvest.
- **Do not** apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt of product) per acre per application.
- **Do not** apply more than 0.16 lb ai (20.48 fl oz or 1.28 pt of product) per acre per year. **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per year post-bloom.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on orchards.
- **Do not** apply as a soil, drench, or ground-directed application using a mechanically pressurized handgun on orchards.

Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
TUBEROUS AND CORM VEGETABLES (Potato, Sweet Potato, Yams, and Related)	Cutworm species Leafhopper species Saltmarsh Caterpillar Sweet Potato Hornworm Woollybear Caterpillar species	0.015-0.025	1.92-3.20
	Aphid species ¹ Armyworm species ¹ Blister Beetle species Colorado Potato Beetle ¹ Corn Earworm Cricket species Cucumber Beetle species (adults) European Corn Borer Flea Beetle species (adults) Grasshopper species Looper species ¹ Lygus Bug species ¹ Plant Bug species Potato Psyllid Potato Tuberworm Stink Bug species Sweet Potato Leaf Beetle (adults) Sweet Potato Vine Borer Thrips species ^{1, 2} Tortoise Beetle species Webworm species Weevil species (adults)	0.02-0.03	2.56-3.84
	Leafminer species ^{1, 3} Whitefly species ^{1, 3} Spider Mite species ³	0.03	3.84

¹See Resistance Management under Directions for Use.

²Does not include Western Flower Thrips

³Suppression only

Remarks:

- 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 air equipment using sufficient water and application methods 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 or corms must be controlled before penetration. Only exposed insects (larvae and/or adults) can be controlled with foliar applications of Karate EC-W Insecticide.

Use Restrictions

- **Do not** apply more than 0.03 lb ai (3.84 fl oz or 0.24 pt of product) per acre per application.
- **Do not** apply more than 0.12 lb ai (15.36 fl oz or 0.96 pt of product) per acre per season.
- **Do not** apply within 7 days of harvest.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on Tuberous and Corm Vegetables.

NON-AGRICULTURAL USES			
Crop	Target Pests	Rate	
		lb ai/A	fl oz/A
CONIFER AND DECIDUOUS TREES Plantations and Nurseries	Bagworm Balsam Twig Aphid Balsam Wooly Aphid Birch Leafminer Black Pine Weevil Elm Leaf Beetle European Elm Bark Beetle Gypsy Moth Japanese Beetle June Beetle species Leaf Beetle species Leafroller species May Beetle species Mealybug species ¹ Pales Weevil Pine Chafer Pine Colaspis Beetle Pine Conelet Bug Pine Leaf Chermid Pine Needle Scale Pine Sawfly species Pine Tip Moth species Pine Tortoise Scale Pine Weevil species Poplar Aphid species Sawfly species Spittlebug species Spruce Budworm Tent Caterpillar species Tussock Moth species Webworm species	0.02-0.04	2.56-5.12

¹Suppression only

Remarks

- 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 a minimum of 2 gallons of water per acre.

Use Restriction

- Do not apply more than 0.04 lb ai (5.12 fl oz or 0.32 pt of product) per acre per application.
- Do not apply more than 0.24 lb ai (30.72 fl oz or 1.92 pt of product) per acre per year.

Crop	Target Pest	Rate	
		lb ai/A	fl oz/A
CONIFER AND DECIDUOUS TREES Seed Orchards	Coneworm species Seed Bug species Thrips species	See Remarks	See Remarks

Remarks

- For high volume sprayers, dilute 5.12 fl oz per 100 gallons of water and apply 5-10 gallons of finished spray per tree per application.
- For low volume sprayers, dilute 20 fl oz per 100 gallons of water and apply 100 gallons of finished spray per acre per application.
- For aerial applications, apply 15 fl oz per acre in a minimum of 10 gallons of finished spray per acre per application.

Use Restriction

- **Do not** apply more than 0.5 lb ai (64 fl oz or 4 pt of product) per acre per year.
- **Do not** apply as a foliar broadcast application using a mechanically pressurized handgun on orchards.
- **Do not** apply as a soil, drench, or ground-directed application using a mechanically pressurized handgun on orchards.

Crop	Target Pest	Rates	
		lb ai/A	fl oz/A
NON-CROPLAND (EXCLUDING PUBLIC LAND)	See Crops on this Karate EC-W Insecticide label for target pest and rates.	See Crops.	See Crops.

Remarks

- Spray non-cropland adjacent to agricultural areas to control migratory insects, which may threaten crops.
- Follow **Specific Use Directions**, rates and spray recommendations found elsewhere in this label for the adjacent crops and target pests.
- Use highest labeled rates for dense/large foliage, high insect populations and larger larval stages.
- Repeat as necessary to maintain control.

Use Restrictions

- **Do not** exceed 0.2 lb ai (25.6 fl oz or 1.6 pt of product) per acre per year.
- **Do not** graze livestock in treated areas.

Rate Conversion Chart

lb ai/A	fl oz/A	pt/A	Treated Acres/gal
0.015	1.92	0.12	66
0.02	2.56	0.16	50
0.025	3.20	0.20	40
0.03	3.84	0.24	33
0.04	5.12	0.32	25

STORAGE AND DISPOSAL

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

Pesticide Storage

Store in original containers only. Keep container closed when not in use. Do not store near food or feed. In case of spill or leak on floor or paved surfaces, soak up with sand, earth, or synthetic absorbent. Remove to chemical waste area.

Pesticide Disposal

Pesticide wastes are acutely 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 [(less than or equal to 5 gallons)]

Non-refillable 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 and drain for 10 seconds after the flow begins to drip. Fill the container $\frac{1}{4}$ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use and 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, or by incineration, or by other procedures approved by State and local authorities.

Container Handling [(greater than 5 gallons)]

Refillable container. Refill this container with pesticide only. Do not use this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture

and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

CONTAINER IS NOT SAFE FOR FOOD, FEED, OR DRINKING WATER!

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