



## RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms.

For retail sale to and use only by certified applicators, or persons under their direct supervision and only for the uses covered by the certified applicator's certification.

GROUP 3A INSECTICIDE

# SNIPER<sup>®</sup>

## HELIOS<sup>®</sup>

Insecticide/Miticide

### ACTIVE INGREDIENT:

Bifenthrin: (2-methyl[1,1'-biphenyl]-3-yl)  
methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,  
2-dimethyl-cyclopropanecarboxylate\* .....

BY WT

25.00%

OTHER INGREDIENTS\*\* .....

75.00%

TOTAL 100.00%

\* Cis isomers 97% minimum, trans isomers 3% maximum.

\*\* Contains petroleum distillates.

This product contains 2.0 pounds active ingredient per gallon.

**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 this label, find someone to explain it to you in detail.)

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FORMULATED FOR

LOVELAND PRODUCTS, INC. © P.O. BOX 1286 GREELEY, COLORADO 80632-1286

## FIRST AID

<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so by the poison control center or doctor.</li> <li>• Do not give any liquids to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15 to 20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15 to 20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If inhaled:</b>	<ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>

Have the product container or label with you when calling a poison control center or doctor, or going for treatment.

**FOR A MEDICAL EMERGENCY INVOLVING THIS PRODUCT CALL: 1-866-944-8565.**

**NOTE TO PHYSICIAN:** This product is a pyrethroid. If large amounts have been ingested, the stomach and intestines should be evacuated. Treatment is symptomatic and supportive. Digestible fats, oils, or alcohol may increase absorption and so should be avoided. Contains petroleum distillate - vomiting may cause aspiration pneumonia.

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS & DOMESTIC ANIMALS WARNING

May be fatal if swallowed. Causes substantial but temporary eye injury. Do not get in eyes or on clothing. Wear protective eyewear (goggles, face shield, or safety glasses). Harmful if inhaled or absorbed through skin. Avoid breathing vapor or spray mist. Avoid contact with skin, eyes, or clothing. Wash 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.

### Personal Protective Equipment (PPE):

Some materials that are chemical-resistant to this product are listed below.

**Handlers who may be exposed to the dilute through application or other tasks must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves, including barrier laminate, butyl rubber ≥14 mils, nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, polyvinyl chloride (PVC) ≥14 mils or Viton ≥14 mils and
- Shoes plus socks.

**Handlers who may be exposed to the concentrate through mixing, loading, application or other tasks must wear:**

- Long-sleeved shirt and long pants,
- Chemical-resistant gloves, such as barrier laminate or nitrile rubber or neoprene rubber or viton,
- Shoes plus socks, and
- 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 exists, use detergent and hot water. Keep and wash PPE separately from other laundry.

## USER SAFETY RECOMMENDATIONS

### Users should:

- Wash hands before eating, drinking, chewing gum, using tobacco or using the toilet.
- Remove clothing immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

## ENVIRONMENTAL HAZARDS

This pesticide is extremely toxic to fish and aquatic invertebrates. Use with care when applying in areas adjacent to any body of water. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not make applications when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment washwaters.

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 while bees are foraging the treatment area.

The use of bifenthrin is prohibited in areas that may result in exposure of endangered species to bifenthrin. Prior to use in a particular county, contact the local extension service for procedures and precautions to use to protect endangered species.

## PHYSICAL / CHEMICAL HAZARDS

Combustible. Do not use or store near open flame.

## 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.

## RESISTANCE MANAGEMENT

This product contains a Group 3 Insecticide. With repeated use of Group 3 insecticides as the primary method of control in the same field for successive years, insect/mite populations can develop resistant biotypes. If this occurs, insect/mite biotypes with acquired resistance to Group 3 insecticides may eventually dominate the insect/mite population. This may result in partial or total loss of control of those species by this product or other Group 3 insecticides.

To delay development of insecticide resistance, the following practices are recommended:

- Base insecticide applications on comprehensive IPM programs. This program should include an insect management program that includes cultural and biological control where possible.
- Use good resistance management strategies established for the use area. This may include the use of insecticide rotations or tank mixes with other groups of insecticide and miticides in an IPM program.
- Always apply Sniper Helios at the listed rates and according to label directions. Do not use less than listed label rates alone or in tank mixtures unless directed otherwise in supplemental labeling supplied by Loveland Products, Inc.
- Monitor treated populations in the field for loss of control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. Immediately consult your local Loveland Products, Inc. representative or agricultural advisor for the best alternative method of control in your area.
- Do not treat seedling plants grown for transplant in greenhouses, shade houses, or field plots.

- Consult your local extension specialist, certified crop advisor, and/or manufacturer for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.

#### Application Instructions

Rate of application is variable according to pest pressure, timing of sprays, and field scouting. Use lower rates under light to moderate infestations; higher rates under heavy insect pressure and for mite control. Arid climates generally require higher rates. Cultivation within 10 feet of water body is prohibited to allow for the growth of a vegetated filter strip.

In New York State, this product may not be applied within 100 feet (using ground equipment) to 300 feet (using aerial equipment) of coastal marshes or streams that drain into coastal marshes.

#### 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 12 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, including barrier laminate, butyl rubber  $\geq 14$  mils, nitrile rubber  $\geq 14$  mils, neoprene rubber  $\geq 14$  mils, polyvinyl chloride (PVC)  $\geq 14$  mils or Viton  $\geq 14$  mils and
- Shoes plus socks.

#### CHEMIGATION USE DIRECTIONS

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

Results from utilizing chemigation have been variable and depend upon the set up and calibration of equipment.

Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water. Contact your State Agricultural Extension Service specialist, equipment manufacturers or other experts for consultation on the suitability of the equipment set up to obtain effective control of the target insect pests. 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. Failure to cease application during a mechanical stoppage may result in undesirable residues to adjacent areas.

The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment. For sprinkler irrigation, meter this product at a continuous uniform rate during the entire irrigation period. To ensure accurate application over the treated area, apply in sufficient volume of water or other diluents. If non-emulsified oil is used as the diluent, use 1.0 to 2.0 pints per acre. Maintain continuous agitation of the pesticide supply tank for the duration of the application period. When chemigation systems are used, 0.5 inch per acre of irrigation water is suggested except that for Low Energy Precision Application (LEPA) irrigation, a minimum of 0.75 inch of water per acre is suggested.

#### ROTATIONAL CROPS

Crops for which bifenthrin tolerances exist may be rotated at any time. All other crops may be rotated 30 days following the final application of this product.

#### MIXING INSTRUCTIONS

This product may be applied in tank mixtures with other products approved for use on registered crops. Observe all restrictions and precautions which appear on the labels of these products.

Test for compatibility of products before mixing.

**This Product Used Alone:** When this product is used alone, add the listed amount to the spray tank when the tank is half filled with water or other carrier; then add the rest of the water or other carrier (as permitted on this label). Provide sufficient agitation during mixing and application to maintain a uniform emulsion.

**This Product with Fertilizer:** Fill the spray tank approximately 1/2 full with water and/or liquid fertilizer, add the proper amount of this product, and then add the rest of the water and/or fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform spray mixture.

A jar compatibility test should be performed with the appropriate ratio of this product and fertilizer to ensure the mixture will stay in solution. Maintain constant agitation during mixing and application.

**This Product in Tank Mixtures:** If a tank mixture is used, it is recommended that a compatibility test be done before actual tank mixing. 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. Once compatibility is confirmed for the tank mix, fill the tank half full with water or other carrier. Start and continue agitation throughout mixing following conventional mixing order practices. This product may be applied in tank mixtures with other products approved for use on registered crops. Follow all restrictions and precautions which appear on the labels of these products.

#### 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 or natural ponds; estuaries; and commercial fish farm ponds).

Only apply products containing bifenthrin 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 publication for information on constructing and maintaining effective buffers:

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

[https://www.nrcs.usda.gov/Internet/FSE\\_DOCUMENTS/nrcs143\\_023819.pdf](https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_023819.pdf)

**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, 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, 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, streams, marshes, 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.

**Additional 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% rotor diameter.

Flight speed and nozzle orientation must be considered in determining droplet 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 crosswind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

**ALFALFA GROWN FOR SEED**

PEST	DOSAGE		REMARKS
	LB A/A	FL OZ/A	
Aphids Lygus Bugs Spider Mites Weevils	0.06 to 0.1	3.9 to 6.4	Apply in a minimum of 5.0 gallons of water per acre by air equipment or in a minimum of 20.0 gallons of water by ground equipment. When applying by air, 1.0 to 2.0 qt emulsified oil may be substituted for 1.0 to 2.0 qt water in the finished spray. Make aerial or ground applications when the wind velocity favors on target product disposition (approximately 3 to 10 MPH). Do not apply when wind velocity exceeds 15 MPH. This product should be mixed and loaded using systems that comply with accepted standards that identify a closed mixing system.

**RESTRICTIONS:**

- Apply as a pre-bloom or post-bloom spray only. Do not apply this product to blooming alfalfa.
- Do not apply this product through any type of irrigation system.
- Do not apply using ultra low volume (ULV) application.
- Do not enter of allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.
- Do not apply more than 6.4 fl oz (0.1 lb imidacloprid)/A/application. Do not make more than 2 applications of all bifenthrin products/season. Maintain a minimum of 21 days between applications. Rotational crops may be planted no sooner than 30 days after last application.
- Do not apply by ground equipment within 500 feet, or by air within 0.25 miles, of water bodies containing fish or aquatic invertebrates, including lakes, reservoirs, rivers, permanent streams, marshes, or natural ponds, estuaries, and commercial fish farm ponds. Do not apply this product under any method within 0.25 miles of Lake Bowdoin in Philips County, Montana.
- Do not cultivate within 10 feet of aquatic area so as to allow growth of a vegetative filter strip.
- For use only on fields in production of alfalfa seed. This pesticide does not have an established pesticide residue tolerance for this crop. Consequently, no portion of this seed crop may be used or distributed for food or feed for 1 year (365 days) after the last application of this product.
- Not for use on fields producing alfalfa for livestock feed.
- Do not graze current year's treated alfalfa seed crop, stubble or regrowth.
- Do not cut current year's treated alfalfa seed crop for hay or forage.
- Treated alfalfa seed is not to be used for sprouting. All alfalfa seed treated with this product is to be tagged at the conditioning plant, "This seed was produced using one or more products for which the US EPA has not established pesticide residue tolerances. This seed, in whole, as sprouts, or in any form are NOT FOR HUMAN OR ANIMAL CONSUMPTION. Failure to comply with this condition may violate requirements of the Federal Food and Drug Administration, and State or other regulatory agencies." It shall be the grower's responsibility to notify the conditioning plant of any alfalfa seed crop treated with this product.
- Screens and seed from seed conditioning are prohibited from feed channels, including but not limited to green chop, forage, hay, pellets, meal, whole seed, cracked seed, straw, roots, bulbs, and foliage. All treated alfalfa seed screenings by this product must be removed from the feed market. Seed conditioners shall keep records of screening disposal for 3 years from the date of disposal and shall furnish the records to the prevailing enforcement agency immediately upon request. Conditioner disposal records shall consist of documentation of on-farm disposal, disposal at a controlled dumpsite, incinerator, compost or other equivalent disposal site and shall include the lot numbers, amounts of material disposed of, the grower(s), and the date of disposal.

**ARTICHOKE**

PEST	DOSAGE		REMARKS
	LB A/A	FL OZ/A	
Artichoke plume moth Cribrate weevil	0.10	6.4	Apply when pest population reaches damaging threshold. <b>Application by ground:</b> Apply a full cover spray in a minimum of 75.0 gal of finished spray/A. <b>Application by air:</b> Apply specified dosage in a minimum of 10.0 gal/A.

**RESTRICTIONS:**

- Repeat as necessary to maintain control, but not more often than 15-day intervals.
- Do not exceed 0.5 pound active ingredient (32.0 ounces formulated) per acre per season.
- A 5-day pre-harvest interval must be observed.

## BRASSICAS

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Head and Stem Brassica Vegetables including: Broccoli Brussels sprouts Cabbage Cabbage (gai choy) Cauliflower Cavalo broccolo Chinese broccoli (gai lon, white flowering broccoli) Chinese cabbage (napa) Chinese mustard Kohlrabi	Aphids Armyworm spp. Corn earworm Crickets Cucumber beetles Cutworms Diamondback moth Flea beetles Ground beetles Imported cabbageworm Leafhoppers Loopers Saltmarsh caterpillar Stink bugs Tobacco budworm Thrips Whitefly Wireworm (adults)	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.
	Banks grass mite Carmine mite Lygus spp. Pacific spider mite Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

### RESTRICTIONS:

- Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season.
- Do not make more than 5 applications after bloom.
- Do not make applications less than 7 days apart.
- Do not apply within 7 days of harvest.

## BUSHBERRIES

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Blueberry, highbush and lowbush Currant Elderberry Gooseberry Huckleberry	Aphids Blueberry maggot Fruitworms Japanese beetle Leafhoppers Leaf rollers Plum curculio Spanworm	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. Thorough coverage is essential to achieve control.
	Carmine mite Lygus spp. Pacific spider mite Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

### RESTRICTIONS:

- Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season.
- Do not make applications less than 7 days apart.
- Do not apply within 1 day of harvest.

## CANEBSERRIES

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Caneberries including: Bingleberries Blackberries Dewberries Loganberries Lowberries Marionberries Olallieberries Raspberries Youngberries	Leafrollers Orange tortrix Root weevils  Raspberry crown borer Spider mites	0.05 to 0.10	3.2 to 6.4	Apply by air or ground equipment using sufficient water to obtain full coverage of foliage (minimum of 10.0 gal/A by air and 50.0 gal/A by ground). One application may be made pre-bloom and a second application may be made post-bloom. For <b>Crown borer</b> , apply 0.1 lb AI (6.4 oz formulated)/A post-harvest (fall) or pre-bloom (spring) as a drench application directed at the crown of plants in a minimum of 200 gal water/A. Greater efficacy is observed at higher water gallonages (up to 400 gal) or in an application prior to a significant rainfall event. Do not make both pre-bloom foliar and pre-bloom drench applications.

### RESTRICTIONS:

- Do not apply within 3 days of harvest.
- Do not exceed 0.2 pound active ingredient (12.8 ounces formulated) per acre per season.

## CANOLA, CRAMBE, RAPESEED

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Armyworms Cutworms Diamondback moths Flea beetle Flea hopper Grasshopper Loopers Other Lepidopterous larvae Plant bug Seedpod weevil Stink bugs Thrips Whitefly	0.033 to 0.04	2.1 to 2.6	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.

### RESTRICTIONS:

- Do not apply more than 0.08 pound active ingredient (5.12 ounces formulated) per acre per season.
- Do not make applications less than 14 days apart.
- Do not apply within 35 days of harvest.

# CHRISTMAS TREES\*

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Balsam twig aphid Balsam woolly adelgid Cinara aphid Elongate hemlock scale Root weevil Spruce spider mite	0.06 to 0.2	3.9 to 12.8	<b>Ground application:</b> Apply in water in a minimum of 20.0 gal/A. <b>Air application:</b> Apply in water in a minimum of 5.0 gal/A. This product is generally not phytotoxic to Christmas trees. Apply to a small representative group of plants to ensure that a particular variety grown under current conditions is not unusually sensitive to this product.

\* OR and WA only.

## RESTRICTIONS:

- Do not apply more than 0.1 pound active ingredient (6.4 ounces formulated) per acre per treatment.
- Do not make more than 2 applications in a crop year.
- Do not make applications less than 21 days apart
- Do not make applications through irrigation systems.

# CILANTRO, CORIANDER

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Beet Armyworm Cabbage looper Cutworms Flea beetle Grasshoppers Leafminers Saltmarsh caterpillar Spotted cucumber beetle Thrips Whitefly	0.033 to 0.10	2.1 to 6.4	Apply using sufficient water to obtain uniform coverage. Apply as needed. Apply with ground equipment using a minimum of 10.0 gal of finished spray/A or a minimum of 2.0 gal/A by aircraft.
Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

## RESTRICTIONS:

- Do not make applications less than 7 days apart.
- Do not apply more than 0.50 pound active ingredient (32.0 ounces formulated) per acre per season.
- Do not apply within 3 days of harvest.

# CITRUS

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Asian citrus psyllid Blue-green citrus root weevil ( <i>Pachnaeus opalus</i> ) Brown leaf notcher ( <i>Epicaerus mexicanus</i> ) Diaprepes root weevil ( <i>Diaprepes abbreviatus</i> ) Fuller rose beetle ( <i>Asynonychus godmani</i> ) Little leaf notcher ( <i>Artipus floridanus</i> ) Southern blue-green citrus root weevil ( <i>Pachnaeus litus</i> )	0.25 to 0.50	16.0 to 32.0	The use of this product protects citrus tree roots from <i>Diaprepes</i> and other Citrus root weevil feeding by creating a barrier. As Citrus root weevil eggs hatch, the newly hatched larvae (neonates) fall to the soil surface beneath the tree and come into contact with this product as they attempt to burrow into the root zone. Disturbance of the soil beneath the tree should be minimized. Timing of application is very important. Peak emergence of <i>Diaprepes</i> adults varies by citrus growing region, and environmental factors such as soil moisture can affect emergence. Usually, 2 peaks occur for <i>Diaprepes</i> , first in the spring then late summer or early fall. Southern blue-green and Blue-green citrus weevils and Fuller rose beetle usually have a single emergence peak in the spring. Brown and Little leaf notchers usually have 3 emergence peaks, spring, summer and fall. Since emergence varies by region and season, the best way to time application is to observe the adults. By trapping adults when they are most active (in the morning or/and late afternoon) during the spring and summer emergence periods, an estimation of numbers can be obtained. Eggs are laid 8 to 10 weeks following the adult emergence from the soil; larvae invasion into the soil will begin 2 to 3 weeks following adult emergence. This product must be applied prior to the dropping of the neonates. Consult local university extension personnel for current information to protect citrus trees from Citrus root weevils and other pests. Apply this product by ground equipment to bare soil beneath citrus trees. This product must be uniformly applied from the trunk to the drip line of the tree, apply in a minimum of 40.0 gal of dilute spray/A. Greater spray volume should insure greater uniformity of coverage. A pre- and post-application irrigation may aid in the uniformity of coverage as well. Apply to individual citrus resets, when not in solid planted rows, using handgun or shielded sprayer. Peak emergence of <i>Diaprepes</i> root weevil generally occurs in the spring. Depending on weather conditions, a minor emergence of <i>Diaprepes</i> root weevil may also occur in the fall. If the citrus grove to be treated is in an area where weather conditions are conducive to primary emergence occurring in the spring, use 32.0 fl oz of formulated product to obtain the longest residual management of <i>Diaprepes</i> root weevil.
Asian cockroach ( <i>Blattella asahiniae</i> ) Fire ant ( <i>Solenopsis</i> spp.)	0.1 to 0.25	6.4 to 16.0	

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## CITRUS

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
			If the citrus grove to be treated is in an area where weather conditions will promote more than 1 peak of pest emergence, 16.0 fl oz formulated product can be applied early season and 16.0 fl oz formulated product can be applied later in the season. If emergence extends beyond the residual protection of this product, grower is advised to use additional management strategies (i.e. foliar adult control or soil larvae control such as nematodes). Contact your state agricultural Extension Specialist as to the recommendation suited for local conditions.

### RESTRICTIONS:

- Do not apply through irrigation systems.
- Do not allow any application of this product to contact fruit or foliage.
- Do not apply more than a total of 32.0 fluid ounces of formulated product (0.5 pound active ingredient) per acre per year.
- Apply the specified dosage in a minimum of 40.0 gallons of finished spray per acre.
- Ground application only. Do not apply by air.
- Do not apply within 1 day of harvest.

## CONIFER SEED ORCHARDS

(For Use Only in Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, Oklahoma, South Carolina, Tennessee, Texas, Virginia)

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Cone worms Seed bugs Seed worms	0.1 to 0.2	6.4 to 12.8	<b>Ground application:</b> Apply in water in a minimum of 100 to 500 gal/A. <b>Air application:</b> Apply in water in a minimum of 10.0 gal/A or 0.5 gal refined vegetable oil/A. Apply in sufficient water to obtain thorough coverage. Begin applications 7 days after peak pollen flight and continue on 30-day intervals up to a maximum of 0.6 lb AI/A/season.

### RESTRICTIONS:

- Do not make more than 6 applications per season or apply more than 0.6 pound active ingredient (38.4 ounces formulated) per acre per season.
- Do not make applications less than 30 days apart.

## CORN

**FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (AT PLANT USE)**

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Corn rootworm larvae Northern Western	0.0046/1000 linear ft of row	0.30/1000 linear ft of row	Apply as a 5- to 7-inch T-band treatment over an open seed furrow. Position the spray nozzle behind the planter shoe, in front of the press wheel centered over the row. Use the table below to determine this product's needs/A.

## CORN

**FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (AT PLANT USE)**

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Army cutworm Cutworm spp. Grubs Seed corn beetle Seed corn maggot True army-worm Wireworm	0.0023 to 0.0046/1000 linear ft of row	0.15 to 0.30/1000 linear ft of row	Apply in a minimum of 3.0 gal of finished spray/A. Mix this product with water or fertilizer in the following manner. Fill the spray tank, approximately 1/2 full with water or liquid fertilizer, add the proper amount of this product then add the rest of the water or fertilizer. Provide sufficient agitation during mixing and application to maintain a uniform spray mixture. Applications of this product alone or in recommended tank mixtures, in conjunction with in-furrow pop-up fertilizers may be used. A jar compatibility test should be performed with appropriate ratio of this product and fertilizer to ensure mixture will stay in solution. Maintain constant agitation during mixing and application.

### RESTRICTIONS:

- Do not apply to soil where there is greater than 30% cover of crop residue remaining.
- Do not apply within 30 days of harvest.
- Do not graze livestock in treated area or cut treated crops for feed within 30 days of treatment.
- Do not apply more than 0.1 pound active ingredient (6.4 ounces formulated) per acre per season as an at plant application.

Row Spacings (inches)	40	38	36	30
This Product (lb AI/A)	0.060	0.064	0.069	0.080
This Product (formulated oz/A)	3.9	4.1	4.4	5.12

**FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (PRE & PPI)**

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Armyworm spp. Black cutworm Seedcorn maggot Stalkborer White grub Wireworm	0.047 to 0.062 Pre-Plant Incorporated (PPI)	3.0 to 4.0 Pre-Plant Incorporated (PPI)	The 3.0 to 4.0 oz/A rate must be applied as PPI and can be tank mixed and applied with PPI herbicides. Incorporation of this product should not be any deeper than the intended planting depth and no deeper than 3 inches. Incorporation depth should be close to the intended seed planting depth.
Armyworm spp. Black cutworm Stalkborer	0.040 Pre-Emergence (PRE)	2.56 Pre-Emergence (PRE)	The 2.56 oz/A rate may be applied PRE and can be tank mixed and applied with PRE herbicides.

### RESTRICTIONS:

- Do not apply more than 0.3 pound active ingredient (19.2 ounces formulated) per acre per season including pre and PPI, at plant, plus foliar applications. In California do not exceed the maximum rate of 0.2 pound active ingredient per acre per season.
- Do not apply within 30 days of harvest.
- Do not graze livestock in treated areas or cut treated crops for feed within 30 days of the last application.
- Use of ultra low volume (ULV) application on corn is prohibited.
- Do not make aerial or ground applications to corn if heavy rainfall is imminent.



**FIELD CORN (GRAIN AND SILAGE), POPCORN, FIELD CORN GROWN FOR SEED (FOLIAR USE)**

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Army cutworm Armyworm spp. or True armyworm spp. Beet armyworm Cereal leaf beetle Chinch bug Common stalk borer Corn earworm Corn rootworm (adults) Cucumber beetle (adults) Cutworm spp. European corn borer Fall armyworm Flea beetle Grasshoppers Greenbug Japanese beetle (adults) Sap beetle Southern armyworm Southern corn leaf beetle Southwestern corn borer Stink bug Tarnished plant bug Webworms Western bean cutworm Yellowstriped armyworm	0.033 to 0.10	2.1 to 6.4	<p><b>General:</b> Apply in a minimum of 2.0 to 5.0 gallons of finished spray per acre by aircraft or in a minimum of 10.0 gallons per acre with ground equipment. To improve control by aircraft, use 5.0 gallons of finished spray per acre particularly when initial populations are heavier than normal. See specific comment below for AZ, NM, OK, and TX mite control. When applying by air, 1.0 to 2.0 quarts of emulsified oil may be substituted for 1.0 to 2.0 quarts of water in the finished spray. Thorough coverage is essential to achieve control.</p> <p><b>To control ear-attacking pests:</b> Apply this product just before silking and repeat as necessary to maintain control but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section.</p> <p><b>Southwestern corn borer, European corn borer:</b> Make application for Corn borer control with initial application at or shortly before egg hatch.</p> <p><b>For control of other listed insect pests:</b> Apply when pests first appear and repeat as necessary but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section.</p> <p><b>For control of mite:</b> Apply for Banks grass mite control when colonies first form prior to leaf damage or discoloration and before dispersal above the bottom third of the plant.</p> <p><b>For Twospotted spider mite and Carmine mite:</b> Apply when colonies first form prior to leaf damage or discoloration and before widespread mite dispersal throughout the canopy.</p> <p>Higher rates will be necessary for heavier initial populations and corn under heat or drought stress. Field experience with dimethoate at 0.5 pound active ingredient per acre in tank mixture has demonstrated good control under these conditions.</p> <p><b>For mite control in Arizona, New Mexico, Oklahoma, Texas:</b> Apply in a minimum of 5.0 gallons of finished spray per acre by aircraft or in a minimum of 10.0 gallons per acre with ground equipment.</p>
Banks grass mite Carmine mite Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

**RESTRICTIONS:**

- Do not apply more than 0.3 pound active ingredient (19.2 ounces formulated) per acre per season including pre and PPI, at plant, plus foliar applications. In California do not exceed the maximum rate of 0.2 pound active ingredient per acre per season.
- Do not apply within 30 days of harvest.
- Do not graze livestock in treated areas or cut treated crops for feed within 30 days of the last application.
- Use of ultra low volume (ULV) application on corn is prohibited.
- Do not make aerial or ground applications to corn if heavy rainfall is imminent.

**SWEET CORN (GRAIN AND SILAGE)  
SWEET CORN GROWN FOR SEED (AT PLANT USE)**

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Corn rootworm larvae Mexican (California) Northern Southern Western	0.0046/1000 lin ft of row	0.30/1000 lin ft of row	Apply as a 5- to 7-inch T-band treatment over an open seed furrow. Position the spray nozzle behind the planter shoe, in front of the press wheel centered over the row. Use the table below to determine your product needs/A. Apply in a minimum of 3.0 gal of finished spray/A. Mix this product with water or fertilizer in the following manner. Fill the spray tank approximately 1/2 full with water or liquid fertilizer, add the proper amount of this product then add the rest of the water or fertilizer.
Army cutworm Armyworm spp. or True armyworm Cutworm spp. Grubs Seed corn beetle Seed corn maggot Wireworm	0.0023 to 0.0046/1000 lin ft of row	0.15 to 0.30/1000 lin ft of row	Provide sufficient agitation during mixing and application to maintain a uniform spray mixture. Applications of this product alone or in recommended tank mixtures, in conjunction with in-furrow pop-up fertilizers may be used. A jar compatibility test should be performed with appropriate ratio of this product and fertilizer to ensure mixture will stay in solution. Maintain constant agitation during mixing and application.

**RESTRICTIONS:**

- Do not apply to soil where there is greater than 30% cover of crop residue remaining.
- Do not apply within 30 days of harvest.
- Do not graze livestock in treated area or cut treated crops for feed within 30 days of treatment.
- Do not apply more than 0.1 pound active ingredient (6.4 ounces formulated) per acre per season as an at-plant application.

Row Spacings (inches)	40	38	36	30
This Product (lb AI/A)	0.060	0.064	0.069	0.080
This Product (formulated oz/A)	3.9	4.1	4.4	5.12



**SWEET CORN (GRAIN AND SILAGE)**  
**SWEET CORN GROWN FOR SEED (FOLIAR USE)**

PEST	DOSAGE		REMARKS
	LB A/A	FL OZ/A	
Aphids Army cutworm Armyworm spp. or True armyworm Beet armyworm Cereal leaf beetle Chinch bug Common stalk borer Corn earworm Corn rootworm (adults) Corn silk fly (California) Cucumber beetle (adults) Cutworm spp. European corn borer Fall armyworm Flea beetle Grasshoppers Greenbug Japanese beetle (adults) Sap beetle Southern armyworm Southern corn leaf beetle Southwestern corn borer Stinkbugs Tarnished plant bug Webworms Western bean cutworm Yellowstriped armyworm	0.033 to 0.10	2.1 to 6.4	<p><b>General:</b> Apply in a minimum of 2.0 gallons of finished spray per acre by air or in a minimum of 10.0 gallons per acre with ground equipment. When applying by air, 1.0 to 2.0 quarts of emulsified oil may be substituted for 1.0 to 2.0 quarts of water in the finished spray. Thorough coverage is essential to achieve control.</p> <p><b>To control ear-attacking pests:</b> Apply this product before silking begins and repeat as necessary to maintain control but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section.</p> <p><b>Southwestern corn borer, European corn borer:</b> Make 2 applications for Corn borer control with initial application at or shortly before egg hatch.</p> <p><b>For control of other listed insect pests:</b> Apply when pests first appear and repeat as necessary but do not exceed maximum application rates and reapplication intervals listed elsewhere in this section.</p> <p><b>For Control of Mites:</b> Apply for Mite control when colonies first form prior to leaf damage or discoloration and before dispersal above the bottom third of the plant. For Twospotted spider mite and Carmine mite control, apply when colonies first form prior to leaf damage or discoloration and before widespread mite dispersal throughout the canopy. Higher rates will be necessary for heavier initial populations and corn under heat or drought stress.</p>
Banks grass mite Carmine mite Pacific spider mite (California) Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

**RESTRICTIONS:**

- Do not apply more than 0.2 pound active ingredient (12.8 ounce formulated) per acre per season.
- Do not apply within 1 day of harvest.
- Do not graze livestock in treated areas or cut treated crops for feed within 1 day of the last application.
- Use of ultra low volume (ULV) application on corn is prohibited.
- Do not make aerial or ground applications to corn if heavy rainfall is imminent.

**COTTON**

PEST	DOSAGE		REMARKS
	LB A/A	FL OZ/A	
European corn borer Soybean (banded) thrips Tobacco thrips	0.02 to 0.10	1.3 to 6.4	<p>This product may be applied in water or refined vegetable oil (soybean/cottonseed).</p> <p><b>Application in Water:</b> Apply in a minimum of 5.0 gallons per acre with ground equipment or 1.0 gallon per acre by aircraft. When applying by air, 1.0 quart of emulsified oil may be substituted for 1.0 quart of water in the finished spray.</p> <p><b>ULV Application:</b> Apply the listed rate of this product in refined vegetable oil in a minimum of 1.0 quart of finished spray per acre with aircraft calibrated to give adequate coverage.</p> <p><b>To Control Boll weevil:</b> Apply this product at an interval of 3 to 4 days until pest numbers are reduced to acceptable levels.</p> <p><b>To Control Mites and Aphids:</b> Apply when pests first appear. Repeat as necessary to maintain control. Higher rates will be required once a damaging threshold is established.</p>
Boll weevil Bollworm Cabbage looper Cotton aphid Cotton fleahopper Cotton leafperforator Cutworms Fall armyworm Plant bugs Saltmarsh caterpillar Southern garden leaffopper Stink bugs Tobacco budworm Whitefly Yellowstriped armyworm	0.04 to 0.10	2.6 to 6.4	
Beet armyworm Carmine spider mite Kudzu bug <i>Lygus</i> spp. (except California) Pink bollworm Twospotted spider mite Western plant bug	0.06 to 0.10	3.8 to 6.4	<p><b>RESTRICTIONS:</b></p> <ul style="list-style-type: none"> <li>• Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season in all states except CA. For CA, do not apply more than 0.3 pound active ingredient per acre per season.</li> <li>• Do not apply within 14 days of harvest.</li> <li>• Do not graze livestock in treated areas or cut treated crops for feed.</li> <li>• Do not make more than 10 synthetic pyrethroid applications (of 1 product or combination of products) to a cotton crop in 1 growing season. Synthetic pyrethroid products include Ambush®, Asana® XL, Danitol®, Holster®, Karate®, Mustang®, Sniper Helios and Tombstone Helios®.</li> </ul>

## CUCURBITS

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Chayote (fruit) Chinese waxgourd (Chinese preserving melon) Citron Melon Cucumber Gherkin Gourd, edible (includes cucuzza, hyotan) <i>Luffa</i> spp. (includes Chinese okra, hechima) <i>Momordica</i> spp. (includes balsam apple, bitter melon, Chinese cucumber)	Aphids Armyworms Cabbage looper Corn earworm Cucumber beetles Cutworms Grasshopper Leafhoppers Melonworm Pickleworm Plant bug Rindworm Squash bugs Squash vine borer Stink bugs Tobacco budworm	0.04 to 0.10	2.6 to 6.4	Apply in a minimum of 5.0 gal of finished spray/A by air or in a minimum of 20.0 gal/A with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.
Muskmelon (hybrids and/or cultivars of <i>Cucumis melo</i> ) (includes cantaloupe, casaba, crenshaw melon, golden pershaw melon, honey balls, honeydew melon, mango melon, Persian melon, pineapple melon, Santa Claus melon, snakemelon and true cantaloupe) Pumpkin ( <i>Cucurbita</i> spp.) Squash, summer (includes crook-neck squash, scallop squash, straightneck squash, vegetable marrow, zucchini) Squash, winter (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</i> spp.).	Banks grass mite Carmine mite <i>Lygus</i> spp. Twospotted spider mite Whitefly	0.08 to 0.10	5.12 to 6.4	

## RESTRICTIONS:

- Do not apply more than 0.3 pound active ingredient (19.2 ounces formulated) per acre per season.
- Do not make more than 2 applications after bloom.
- Do not make applications less than 7 days apart.
- Do not apply within 3 days of harvest.

## DRIED BEANS AND PEAS

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Dried cultivars of: Bean ( <i>Lupinus</i> spp.): Grain lupin, Sweet lupin, White lupin, White sweet lupin Bean ( <i>Phaseolus</i> spp.): Field bean, Kidney bean, Lima bean (dry), Navy bean, Pinto bean, Tepary bean Bean ( <i>Vigna</i> spp.): Azuki bean, Blackeyed pea, Catjang, Cowpea, Crowder pea, Moth bean, Mung bean, Rice bean, Southern pea, Urd bean; Broad bean (dry), Chickpea, Guar, Lablab bean, Lentil Pea ( <i>Pisum</i> spp.): Field pea; Pigeon pea	Aster leafhopper Flea beetle Leafhoppers Alfalfa caterpillar Aphids Bean leaf beetle Beet armyworm Cloverworm Corn earworm Corn rootworm (adults) Cucumber beetles Cutworms European corn borer Fall armyworm Grasshoppers Imported cabbageworm Japanese beetle (adults) Leaf miner Loopers Mexican bean beetle Pea leaf weevil Pea weevil Plant bug Saltmarsh caterpillar Sap beetle Southern armyworm Stink bugs Tarnished plant bug	0.025 to 0.10  0.033 to 0.10  0.033 to 0.10	1.6 to 6.4  2.1 to 6.4  2.1 to 6.4	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.
	Thrips Tobacco budworm Webworms Western bean cutworm Whitefly Yellowstripped armyworm	0.033 to 0.10	2.1 to 6.4	
	Banks grass mite Carmine mite <i>Lygus</i> spp. Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

## RESTRICTIONS:

- Do not apply more than 0.2 pound active ingredient (12.8 ounces formulated) to peas, or 0.3 pound active ingredient (19.2 ounces formulated) to beans per acre per season.
- Do not apply within 14 days of harvest.
- Do not make applications less than 7 days apart.

# FRUITING VEGETABLES

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Eggplant Groundcherry Pepino Pepper (bell & non-bell) Cabbage looper Colorado potato beetle Corn earworm Cucumber beetle Cutworms European corn borer Flea beetle Leafminers Loopers Pepper weevil Plant bugs Stink bugs Thrips Tomato hornworm Tomato pinworm Vegetable leafminer Whitefly	Armyworm spp. including Beet armyworm, Fall armyworm, Southern yellow-striped armyworm	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.
		0.08 to 0.10	5.12 to 6.4	
	Banks grass mite Broad mite Carmine mite <i>Lygus</i> spp. Pacific spider mite Twospotted spider mite			

## RESTRICTIONS:

- Do not make applications less than 7 days apart.
- Do not apply more than 0.2 pound active ingredient (12.8 ounces formulated) per acre per season.
- Do not apply within 7 days of harvest.

## GRAPES\*

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Cutworms Eastern grape leafhopper Grape berry moth Japanese beetles (adults) Lady beetle (Scymnus) Variegated leafhopper Western grape leafhopper	0.05 to 0.10	3.2 to 6.4	Apply in a minimum of 10.0 gal of finished spray by air or in a minimum of 25.0 gal of finished spray with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control. When pest pressure is moderate to severe, use higher rate.
	0.10	6.4	
Black vine weevil Glasswinged sharp-shooter Twospotted spider mite			

\*Not for use in California unless allowed by an approved supplemental labeling.

## RESTRICTIONS:

- Do not apply more than 0.10 pound active ingredient (6.4 ounces formulated) per acre per season.
- Do not apply within 30 days of harvest.

# GRASS FORAGE, FODDER, AND HAY GROUP AND GRASS GROWN FOR SEED, PASTURE AND RANGELAND\*

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Bahagrass Barnyardgrass Bentgrass Bermudagrass Big bluestem Buffalograss Centipedegrass Crabgrass Crested wheatgrass Cupgrass Dallisgrass Eastern gramagrass Guinea grass Indian grass Italian ryegrass Johnsongrass Kentucky bluegrass* Kentucky fescue Lovegrass Meadow foxtail Napiergrass Oatgrass Orchardgrass Pangolagrass Paspalum Redtop Reed canarygrass Sand dropseed Side-oats grama Smooth bromegrass Sprangletop Squirreltailgrass Stargrass St. Augustine grass Switchgrass Timothy Wildrye grass Zoysia grass Also included are Sudangrass and Sorghum forages and their hybrids.	Alfalfa Caterpillar Alfalfa Looper Alfalfa Weevil Armyworm, fall Armyworm, southern Armyworm, true Armyworm, Yellowstriped Ant spp. Black Grass Bug Blue Alfalfa Aphid <sup>1</sup> Cereal Leaf Beetle Chinch Bug Cricket Cutworms Egyptian Alfalfa Weevil (larvae & adult) Flea Beetles Grass Mealybug Grasshoppers Green Cloverworm Green Peach Aphid <sup>1</sup> Hornworms Hunting Bill Bug Meadow Spittlebug Pea Aphid <sup>1</sup> Plant Bug spp. Potato Leafhopper Range caterpillar Spotted Alfalfa Aphid <sup>1</sup> Stink Bugs Threecornered Alfalfa Hopper Velvetbean Caterpillar Webworms	0.1	6.4	Apply as insects appear in sufficient volume of water to ensure thorough coverage of foliage. Use higher recommended dosage for increased pest pressure or for increased residual pest control. Do not exceed maximum allowable rate. Apply in a minimum of 2.0 gallons of finished spray per acre by aerial equipment or 10.0 gallons per acre by ground equipment. Higher volumes of finished spray may improve insect control under high temperatures, when foliage is dense and/or when insect pressure is high.

\* CO, ID, OR, WA only for Kentucky Bluegrass. ID, OR, WA for all other uses.

## RESTRICTIONS:

- Do not apply more than 0.2 pound active ingredient (12.8 fl ounces product) per acre per season.
- Do not make applications less than 14 days apart.
- Applications may be made up to 30 days prior to harvest for forage and hay.
- Do not graze current year's treated grass seed crop.
- Do not cut current year's treated grass seed crop for hay or forage.
- Treated grass seed is not to be used for sprouting. All grass seed treated with this product is to be tagged at the conditioning plant, "NOT FOR HUMAN OR ANIMAL CONSUMPTION". It shall be the grower's responsibility to notify the conditioning plant of any grass seed crop treated with this product.
- Screens and seed from seed conditioning are prohibited from feed channels. All treated grass seed screenings by this product must be removed from the feed market.

<sup>1</sup>Aphid control may be variable depending on species present and host-plant relationships.

## HOPS

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Armyworms Cutworms Leafrollers Loopers	0.06 to 0.10	3.8 to 6.4	<b>Application by ground:</b> For best results, full coverage is essential. Early season rates, use 100 to 150 gal/spray/A. Late season rates, use 200 to 250 gal/spray/A. For Root weevil control, make a directed spray to the base of the plant. <b>Application by air for late season control of Twospotted spider mites:</b> Spray up the vine 3 ft and the soil surface 1.5 to 2 ft on either side of plant. Apply no less than 6.4 oz (0.1 lb AI)/application in a minimum of 10.0 gal/A.
Root weevils	0.05 to 0.10	3.2 to 6.4	
Twospotted spider mite	0.10	6.4	

### RESTRICTIONS:

- Do not exceed 0.1 pound active ingredient (6.4 ounces formulated) per acre per application.
- Do not exceed 0.3 pound active ingredient (19.2 ounces formulated) per acre per season.
- A spray interval of 21 days between applications must be maintained.
- A 14-day pre-harvest interval must be observed.
- Use of ultra low volume (ULV) application on hops is prohibited.

## LEAFY BRASSICAS

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Broccoli raab Bok choy Collards Kale Mizuna Mustard greens Mustard spinach Rape greens Turnip greens*	Aphids Armyworms Corn earworm Crickets Cucumber beetles Cutworms Diamondback moth Flea beetles Grasshoppers Ground beetles Imported cabbageworm Japanese beetle (adults) Leafhoppers Loopers Saltmarsh caterpillar Stink bugs Thrips Tobacco budworm Whitefly Wireworm (adults)	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.
	Banks grass mite Carmine mite <i>Lygus</i> spp. Pacific spider mite Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

\* Not for use in California unless allowed by an approved supplemental labeling.

### RESTRICTIONS:

- Do not apply more than 0.4 pound active ingredient (25.6 ounces formulated) per acre per season.
- Do not make applications less than 7 days apart.
- Do not apply within 7 days of harvest.

## LEAFY PETIOLE VEGETABLES

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Cardoon Celery Celtuce Chinese celery Florence fennel Rhubarb Swiss chard	Aphids Armyworms Corn earworm Crickets Cucumber beetles Cutworms Diamondback moth Flea beetles Ground beetles Imported cabbageworm Leafhoppers Loopers Stink bugs Thrips Wireworm (adults)	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. Thorough coverage is essential to achieve control.
	Carmine mite <i>Lygus</i> spp. Pacific spider mite Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

### RESTRICTIONS:

- Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season.
- Do not make applications less than 7 days apart.
- Do not apply within 7 days of harvest.

## LETTUCE (HEAD)

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Armyworms Corn earworm Cucumber beetles Cutworms Diamondback moth Flea beetles Imported cabbageworm Leafhoppers Loopers Saltmarsh caterpillar Stinkbug spp. Tobacco budworm Whitefly	0.033 to 0.10	2.1 to 6.4	Apply in water as necessary for insect control using a minimum of 15.0 gal of finished spray/A with ground equipment and 5.0 gal/A by air. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.
Carmine mite <i>Lygus</i> spp. Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

### RESTRICTIONS:

- Do not make applications less than 7 days apart.
- A maximum of 0.5 pound active ingredient (32.0 ounces formulated) may be applied per acre per season.
- Do not apply within 7 days of harvest.

**MAYHAW\***

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Plum curculio	0.08 to 0.10	5.12 to 6.4	Apply in water in a minimum of 28.0 gal of finished spray/A.

\*Not for use in California unless allowed by an approved supplemental labeling.

**RESTRICTIONS:**

- Apply no more than once every 7 days.
- Do not apply more than 0.2 pound active ingredient (12.8 ounces formulated) per acre per season.
- Do not apply within 30 days of harvest.

**OKRA\***

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Armyworms Corn earworm Cucumber beetles Cutworms European corn borer Flea beetles Japanese beetle (adults) Leafminers Loopers Stink bugs Thrips Whitefly	0.033 to 0.10	2.1 to 6.4	Apply using sufficient water to obtain uniform coverage. Apply as needed. Apply with ground equipment using a minimum of 10.0 gal of finished spray/A or a minimum of 2.0 gal/A by aircraft.
Broad mite Carminite mite <i>Lygus</i> spp. Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

\* This use is not permitted in California unless allowed by an approved supplemental label.

**RESTRICTIONS:**

- Do not make applications less than 7 days apart.
- Do not apply more than 0.2 pound active ingredient (12.8 ounces formulated) per acre per season.
- Do not apply within 7 days of harvest.

**PEANUT\***

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Beet armyworm Corn earworm Cutworm spp. Fall armyworm Grasshoppers Green cloverworm Leafhoppers Lesser cornstalk borer Loopers Rednecked peanut worm Southern armyworm Southern corn rootworm Stink bugs Threecornered alfalfa hopper Velvetbean caterpillar Yellowstriped armyworm	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 10.0 gal/A with ground equipment or 2.0 gal/A by aircraft.

**PEANUT\***

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Spider mites Thrips Whitefly	0.08 to 0.10	5.12 to 6.4	

\*Not for use in California unless allowed by an approved supplemental labeling.

**RESTRICTIONS:**

- Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season.
- Do not apply within 14 days of harvest.
- Do not feed green immature plants and peanut hay to livestock.
- To maintain a proper spray interval, do not make applications less than 14 days apart.

**PEARS**

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Codling moth Cutworms Green fruitworm Leafhoppers Leafminers Leafrollers <i>Lygus</i> spp. Plant bugs Plum curculio San Jose scale (crawlers) Stink bugs Tarnished plant bugs	0.04 to 0.2	2.6 to 12.8	<b>Application by ground:</b> Apply as a dilute (minimum of 200 gals of finished spray/A) or concentrate (minimum of 50.0 gal of finished spray/A) spray in sufficient water to provide thorough coverage. <b>Application by air:</b> Apply the specified dosage in a minimum of 10.0 gal/A by air. Apply as necessary to maintain control.
Twospotted spider mite Yellow mite	0.06 to 0.2	3.8 to 12.8	
European red mite	0.08 to 0.2	5.12 to 12.8	

**RESTRICTIONS:**

- Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season with no more than 0.45 pound active ingredient (28.8 ounces formulated) per acre applied after petal fall.
- Apply up to 14 days prior to harvest.
- Do not graze livestock in treated orchards or cut treated cover crops for feed.
- To maintain a proper spray interval, do not make applications less than 30 days apart.

**ROOT CROPS (Except Sugar Beets)\***

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Burdock, edible Carrot Celeriac Chervil, turnip rooted Chicory Ginseng Horseradish Parsley, turnip rooted Parsnip Radish Radish, Oriental Rutabaga Salsify Salsify, black Salsify, Spanish Skirret Turnip	Aphids Beet armyworm Celery leaf tier Corn earworm Cross-striped cabbageworm Cutworms Diamondback moth European corn borer Fall armyworm Fire ants Flea beetles Green cloverworm Hornworms Imported cabbageworm Loopers Southern armyworm Spider mites Tobacco budworm Velvetbean caterpillar Whitefly Yellowstriped armyworm	0.08 to 0.10	5.12 to 6.4	Apply foliar treatments in at least 25.0 gal water/A.

**RESTRICTIONS:**

- Apply no more than once every 7 days.
- Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season.
- Do not apply within 21 days of harvest.

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Garden beet	Aphids Fire ants Flea beetles Lepidopterous larvae Spider mites Whitefly	0.08 to 0.10	5.12 to 6.4	Apply foliar treatments in at least 25.0 gal water/A.

\*Not for use in California unless allowed by an approved supplemental labeling.

**RESTRICTIONS:**

- Apply no more than once every 7 days.
- Do not apply more than 0.4 pound active ingredient (25.6 ounces formulated) per acre per season.
- Do not apply within 1 day of harvest.

**SOYBEANS\***

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Alfalfa caterpillar Aphids Armyworm Aster leafhopper Bean leaf beetle Beet armyworm Blister beetle spp. Cloverworm Corn earworm Corn rootworm (adults) Cowpea curculio Cucumber beetles Cutworms Dectes stem borer European corn borer Fall armyworm False chinch bug Flea beetle Grasshoppers Green cloverworm Hornworms Imported cabbageworm Japanese beetle adult Leaf skeletonizer spp. Leafhoppers Leafminers (adults) Lesser cornstalk borer Loopers Mexican bean beetle Painted Lady (thistle) caterpillar Pea weevil Pea leaf weevil Plant bug Saltmarsh caterpillar Sap beetle Seedcorn maggot (adults) Silverspotted skipper Southern armyworm Spittlebug Stink bugs	0.033 to 0.10	2.1 to 6.4	Apply in a minimum of 10.0 gal/A with ground equipment or 2.0 gal/A by aircraft. Pyrethroid resistance is common for Beet armyworm and Tobacco budworm. Please consult your local or state agricultural authority to determine if resistance pest populations are in your area. If so refer to the resistance management statement in the DIRECTIONS FOR USE section of this label.
Tarnished plant bug Three-cornered alfalfa hopper Thrips Tobacco budworm Velvetbean caterpillar Webworms Western bean cutworm Whitefly Woollybear caterpillar Yellowstriped armyworm	0.033 to 0.10	2.1 to 6.4	
Kudzu bug <i>Lygus</i> spp. Twospotted spider mite Whitefly	0.08 to 0.10	5.12 to 6.4	

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## Soybeans\*

\* Use not permitted in California.

### RESTRICTIONS:

- Do not apply more than 0.3 pound active ingredient (19.2 ounces formulated) per acre per season.
- To maintain a proper spray interval, do not make applications less than 30 days apart.
- Do not apply within 18 days of harvest.

## SPINACH

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Armyworms Colorado potato beetle Corn earworm Cucumber beetles Cutworms European corn borer Flea beetles Leafminers Loopers Pepper weevil Thrips Tomato pinworm Tomato hornworm Whitefly	0.033 to 0.10	2.1 to 6.4	<b>Ground Application:</b> Apply in water in a minimum of 10.0 gal/A. <b>Air Application:</b> Apply in water in a minimum of 5.0 gal/A. For control of Whiteflies, apply as a foliar treatment by ground or air at rates of up to 0.4 pt (0.1 lb AI)/A at a minimum of 7-day intervals up to a maximum of 4 applications. For control of Fire ants, apply this product to the soil (at planting) or as a foliar treatment by ground or air at rates up to 0.4 pt (0.1 lb AI)/A at a minimum of 7-day intervals up to a maximum of 4 applications.
Banks grass mite Broad mite Carmine mite Fire ants <i>Lygus</i> spp. Pacific spider mite Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

### RESTRICTIONS:

- To maintain a proper spray interval, do not make applications less than 7 days apart.
- Do not apply more than 0.4 pound active ingredient (25.6 ounces formulated) per acre per season.
- Do not apply within 40 days of harvest.

## SUCCULENT PEAS AND BEANS

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Pea ( <i>Pisum</i> spp.): Dwarf pea, Edible-pod pea, English pea, Garden pea, Green pea, Pigeon pea, Snow pea, Sugar snap pea	Aster leafhopper Flea beetle Grasshoppers Leafhoppers	0.025 to 0.10	1.6 to 6.4	Apply in a minimum of 2.0 gal of finished spray/A by air or in a minimum of 10.0 gal/A with ground equipment. When applying by air, 1.0 to 2.0 qt of emulsified oil may be substituted for 1.0 to 2.0 qt of water in the finished spray. Thorough coverage is essential to achieve control.
Bean ( <i>Phaseolus</i> spp.): Broadbeans (succulent), Lima bean (green), Runner bean, Snap bean, Wax bean Bean ( <i>Vigna</i> spp.): Asparagus bean, Blackeyed pea, Chinese longbean, Cowpea, Jackbean, Moth bean, Southern pea, Soybean (immature seed), Sword bean, Yardlong bean	Alfalfa caterpillar Aphids Bean leaf beetle Beet armyworm Cloverworm Corn earworm Corn rootworm (adults) Cucumber beetles Cutworms European corn borer Fall armyworm Grasshoppers Japanese beetle (adults) Loopers Pea leaf weevil Pea weevil Plant bug Sap beetle Southern armyworm Stink bugs Tarnished plant bug Thrips Webworms Western bean cutworm Whitefly Yellowstriped armyworm	0.033 to 0.10	2.1 to 6.4	
	Banks grass mite Carmine mite Kudzu bug <i>Lygus</i> spp. Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

### RESTRICTIONS:

- Do not apply more than 0.2 pound active ingredient (12.8 ounces formulated) per acre per season.
- Do not apply within 3 days of harvest.
- Do not make applications less than 3 days apart.



# **TABACCO**

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Armyworm spp. Cutworm spp. Mole cricket Stalkborers Tobacco flea beetle (larvae) White grubs Wireworm	0.0625 to 0.10	4.0 to 6.4	<b>Pre-transplant soil applications:</b> Apply 0.0625 to 0.1 lb AI/A in a minimum of 10.0 gal/A to control soil pests. Use of suitable equipment to incorporate into top 4" of the soil is required to control below ground pests.  <b>At-transplant water treatment application:</b> Apply 0.0625 to 0.1 lb AI/A in a water treatment application volume of 10.0 to 200 gal/A. <b>Foliar applications:</b> Apply 0.04 to 0.10 lb AI/A/foliar application up to, and including, layby in a minimum of 10.0 gal/A.
Aphid spp. Armyworm spp. Chinch bugs Cucumber beetle Cutworms spp. Flea beetle (adults) Grasshoppers Green bugs Japanese beetles Saltmarsh caterpillar Stink bugs Tarnished plant bugs Thrips Tobacco budworm Tobacco hornworm Whiteflies	0.04 to 0.10	2.56 to 6.4	
<i>Lygus</i> spp. Spider mites	0.10	6.4	

## **RESTRICTIONS:**

- Do not apply more than 0.2 pound active ingredient (12.8 ounces formulated) per acre per season.
- Do not apply later than layby.
- May be tank mixed with other herbicides approved for tobacco use.
- Do not make more than 2 foliar applications per season.

# **TOMATOES/TOMATILLO\***

PEST	DOSAGE		REMARKS
	LB AI/A	FL OZ/A	
Aphids Armyworms Including: Beet armyworm, Fall armyworm, Southern yellowstriped armyworm Bean leaf beetle Cabbageworm Carmine mite Cloverworm Corn earworm Corn rootworm Cucumber beetles Cutworms Diamondback moth European corn borer Flea beetles Flea hoppers Grasshoppers Japanese beetle (adults) Leafhoppers Loopers <i>Lygus</i> spp. Melonworm Pea weevil Pickleworm Plant bug Rindworms Saltmarsh caterpillar Sap beetle Seedpod weevil Squash bugs Stink bug spp. Tarnished plant bug Thrips Tobacco budworm Whitefly	0.033 to 0.08	2.1 to 5.12	<b>Ground application:</b> Apply in water as necessary for insect control using a minimum of 10.0 to 15.0 gal of finished spray/A. <b>Air application:</b> Apply in water in a minimum of 5.0 to 50.0 gal/A. Thorough coverage is essential to achieve control.
Twospotted spider mite	0.08 to 0.10	5.12 to 6.4	

\*Not for use on Tomatillo in California unless accompanied by an approved supplemental labeling.

## **RESTRICTIONS:**

- Do not make applications less than 10 days apart.
- A maximum of 4 applications may be applied per season.
- Do not apply within 1 day of harvest.

## TREE NUTS CROPS

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Almond	Black pecan aphid	0.05 to 0.20	3.2 to 12.8	<b>Application by ground:</b> Apply as a dilute (minimum of 200 gal of finished spray/A) or concentrate (minimum of 50.0 gal of finished spray/A) spray in sufficient water to provide thorough coverage. <b>Application by air:</b> Apply the specified dosage in a minimum of 10.0 gal of finished spray/A.
Beech nut	Codling moth			
Brazil nut	Filbert worm			
Butternut	Hickory shuckworm			
Cashew	Leaffooted bugs			
Chestnut	Navel orangeworm			
Chinquapin	Obliquebanded leafroller			
Filbert (hazelnut)	Peach twig borer			
Hickory nut	Pecan leaf casebearer			
Macadamia nut (bush nut)	Pecan nut casebearer			
Pecan	Pecan phylloxera			
Pistachio	Plant bugs			
Walnut (Black and English)	Stink bugs			
	Walnut aphid			
	Yellow pecan aphid			
	European red mite	0.08 to 0.20	5.1 to 12.8	
	Pecan weevil			
	Spider mites			
	Fire ants	0.1 to 0.20	6.4 to 12.8	
	Walnut husk fly			

### RESTRICTIONS:

- Minimum Spray intervals: Apply this product as needed to maintain control, but do not apply at intervals sooner than 15 days.
- Observe a 21-day Pre Harvest Interval (PHI) for pecans and a 7-day Pre-Harvest Interval (PHI) for all other registered tree nut crops.
- Do not exceed 0.2 pound active ingredient (12.8 ounces formulated) per acre per application; do not exceed 0.50 pound active ingredient (32.0 ounces formulated) per acre per season.
- Do not graze livestock in treated orchards or cut treated cover crops for feed.

## TUBEROUS AND CORM VEGETABLES\*

CROP	PEST	DOSAGE		REMARKS
		LB AI/A	FL OZ/A	
Arracacha	Corn	0.15 to 0.30	9.6 to 19.2	This product may be applied as an in-furrow planting time treatment for the control of Wireworms, Rootworms, and White grubs. Apply this product at the rate of 0.3 lb AI (19.2 oz formulated)/A as an in-furrow spray or T-band spray at planting time. This product may be applied as a layby treatment for the control of Wireworms, Rootworms, and White grubs. Apply this product to the drill area and cover with soil utilizing cultivation equipment set to throw soil to the drill area. Apply this product as a banded spray over the row at a rate of 0.05 to 0.15 lb AI/A (3.2 to 9.6 oz formulated) in 10.0 gal/A/spray. This product may be applied as a foliar spray for the control of the adult life stages of Flea beetles, Click beetles (Wireworms), Cucumber beetles (Rootworms), White fringed beetles and May/June beetles (White grubs). Apply this product at the rate of 0.033 to 0.1 lb AI/A (2.1 to 6.4 oz formulated) in a minimum of 10.0 gal of spray by ground and 3.0 gal of spray by air.
Arrowroot	wireworm			
Artichoke, Chinese	Tobacco wireworm			
Artichoke, Jerusalem	Banded cucumber beetle	0.05 to 0.15	3.2 to 9.6	
Bean, Canna, edible	Black flea beetle	(at cultivation or layby) OR	(at cultivation or layby) OR	
Cassava, bitter and sweet	Cucumber beetle	0.033 to 0.10	2.1 to 6.4	
Chayote (root)	Japanese beetle	(foliar)	(foliar)	
Chufa	grubs			
Dasheen (taro)	June beetle			
Ginger	Kudzu bug			
Leren	Rootworms			
Potato	Southern potato wireworm			
Sweet potato	Sugarcane beetle			
Tanier	Sweet potato flea beetle			
Turmeric	Sweet potato weevil			
Yam, true	White grub			
	Whiteringed beetle			

\* This use is not permitted in California unless allowed by an approved supplemental label.

### RESTRICTIONS:

- Do not make more than 2 foliar applications per season no sooner than 21 days apart.
- Do not apply more than 0.5 pound active ingredient (32.0 ounces formulated) per acre per season, including soil application.
- Do not apply within 21 days of harvest.

## TURF (GOLF COURSES AND SOD FARMS) AND GRASS AREAS (INCLUDING GOLF COURSES, SOD FARMS, HOME LAWNS, LAWN AREAS AROUND PARKS, INSTITUTIONAL, PUBLIC, COMMERCIAL AND INDUSTRIAL BUILDINGS, RECREATIONAL AND ATHLETIC FIELDS)\*

Apply as a broadcast treatment. Use higher volumes up to 10.0 gallons per carrier per 1000 square feet to get uniform coverage when treating dense grass foliage. For low water volume usage, less than 2.0 gallons per 1000 square feet, addition of a non-ionic or silicone based surfactant (0.25% by volume) is recommended. Irrigation to treated area within a few hours following application can improve efficacy to sub-surface pests such as, but not limited to, Mole crickets. The application rates listed in the following table will provide excellent control of the respective pests under typical conditions. However, at the discretion of the applicator, this product may be applied at up to 0.32 fluid ounce per 1000 square feet to control each of the pests listed in this table. Use higher application rates when maximum residual control is desired or where heavy pest populations occur.

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**TURF (GOLF COURSES AND SOD FARMS) AND GRASS AREAS (INCLUDING GOLF COURSES, SOD FARMS, HOME LAWNS, LAWN AREAS AROUND PARKS, INSTITUTIONAL, PUBLIC, COMMERCIAL AND INDUSTRIAL BUILDINGS, RECREATIONAL AND ATHLETIC FIELDS)\***

PEST	FL OZ/A	FL OZ/1000 SQ FT	LB A/A
Armyworms <sup>1</sup> Cutworms <sup>1</sup> Sod webworm <sup>1</sup>	2.2 to 3.5	0.05 to 0.08	0.03 to 0.05
Annual bluegrass weevil ( <i>Hyperodes</i> ) (adults) <sup>2</sup> Banks grass mite <sup>6</sup> Billbugs (adults) <sup>3</sup> Black turfgrass ateniuss (adults) <sup>4</sup> Centipedes Crickets Earwigs Fleas (adults) Grasshoppers Leafhoppers Mealybugs Mites <sup>5</sup> Pillbugs Sowbugs	3.5 to 7.0	0.08 to 0.16	0.05 to 0.11
Ants Chinch bugs <sup>5</sup> Fleas (larvae) <sup>7</sup> Imported fire ants <sup>8</sup> Japanese beetle (adults) Mole cricket (adults) <sup>9</sup> Mole cricket (nymph) <sup>10</sup> Ticks <sup>11</sup>	7.0 to 14.0	0.16 to 0.32	0.11 to 0.21

**RESTRICTIONS:**

**DO NOT USE THIS PRODUCT ON GOLF COURSES OR SOD FARMS IN NASSAU COUNTY OR SUFFOLK COUNTY, NEW YORK.**

**In New York State, this product may NOT be applied to any grass or turf area within 100 feet of a water body (lake, pond, river, stream, wetland, or drainage ditch). In New York State, do make a single repeat application of this product if there are signs of renewed insect activity, but not sooner than 2 weeks after the first application.**

**Spray Drift Precautions (For turf uses)**

Do not apply when wind conditions favor downwind drift to nearby water bodies. Do not apply when wind velocity exceeds 10 miles per hour. Avoid application when wind gusts approach 10 mph. Apply using nozzles that provide the largest droplet size compatible with adequate coverage.

**Comments**

**<sup>1</sup>Armyworms, Cutworms and Sod webworms:** To ensure optimum control, delay watering (irrigation) or mowing for 24 hours after application. If the grass area is being maintained at a mowing height of greater than 1 inch, then higher application rates (up to 0.32 fluid ounce per 1000 square feet) may be required during periods of high pest pressure.

**<sup>2</sup>Annual bluegrass weevil (*Hyperodes*) adults:** To control adult Weevils, apply product as they leave their overwintering sites and move into grass areas. This movement generally begins when *Forsythia* is in full bloom and concludes when Flowering dogwood (*Comus florida*) is in full bloom. Consult your State Cooperative Extension Service for more specific information regarding application timing.

**<sup>3</sup>Billbug adults:** Apply when adult Billbugs are first observed during April and May. Degree day models have been developed to optimize application timing. Consult your State Cooperative Extension Service for information specific to your region. In temperate regions, spring applications targeting Billbug adults will also provide control of over-wintered Chinch bugs.

**<sup>4</sup>Black turfgrass ateniuss adults:** Make applications during May and July to control the first and second generation of Black turfgrass ateniuss adults, respectively. The May application should be timed to coincide with the full bloom stage of Vanhoutte spiraea (*Spiraea vanhouttei*) and Horse chestnut (*Aesculus hippocastanum*). Time the July application to coincide with the blooming of Rose of Sharon (*Hibiscus syriacus*).

**<sup>5</sup>Chinch bugs:** Chinch bugs infest the base of grass plants and are often found in the thatch layer. Irrigation of the grass area before treatment will optimize the penetration of the insecticide to the area where the Chinch bugs are located. Use higher volume applications if the thatch layer is excessive or if a relatively long mowing height is being maintained. Chinch bugs can be one of the most difficult pests to control in grasses and the higher application rates (up to 0.32 fluid ounce per 1000 square feet) may be required to control populations that contain both nymphs and adults during the middle of the summer.

**<sup>6</sup>Mites:** To ensure optimal control of Eriophyid mites, apply in combination with the labeled application rate of a surfactant. A second application, 5 to 7 days after the first, may be necessary to achieve acceptable control.

**<sup>7</sup>Flea larvae:** Flea larvae develop in the soil of shaded areas that are accessible to pets or other animals. Use a higher volume application when treating these areas to ensure penetration of the insecticide into the soil. Note: if the lawn area is being treated with this product at 0.10 fluid ounce per 1000 square feet for adult Flea control, then the larval application rate may be achieved by increasing the application volume two- to four-fold.

**<sup>8</sup>Imported fire ants:** Control will be optimized by combining broadcast applications that will control foraging workers and newly mated fly-in queens with mound drenches that will control existing colonies. If the soil is not moist, then it is important to irrigate before application or use a high volume application. Apply broadcast treatments with 0.32 fluid ounce per 1000 square feet. Treat mounds by diluting 0.05 fluid ounce of this product per gallon of water and applying 1.0 to 2.0 gallons per finished spray per mound. Treat the mounds with sufficient force to break their apex and allow the insecticide solution to flow into the ant tunnels. A four foot diameter circle around the mound should also be treated. For best results, apply in cool weather (65 to 80 °F) or in early morning or late evening hours.

**<sup>9</sup>Mole cricket adults:** Achieving acceptable control of adult Mole crickets is difficult because preferred grass areas are subject to continuous invasion during the early spring by this extremely active stage. Make applications as late in the day as possible and should be watered in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the Mole crickets closer to the soil surface where contact with the insecticide will be maximized. Treat grass areas that receive pressure from adult Mole crickets at peak egg hatch to ensure optimum control of subsequent nymph populations (see below).

**<sup>10</sup>Mole cricket nymphs:** Treat grass areas that received intense adult Mole cricket pressure in the spring immediately prior to peak egg hatch. Optimal control is achieved at this time because young nymphs are more susceptible to insecticides and they are located near the soil surface where the insecticide is most concentrated. Control of larger, more damaging, nymphs later in the year may require both higher application rates and more frequent applications to maintain acceptable control. Make applications as late in the day as possible and water in with up to 0.5 inches of water immediately after treatment. If the soil is not moist, then it is important to irrigate before application to bring the Mole crickets closer to the soil surface where contact with the insecticide will be maximized.

**<sup>11</sup>Ticks (including Ticks that may transmit Lyme Disease and Rocky Mountain Spotted Fever):** Do not make spot applications. Treat the entire area where exposure to Ticks may occur. Use higher spray volumes when treating areas with dense ground cover or heavy leaf litter. Ticks may be reintroduced from surrounding areas on host animals. Retreatment may be necessary to achieve and/or maintain control during periods of high pest pressure. Repeat application is necessary only if there are signs of renewed activity. Limit application to no more than once per 7 days.

**<sup>12</sup>Deer ticks (*Ixodes* sp.)** have a complicated life cycle that ranges over a 2-year period and involves 4 life stages. Make applications in the late fall and/or early spring to control adult Ticks that are usually located on brush or grass above the soil surface and in mid to late spring to control larvae and nymphs that reside in the soil and leaf litter.

**American dog ticks** may be a considerable nuisance in suburban settings, particularly where homes are built on land that was previously field or forest. These ticks commonly congregate along paths or roadways where humans are likely to be encountered. Make applications as necessary from mid-spring to early fall to control American dog tick larvae, nymphs and adults.

**\*This use is not permitted in California unless allowed by supplemental labeling.**

Dealers Should Sell In Original Packages Only.

## STORAGE AND DISPOSAL

**PESTICIDE STORAGE:** Do not freeze. Do not store below 40 °F. If crystals are observed, warm material to above 60 °F by placing container in warm location. Shake or roll container periodically to re-dissolve solids.

Keep out of reach of children and animals. Store in original containers only. Store in a cool, dry place and avoid excess heat. Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. Confine spills.

**TO CONFINE SPILL:** If liquid, dike surrounding area or absorb with sand, cat litter or commercial clay. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

**PESTICIDE DISPOSAL:** Pesticide wastes are toxic. 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 of the nearest EPA Regional Office for guidance.

**CONTAINER HANDLING: Nonrefillable container.** Do not reuse this container to hold materials other than pesticides or dilute pesticides (rinsate). After emptying and cleaning, it may be allowable to temporarily hold rinsate or other pesticide-related materials in the container. Contact your state regulatory agency to determine allowable practices in your state. Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer, or contact The Agricultural Container Recycling Council (ACRC) at [www.acrcycle.org](http://www.acrcycle.org). Triple rinse or pressure rinse container (or equivalent) promptly after emptying. If recycling is not available, puncture and dispose of in a sanitary landfill or incinerate or if allowed by states and local authorities, by burning. If burned stay out of smoke.

**For packages up to 5 gallons: 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 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 or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**For packages greater than 5 gallons and less than 56 gallons: Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace 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. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

## Storage and Disposal cont'd:

**For packages greater than 56 gallons:** To clean the 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.

**For refillable containers:** Refill this container with pesticide only. Do not reuse 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 the 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.

**For help with any spill, leak, fire or exposure involving this material, call day or night CHEMTREC - 1-800-424-9300.**

## CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

**BEFORE BUYING OR USING THIS PRODUCT,** read the entire Directions for Use and the following Conditions of Sale and Limitation of Warranty and Liability. By buying or using this product, the buyer or user accepts the following Conditions of Sale and Limitation of Warranty and Liability, which no employee or agent of LOVELAND PRODUCTS, INC. or the seller is authorized to vary in any way.

Follow the Directions for Use of this product carefully. It is impossible to eliminate all risks inherently associated with the use of this product. Crop or other plant injury, ineffectiveness, or other unintended consequences may result from such risks as weather or crop conditions, mixture with other chemicals not specifically identified in this product's label, or use of this product contrary to the label instructions, all of which are beyond the control of LOVELAND PRODUCTS, INC. and the seller. The buyer or user of this product assumes all such inherent risks.

Subject to the foregoing inherent risks, LOVELAND PRODUCTS, INC. 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 when the product is used in strict accordance with such Directions for Use under normal conditions of use. EXCEPT AS WARRANTED IN THIS LABEL AND TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THIS PRODUCT IS SOLD "AS IS," AND LOVELAND PRODUCTS, INC. MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR ELIGIBILITY OF THIS PRODUCT FOR ANY PARTICULAR TRADE USAGE.

IN THE UNLIKELY EVENT THAT BUYER OR USER BELIEVES THAT LOVELAND PRODUCTS, INC. HAS BREACHED A WARRANTY CONTAINED IN THIS LABEL AND TO THE EXTENT REQUIRED BY APPLICABLE LAW, BUYER OR USER MUST SEND WRITTEN NOTICE OF ITS CLAIM TO THE FOLLOWING ADDRESS: LOVELAND PRODUCTS, INC., ATTENTION: LAW DEPARTMENT, P.O. BOX 1286, GREELEY, CO 80632-1286.

TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE BUYER'S OR USER'S EXCLUSIVE REMEDY FOR ANY INJURY, LOSS, OR DAMAGE RESULTING FROM THE HANDLING OR USE OF THIS PRODUCT, INCLUDING BUT NOT LIMITED TO CLAIMS OF BREACH OF WARRANTY OR CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR OTHER TORTS, SHALL BE LIMITED TO ONE OF THE FOLLOWING, AT THE ELECTION OF LOVELAND PRODUCTS, INC. OR THE SELLER: DIRECT DAMAGES NOT EXCEEDING THE PURCHASE PRICE OF THE PRODUCT OR REPLACEMENT OF THE PRODUCT. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, LOVELAND PRODUCTS, INC. AND THE SELLER SHALL NOT BE LIABLE TO THE BUYER OR USER OF THIS PRODUCT FOR ANY CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES, OR DAMAGES IN THE NATURE OF A PENALTY.

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**Ambush, Ammo, Asana, Danitol, Karate, Mustang, Sniper Helios and Tombstone Helios are restricted use pesticides.**

SPECIMEN



## RESTRICTED USE PESTICIDE

Toxic to fish and aquatic organisms.

For retail sale to and use only by certified applicators, or persons under their direct supervision and only for the uses covered by the certified applicator's certification.

GROUP 3A INSECTICIDE

# SNIPER<sup>®</sup>

## HELIOS<sup>®</sup>

Insecticide/Miticide

### ACTIVE INGREDIENT:

Bifenthrin: (2-methyl[1,1'-biphenyl]-3-yl)  
methyl 3-(2-chloro-3,3,3-trifluoro-1-propenyl)-2,  
2-dimethyl-cyclopropanecarboxylate\* .....

BY WT

25.00%

OTHER INGREDIENTS\*\* .....

75.00%

TOTAL 100.00%

\*Cis isomers 97% minimum, trans isomers 3% maximum.

\*\*Contains petroleum distillates.

This product contains 2.0 pounds active ingredient per gallon.

**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 this label, find someone to explain it to you in detail.)

EPA REG. NO. 34704-858

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FORMULATED FOR  
LOVELAND PRODUCTS, INC.® P.O. BOX 1286 GREELEY, COLORADO 80632-1286

EPA EST. NO. 34704-MS-002



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NET CONTENTS 2.5 GAL (9.46 L)

PEEL FILM HERE