

264-349

11-19-2009

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460-0001

OFFICE OF  
PREVENTION, PESTICIDES  
AND TOXIC SUBSTANCES

Attn: Danielle Larochelle  
Bayer CropScience LP  
P.O. Box 12014  
2 T.W. Alexander Drive  
Research Triangle Park, NC 27709

NOV 19 2009

Subject: SEVIN brand 4F Carbaryl Insecticide  
EPA Reg. No. 264-349  
Your Application Dated November 10, 2009  
Editorial Change in list of crops/Brassica Leafy Vegetables

Dear Ms. Larochelle;

The label referred to above, submitted in connection with the registration under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), as amended, is acceptable. Within 45 days from the date of this notice, two copies of a final printed label must be submitted. You may distribute products bearing the old label for twelve months from receipt of this letter or your next printing of the label, whichever comes first.

A copy of the stamped label is enclosed for your records.

Sincerely yours,

*Joanne S. Edwards*

Joanne S. Edwards  
Insecticide-Rodenticide Branch  
Registration Division (7504P)

# SEVIN® brand 4F Carbaryl Insecticide

INTENDED FOR AGRICULTURAL OR COMMERCIAL USE

**ACTIVE INGREDIENTS:**

Carbaryl (1-naphthyl N-methylcarbamate).....43.0% by Wt.

**INERT INGREDIENTS:** .....57.0% by Wt.

(Contains 4 pounds Carbaryl per Gallon)

E.P.A Reg No. 264-349

E.P.A. Est. No. 264-MO-02

## KEEP OUT OF REACH OF CHILDREN CAUTION

For MEDICAL And TRANSPORTATION Emergencies ONLY Call 24 Hours A Day 1-800-334-7577

For PRODUCT USE Information Call 1-866-99BAYER (1-866-992-2937)

### FIRST AID

Carbaryl is an N-Methyl Carbamate Insecticide.

IF SWALLOWED:	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor for treatment advice.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>	<div style="border: 2px solid black; padding: 5px; text-align: center;"> <p><b>ACCEPTED</b></p> <p>November 19, 2009</p> <p>Under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, for the pesticide Registered under EPA Reg. No. 264-349</p> </div>
IF ON SKIN OR CLOTHING:	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>	
IF INHALED:	<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 mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>	
IF IN EYES:	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>	
<p>For <u>MEDICAL</u> Emergencies Call 24 Hours A Day 1-800-334-7577.</p> <p>Have the product container or label with you when calling a poison control center or doctor or going for treatment.</p>		
<p><b>NOTE TO PHYSICIAN:</b> Carbaryl contains an N-methyl carbamate that inhibits cholinesterase. Drugs like 2-Pam (pyridine-2-aldoxime methiodide) are not recommended. To aid in the confirmation of diagnosis, urine samples should be obtained within 24 hours of exposure and immediately frozen. Analysis will be arranged by Bayer CropScience. Consultation on therapy can be obtained at all hours by calling the appropriate emergency number 1-800-334-7577 (U.S.A.)</p>		

### PRECAUTIONARY STATEMENTS

#### HAZARDS TO HUMANS & DOMESTIC ANIMALS

##### CAUTION

Harmful if swallowed, absorbed through the skin, or inhaled. Avoid breathing spray mist. Avoid contact with skin, eyes, or clothing.

**OVEREXPOSURE MAY CAUSE:** Salivation, watery eyes, pinpoint eye pupils, blurred vision, muscle tremors, difficult breathing, excessive sweating, abdominal cramps, nausea, vomiting, diarrhea, weakness, headache. **IN SEVERE CASES CONVULSION, UNCONSCIOUSNESS AND RESPIRATORY FAILURE MAY OCCUR. SIGNS AND SYMPTOMS OCCUR RAPIDLY FOLLOWING OVEREXPOSURE TO THIS PRODUCT.**

##### PERSONAL PROTECTIVE EQUIPMENT (PPE):

Some materials that are chemical-resistant to this product are made of any waterproof material. If you want more options, follow the instructions for category A on an EPA chemical resistance category selection chart.

**PERSONAL PROTECTIVE EQUIPMENT (PPE) Continued**

Handlers applying with open cab airblast equipment at application rates equal to or greater than 5 quarts of SEVIN® brand 4F Carbaryl Insecticide per acre must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear, and
- NIOSH-approved dust/mist filtering respirator with NIOSH/MSHA approval number prefix TC-21C or NIOSH-approved respirator with any N, R, P or HE filter.

All other mixers, loaders, applicators, and handlers must wear:

- Long-sleeved shirt and long pants
- Shoes plus socks
- Chemical-resistant gloves, and
- Chemical-resistant apron, when mixing, loading, or cleaning up spills or equipment.

In addition, mixers and loaders supporting aerial or chemigation applications must wear:

- A NIOSH-approved dust/mist filtering respirator with NIOSH/MSHA approval number prefix TC-21C or
- A NIOSH-approved respirator with any N, R, P or HE filter.

**See engineering controls for additional requirements and exceptions.**

Follow manufacturer's instructions for cleaning and maintaining Personal Protective Equipment (PPE). If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

**ENGINEERING CONTROLS**

Pilots must use an enclosed cockpit in a manner that is consistent with the WPS for Agricultural Pesticides [40 CFR 170.240(d)(6)].

Applicators using airblast equipment for application to citrus in California must use an enclosed cab that meets the definition in the Worker Protection Standard for Agricultural Pesticides [40 CFR 170.240(d)(5)] for dermal protection. In addition, such applicators must:

- wear long-sleeve shirt, long pants, shoes, and socks;
- either wear a NIOSH-approved dust/mist filtering respirator with NIOSH/MSHA approval number prefix TC-21C or a NIOSH-approved respirator with any N, R, P or HE filter or use an enclosed cab that is declared in writing by the manufacturer or by a government agency to provide at least as much respiratory protection as this type of respirator;
- be provided, have immediately available for use, and wear in an emergency when they must exit the cab in the treated area coveralls, chemical-resistant gloves, chemical-resistant footwear, and chemical-resistant headgear (if overhead exposure) plus – if not already using one – the respirator specified above—take off any PPE that was worn in the treated area before reentering the cab, and
- store all such PPE in a chemical-resistant container, such as a plastic bag, to prevent contamination of the inside of the cab.

Human flagging is prohibited, except for flagging to support ultra low volume aerial applications for Rangeland Grasshopper and Mormon Cricket Suppression through the Animal and Plant Health Inspection Service (APHIS) Program or affiliated state programs. Flagging to support aerial application for all other use patterns is limited to use of the Global Positioning System (GPS) or mechanical flaggers.

Flaggers supporting ultra low volume aerial applications for Rangeland Grasshopper and Mormon Cricket Suppression through the Animal and Plant Health Inspection Service (APHIS) Program or affiliated state programs must use an enclosed cab that meets the definition in the Worker Protection Standard for Agricultural Pesticides [40 CFR 170.240(d)(5)] for dermal protection. In addition, flaggers must:

- wear long-sleeve shirt, long pants, shoes, and socks,
- either wear a NIOSH-approved dust/mist filtering respirator with NIOSH/MSHA approval number prefix TC-21C or a NIOSH-approved respirator with any N, R, P or HE filter or use an enclosed cab that is declared in writing by the manufacturer or by a government agency to provide at least as much respiratory protection as this type of respirator;
- be provided, have immediately available for use, and wear in an emergency when they must exit the cab in the treated area: chemical-resistant gloves and chemical-resistant headgear, and, if using an enclosed cab that provides respiratory protection, a respirator of the type specified above,
- take off any PPE that was worn in the treated area before reentering the cab, and
- store all such PPE in a chemical-resistant container, such as a plastic bag, to prevent contamination of the inside of the cab.

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When applicators use enclosed cabs in a manner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(5), the handler PPE requirements may be reduced or modified as specified in the WPS.

### User Safety Recommendations

**Users should:**

Wash hands thoroughly with soap and water before eating, drinking, chewing gum, using tobacco, or using the toilet.

Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.

Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

This product is extremely toxic to aquatic invertebrates. For terrestrial uses, do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Discharge from rice fields may kill aquatic and estuarine invertebrates. Do not apply when weather conditions favor drift from area treated. Drift and runoff may kill aquatic invertebrates in water adjacent to treated areas. Do not contaminate water by cleaning equipment or disposal of wastes. Do not contaminate water when disposing of equipment washwaters.

**BEE CAUTION: MAY KILL HONEYBEES AND OTHER BEES IN SUBSTANTIAL NUMBERS.** This product is highly toxic to bees exposed to direct treatment or residues on crops or weeds in bloom. Notifying beekeepers within 1 mile of treatment area at least 48 hours before product is applied will allow them to take additional steps to protect their bees. Limiting application to times when bees are least active, e.g., within 2 hours of sunrise or sunset, will minimize risk to bees.

*For crops in bloom (except soybean and corn):* Do not apply this product to target crops or weeds in bloom.

*For soybean and corn:* If application cannot be avoided when target crop or weeds are in bloom, limiting applications to times when bees are least active, e.g. within 2 hours of sunrise or sunset, will minimize risk to bees.

### DIRECTIONS FOR USE

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

Read the entire label before using this product.

Strictly observe label directions and cautions. 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.

### 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). The REI for carbaryl is 12 hours unless otherwise specified in the directions for use associated with each crop.

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 over short-sleeve shirt and short-pants,
- Chemical-resistant footwear plus socks,
- Chemical-resistant gloves made of any waterproof material, and
- Chemical-resistant headgear if overhead exposure

When the Restricted-Entry Interval for a crop is 7 days or longer, you must notify workers of the application by warning them orally and by posting warning signs at entrances to treated area.

### NON-AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow others to enter the treated area until sprays have dried.

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## STORAGE AND DISPOSAL

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

### STORAGE

Store unused SEVIN® brand 4F Carbaryl Insecticide in original container only, in cool, dry area out of reach of children and animals. Do not store in areas where temperatures frequently exceed 100° F.

If container is damaged, before cleaning up, put on Personal Protective Equipment.

### PESTICIDE DISPOSAL

Open dumping is prohibited. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### CONTAINER DISPOSAL

Non-refillable container. Do not reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container ¼ full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

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.

Offer for recycling, if available. If not recycled, then puncture and dispose of in a sanitary landfill or by incineration, or, if allowed by State and local authorities, by burning. If burned, stay out of smoke.

## INFORMATION AND RESTRICTIONS

SEVIN® brand 4F Carbaryl Insecticide is a suspension of microfine SEVIN® Carbaryl Insecticide in an aqueous medium. It readily disperses in water to form a spray which may be applied by air or ground.

### PLANT RESPONSE PRECAUTIONS

Application to wet foliage or during periods of high humidity may cause injury to tender foliage.

Do not use on Boston Ivy, Virginia creeper and maidenhair fern as injury may result. Carbaryl may also injure Virginia and sand pines.

The use of adjuvants may increase the potential for crop injury to sensitive crops.

### PREHARVEST AND GRAZING RESTRICTIONS AND LIMITATIONS

For all listed crops and uses, do not apply at greater rates or at more frequent intervals than stated on the label. If forage is grazed or used as feed for dairy and meat animals, follow all use restrictions in order to avoid illegal residues in crops, meat or milk.

Do not use reclaimed irrigation water from crops treated with carbaryl on crops for which carbaryl tolerances are not established.

### APPLICATION INFORMATION

Calibrate and adjust application equipment to insure proper rate and accurate placement. To clean spray system after use, drain and flush with a water and detergent mixture. Rinse thoroughly with clean water. Refer to the Storage and Disposal section for disposal instructions.

**NOTE:** Staining may occur on certain surfaces such as stucco, brick, cinder block, and wood. Spray deposits on painted or stained surfaces or finishes (i.e., cars, houses, trailers, boats, etc.) should be immediately removed by washing to prevent discoloration. Avoid applications to surfaces where visible spray residues are objectionable. For outdoor use only.

### RESISTANT SPECIES NOTICE

All references to armyworm on the crops listed below refer to the species, *Pseudaletia unipuncta*, often called the "true armyworm". Except where indicated otherwise, this product is not registered for other armyworm species. Regional differences have been noted in the susceptibility of certain strains of fall armyworm, diamondback moth, Colorado potato beetle and Southern green stink bug to carbaryl. If local experience indicates inadequate product performance, use an alternative pesticide.

### MIXING, LOADING AND HANDLING INSTRUCTIONS

TO ASSURE A UNIFORM SUSPENSION, AGITATE, STIR OR RECIRCULATE ALL CONTAINERS OF THIS PRODUCT PRIOR TO USE. Remove oil, rust, scale, pesticide residues and other foreign matter from mix tanks and entire spray system. Flush with clean water. Fill spray or mix tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Slowly add the required amount of SEVIN brand 4F Carbaryl Insecticide, and then the remaining volume of water. Include rinse water from container. Prepare only as much spray mixture as can be applied on the day of mixing. MAINTAIN CONTINUOUS AGITATION DURING MIXING AND APPLICATION TO ASSURE A UNIFORM SUSPENSION. DO NOT STORE SPRAY MIXTURE FOR PROLONGED PERIODS OR DEGRADATION OF CARBARYL MAY OCCUR. Local water conditions may also accelerate the degradation of spray mixtures containing carbaryl. See COMPATIBILITY STATEMENT below.

## COMPATIBILITY INFORMATION

SEVIN brand 4F Carbaryl Insecticide, when diluted with at least an equal volume of water, is compatible with a wide range of pesticides. It is not compatible with diesel fuel, kerosene, fuel oil or aromatic solvents. If compatibility with another product and the resulting crop response is unknown, the mixture should be tested on a small scale. Curdling, precipitation, greasing, layer formation or increased viscosity are symptoms of incompatibility. Incompatibility will reduce product performance and may cause application and handling difficulties or plant injury. Observe all cautions and limitations on labeling of all products used in mixtures. **WHEN PREPARING COMBINATION SPRAYS, FIRST ADD SEVIN BRAND 4F CARBARYL INSECTICIDE TO AT LEAST AN EQUAL VOLUME OF WATER, MIX THOROUGHLY, AND THEN ADD COMBINATION PRODUCTS TO THE MIXTURE. DO NOT APPLY TANK MIX COMBINATIONS UNLESS YOUR PREVIOUS EXPERIENCE INDICATES THE MIXTURE IS EFFECTIVE AND WILL NOT RESULT IN APPLICATION PROBLEMS OR PLANT INJURY.**

Carbaryl is unstable under highly alkaline conditions and mixtures with strong bases, such as Bordeaux, lime-sulfur and casein-lime spreaders, will result in chemical degradation of the insecticide. Do not use this product in water with pH values above 8.0 unless a buffer is added. If necessary, water should be buffered to neutral (pH = 7.0) before adding this product to the spray tank. Overhead irrigation with alkaline or muddy water after application will also accelerate chemical degradation and may result in reduced product performance.

## APPLICATION PROCEDURES

On all crops use sufficient gallonage to obtain thorough and uniform coverage. Observe crop label instructions for specific directions regarding spray volume where they occur. Calibrate spray equipment to deliver the required volume. The flow rate of this product diluted 1:1 with water is similar to water. Use of 50 mesh slotted strainers in spray system and 25 mesh slotted strainers behind nozzles is recommended.

### GROUND APPLICATION

Apply in sufficient volume for adequate coverage on all crops and sites.

### AERIAL APPLICATION

For adequate distribution, use at least 10 gallons of spray mixture per acre for application for tree and orchard crops or at least 2 gallons of spray mixture per acre for application to other crops. **EXCEPTION:** For the use on rangeland as a pest management approach for grasshoppers under the Reduced Area and Agent Treatments (RAATs) program only, use at least 16 ounces of finished spray mixture per acre for aerial application.

### SPRINKLER IRRIGATION SYSTEMS

Apply this product only through sprinkler irrigation systems including center pivot and solid set. Do not apply this product through any other type of irrigation system.

**SPRAY PREPARATION:** First prepare a suspension of SEVIN brand 4F Carbaryl Insecticide in a mix tank. Fill tank with 1/2 to 3/4 the desired amount of water. Start mechanical or hydraulic agitation. Add the required amount of SEVIN brand 4F Carbaryl Insecticide, and then the remaining volume of water. (Suspension concentrations using the appropriate dosage per acre recommended on this label of SEVIN brand 4F Carbaryl Insecticide, per 1 to 4 gallons of water are recommended). Then set sprinkler to deliver 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of SEVIN brand 4F Carbaryl Insecticide into the irrigation water line so as to deliver the desired rate per acre. The suspension of SEVIN brand 4F Carbaryl Insecticide should be injected with a positive displacement pump into the main line ahead of a right angle turn to insure adequate mixing. If you should have any other questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

**NOTE:** When treatment with SEVIN brand 4F Carbaryl Insecticide has been completed, further field irrigation over the treated area should be avoided for 24 to 48 hours to prevent washing the chemical off the crop.

### APPLICATIONS THROUGH SPRINKLER IRRIGATION SYSTEMS

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

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

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 shutdown. 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, when system connection or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

Crop injury, lack of effectiveness, or illegal pesticide residues in the crop may result from nonuniform distribution of treated water.

Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation water. A person knowledgeable of the chemigation system and responsible for its operation shall shut the system down and make necessary adjustments should the need arise.

Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the label-prescribed safety devices for public water supplies are in place.

## SPECIFIC USE DIRECTIONS

### USE SITES:

- Asparagus
- Brassica Leafy Vegetables and Turnip Greens
- Cereal Grain Crops (Field and Pop Corn; Grain Sorghum; Rice; Sweet Corn)
- Cucurbit Vegetables
- Flax
- Forage Crops (Alfalfa, Clovers, Birdsfoot Trefoil; Pasture and Grasses Grown for Hay and/or Seed; Rangeland)
- Fruiting Vegetables
- Leafy Vegetables (Dandelion, Endive, Lettuce, Parsley, Spinach; Leaf Petiole Subgroup 4B)
- Legume Vegetables (Edible-Podded Legume Vegetables; Dried Shelled Peas and Beans (except Soybean); Soybeans; Foliage of Legume Vegetables)
- Noncropland (Conservation Reserve Program; Set-Aside Program Acreage; Wasteland; Rights-of-Way; Hedgerows; Ditchbanks; Roadsides)
- Okra
- Peanuts
- Prickly Pear Cactus
- Root and Tuber Crops (Root and Tuber Crops except Sugar Beets and Sweet Potatoes; Sugar Beets; Sweet Potatoes)
- Small Fruits and Berries (Bushberries, Caneberries, Cranberries, Grapes, Strawberries)
- Sunflower
- Tobacco
- Tree Fruit Crops (Citrus Fruits; Olives; Pome Fruits; Stone Fruits)
- Tree Nut Crops (Pistachios; Tree Nuts)
- Forested Areas and Rangeland Trees
- Ornamental Trees and Plants
- Turfgrass
- Specific Pests Across Multiple Sites
  - Grasshoppers
  - Ticks which Vector Lyme Disease
  - Imported Fire Ants
  - Nuisance Pests

### APPLICATION TIMING AND DIRECTIONS

Begin application when insect populations reach recognized economic threshold levels. Consult the Cooperative Extension Service, Consultants, or other qualified authorities to determine appropriate threshold levels and timing for treatment in your area. Where a dosage range is indicated, use the lower rate on light to moderate infestations, young plants and early instars and use the higher rate on heavy infestations, mature plants, advanced instars and adults. Thorough and uniform spray coverage is essential for effective product performance.

### ASPARAGUS

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Apache cicada Asparagus beetle	1	Repeat applications as necessary up to a total of 3 times prior to harvest or a total of 5 applications per year to spears and ferns combined. Do not apply more than once every 3 days.  For cutworm, this product is most effective against species which feed on the upper portions of the plant.
	2	<b>Application to ferns or brush growth following harvest of spears:</b> Repeat applications as necessary but not more often than every 3 days. Do not make more than a total of 5 applications per year to spears and ferns combined.

**RESTRICTIONS: ASPARAGUS**

- Do not apply within 1 day of harvest.
- Do not apply more than a total of 3 quarts per acre before harvest of spears.
- Do not apply more than a total of 5 quarts per acre per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

### BRASSICA LEAFY VEGETABLES CROPS AND TURNIP GREENS

**All members of the Brassica Leafy Vegetable Group 5, plus Turnip greens, including:** Broccoli, Broccoli raab (*rapini*), Brussels sprouts, Cabbage, Cauliflower, Cavalo broccolo, Chinese broccoli (*gai lon*), Chinese cabbage (*bok choy*), Chinese cabbage (*napa*), Chinese mustard cabbage (*gai choy*), Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, Turnip greens.

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Flea beetles Harlequin bug Leafhoppers	1/2 to 1	Repeat applications as needed up to a total of 4 times per year but not more often than once every 7 days.
Armyworm Aster leafhopper Corn earworm Diamondback moth Fall armyworm Imported cabbageworm	1 to 2	

**RESTRICTIONS: BRASSICA LEAFY VEGETABLES**

- For Head and Stem Brassica subgroup 5A [including Broccoli, Chinese broccoli (*gai lon*), Brussels sprouts, Cabbage, Chinese cabbage (*napa*), Chinese mustard cabbage (*gai choy*), Cauliflower, Cavalo broccolo, and Kohlrabi], do not apply within 3 days of harvest.
- For Leafy Brassica Greens subgroup 5B [Broccoli raab (*rapini*), Chinese cabbage (*bok choy*), Collards, Kale, Mizuna, Mustard greens, Mustard spinach, Rape greens, and Turnip greens], do not apply within 14 days of harvest
- Do not apply more than a total of 6 quarts per acre per crop per year.
- Application is permitted only within 30 days from the date of crop emergence or the date of transplanting.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.



**CEREAL GRAIN CROPS  
FIELD CORN AND POPCORN**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Amyworm Chinch bugs Corn earworm Corn-rootworm adults Fall armyworm Flea beetles	1 to 2	OBSERVE BEE CAUTION. Repeat applications as needed up to a total of 4 times per year but not more often than once every 14 days. Good timing and good coverage are essential for effective product performance.
Japanese beetle Sap beetles Southwestern corn borer Leafhoppers		
European corn borer	1 1/2 to 2	For best results on chinch bug, use ground equipment to apply at least 20 gallons of water per acre and direct spray toward stalk to provide thorough coverage.
Western bean cutworm	2	For best results on European corn borer, do not apply in less than 3 gallons of water per acre by air and 15 gallons of water by ground. For western bean cutworm, treat when infestation averages 15% and at 90 to 100% tassel emergence. Treatment after 100% silk emergence will reduce effectiveness. For best results on cutworm, apply in a 12-inch band, over the row, using sufficient volume of water to obtain thorough coverage. For broadcast application, use at least 20 gallons by ground or 5 gallons by air per acre. For cutworm, this product is most effective against species which feed on the upper portions of the plant.

**RESTRICTIONS: FIELD AND POP CORN**

- Do not apply within 48 days of harvest of grain and fodder or within 14 days of harvest or grazing of forage or silage.
- Do not apply more than a total of 8 quarts per acre per crop per year.
- Hand harvesting is prohibited.
- Restricted-entry interval (REI) = 24 hours

EXCEPTION: the REI is 21 days for workers detasseling corn.

• **BEE CAUTION**

For corn: If application cannot be avoided when target crop or weeds are in bloom, limiting applications to times when bees are least active, e.g. within 2 hours of sunrise or sunset, will minimize risk to bees. Notifying beekeepers within 1 mile of treatment area at least 48 hours before product is applied will allow them to take additional steps to protect their bees.

**GRAIN SORGHUM**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Amyworm Chinch bugs Corn earworm	1 to 2	Repeat applications as necessary up to a total of 4 times per year but not more often than once every 7 days. Direct spray into forming heads for best results on insects attacking heads.
Fall armyworm Stink bugs Webworms		
Southwestern corn borer	1 1/2	For best results on chinch bug, use high gallonage ground application at the base of plants.
Cutworms	2	For cutworm, this product is most effective against species which feed on the upper portions of the plant.

**RESTRICTIONS: GRAIN SORGHUM**

- Do not apply within 21 days of harvest for grain or fodder or within 14 days of harvest or grazing of forage or silage.
- Do not apply more than a total of 6 quarts per acre per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

### RICE

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Armyworm Chinch bugs Fall armyworm	1 to 1 1/2	Up to 2 applications per crop per year may be made but not more often than once every 7 days.
Tadpole shrimp	1-1/2	<b>California only</b> Up to 2 applications per crop per year may be made but not more often than once every 7 days. For best results on tadpole shrimp, apply to water when pest first appears.

#### RESTRICTIONS: RICE

- Do not apply within 14 days of harvest for grain or straw.
- Do not apply more than a total of 3 quarts per acre per crop per year.
- Discharge from rice fields may kill shrimp, crabs, and crayfish.
- Do not apply propanil herbicides within 15 days before or after application of this product or plant injury will result.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

### SWEET CORN

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Armyworm Chinch bugs Corn earworm Corn rootworm adults Fall armyworm Flea beetles	1 to 2	<b>OBSERVE BEE CAUTION</b> Repeat applications as necessary up to a total of 8 times per year but not more often than once every 3 days. Good timing and good coverage are essential for effective product performance.
European corn borer	1 1/2 to 2	For insects attacking silks and ears, insecticide sprays should be applied starting when first silks appear and continuing until silks begin to dry. During silking, the minimum retreatment interval (3 days) may not provide adequate levels of protection under conditions of rapid growth or severe pest pressure. The use of an alternative product should be considered in conjunction with this product.
Western bean cutworm Cutworms	2	For best results on chinch bug, use ground equipment to apply at least 20 gallons of water per acre and direct spray toward stalk to provide thorough coverage. For best results on European corn borer, do not apply in less than 3 gallons of water per acre by air and 15 gallons of water by ground. For western bean cutworm, treat when infestation average 15% and at 90 to 100% tassel emergence. Treatment after 100% silk emergence will reduce effectiveness. For best results on cutworm, apply in a 12-inch band, over the row, using sufficient volume of water to obtain thorough coverage. For broadcast application, use at least 20 gallons by ground or 5 gallons by air per acre. For cutworm, this product is most effective against species which feed on the upper portions of the plant.

#### RESTRICTIONS: SWEET CORN

- Do not apply within 2 days of harvest of ears, within 14 days of harvest or grazing of forage, or within 48 days of harvest of fodder.
- Do not apply more than a total of 16 quarts per acre per crop per year.
- Hand harvesting is prohibited.
- Restricted-entry interval (REI) = 24 hours  
**EXCEPTION:** the REI is 21 days for workers detasseling corn.

**BEE CAUTION**

For corn: If application cannot be avoided when target crop or weeds are in bloom, limiting applications to times when bees are least active, e.g. within 2 hours of sunrise or sunset, will minimize risk to bees. Notifying beekeepers within 1 mile of treatment area at least 48 hours before product is applied will allow them to take additional steps to protect their bees.

**CUCURBIT VEGETABLES**

**All members of the Cucurbit Vegetable Group 9 including:** Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cucumber, Gherkin, Gourd (edible, includes hyotan, cucuzza, hechima, Chinese okra), *Momordica* spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo* including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon), Pumpkin, Squash (includes summer squash types such as: crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini, and winter squash types such as acorn squash, butternut squash, calabaza, cushaw, Hubbard squash, spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*).

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Pickleworm Melonworm	1/2 to 1	Repeat applications as necessary up to a total of 6 times per year but not more often than once every 7 days
Cucumber beetles Flea beetles Leafhoppers Squash bugs	1	For best results on squash bugs, apply sufficient spray volume for thorough coverage and time sprays for early morning or late afternoon.

**RESTRICTIONS: CUCURBIT VEGETABLES**

- Do not apply within 3 days of harvest.
- Do not apply more than a total of 6 quarts per acre per crop per year.
- Observe plant response precautions.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

**FLAX**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Armyworm	1 to 1 1/2	Up to 2 applications per crop per year may be made but not more often than once every 14 days.

**RESTRICTIONS: FLAX**

- **DO NOT USE IN CALIFORNIA**
- Do not apply within 42 days of harvest for seed or straw.
- Do not apply more than a total of 3 quarts per acre per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

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**FORAGE CROPS**  
**ALFALFA, CLOVERS, AND BIRDSFOOT TREFOIL**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Blister beetles Mexican bean beetle	1/2 to 1	OBSERVE BEE CAUTION.  Observe plant response precautions.
Alfalfa caterpillar Bean leaf beetle Cucumber beetles Green cloverworm Japanese beetle Leafhoppers	1	On dense growth, use 25 to 40 gallons of water per acre with ground equipment to ensure adequate coverage.
Potato leafhopper Three cornered alfalfa hopper Thrips Velvetbean caterpillar	1 to 1 1/2	For alfalfa weevil larvae, if pretreatment damage is extensive, cut alfalfa and treat the stubble. This product is not effective against <b>adult</b> alfalfa weevils.  For cutworm, this product is most effective against species which feed on the upper portions of the plant.
Alfalfa blotch leafminer Armyworm Cloverhead weevil Corn earworm Cutworms Egyptian alfalfa weevil larvae	1 to 1 1/2	
Essex skipper European alfalfa beetle Fall armyworm Lygus bugs Stink bugs Webworms Yellow striped armyworm	1 1/2	
Alfalfa weevil larvae (west of the Rocky Mountains)	1 to 1 1/2	
Alfalfa weevil larvae (east of the Rocky Mountains)	1 1/2	

**RESTRICTIONS: FORAGE CROPS**

- Do not apply more than once per cutting per year.
- Do not apply within 7 days of harvest or grazing.
- Do not exceed 1 1/2 quarts per acre per cutting.
- Carbaryl may cause a temporary bleaching of tender alfalfa foliage.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

### PASTURE AND GRASSES GROWN FOR HAY AND/OR SEED

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Armyworm Chinch bugs Cereal rust mite Essex skipper Fall armyworm	Striped grass looper Thrips Range caterpillar Range crane fly	1 to 1 1/2	Up to 2 applications per year may be made but not more often than once every 14 days. To kill thrips in grasses grown for hay or seed, use high spray pressure to improve penetration into boot. Accurately mark swaths to avoid over-application.
Ticks*		1	*Will kill only ticks present at the time of application and directly contacted by product.

**RESTRICTIONS: PASTURE AND GRASSES GROWN FOR HAY AND/OR SEED :**

- Do not apply within 14 days of harvest or grazing.
- Do not exceed a total of 3 quarts per acre per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

### RANGELAND

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Black grass bug	Range caterpillar Range crane fly	1/2 to 1	Do not make more than 1 application per year. Accurately mark swaths to avoid over-application.
Grasshoppers Mormon cricket		1/2	Aerial application is allowed only through USDA APHIS and affiliated state grasshopper and Mormon Cricket suppression programs. Reduced Area and Agent Treatment (RAATs) is required. See the following web site for details - <a href="http://www.sidney.ars.usda.gov/Research/lockwood.htm">www.sidney.ars.usda.gov/Research/lockwood.htm</a>
Ticks**		1	**Will kill only ticks present at the time of application and directly contacted by product.

**RESTRICTIONS: RANGELAND**

- May be harvested or grazed the same day as treatment.
- Do not apply more than 1 quart per acre per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

**FRUITING VEGETABLES**

**All members of the Fruiting Vegetable Group 8 including:** Eggplant, Groundcherry, Pepinos, Pepper (includes: bell pepper, chili pepper, cooking pepper, pimento, sweet pepper), Tomatillo, Tomato.

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Colorado potato beetle European corn borer Fall armyworm Lace bugs Stink bugs (suppression) Tarnished plant bug Thrips (suppression) Tomato fruitworm	1 to 2	Repeat applications as necessary up to a total of 7 times per year but not more often than once every 7 days.  Thorough coverage is essential to effectively suppress stink bugs.  When disease transmission is suspected, monitor fields following application and retreat if reinfestation occurs but not more often than once every 7 days.  For cutworm, this product is most effective against species which feed on the upper portions of the plant.
Flea beetles Leafhoppers	1/2 to 1	
Cutworms	2	

**RESTRICTIONS: FRUITING VEGETABLES**

- Do not apply within 3 days of harvest.
- Do not apply more than a total of 8 quarts per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

**LEAFY VEGETABLES**

**Dandelion; Endive (escarole); Lettuce (head and leaf); Parsley; Spinach;**

**All members of the Leaf Petiole Vegetable Subgroup 4B including:** Cardoon, Celery, Celtuce, Chinese celery, Florence fennel (including sweet anise, sweet fennel, Finocchio), Rhubarb, Swiss chard.

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Flea beetles Harlequin bug Leafhoppers	1/2 to 1	Repeat applications as necessary up to a total of 5 times per year but not more often than once every 7 days.
Armyworm Aster leafhopper Corn earworm Fall armyworm Imported cabbageworm	Lygus bugs Spittlebugs Stink bugs Tarnished plant bug	1 to 2

**RESTRICTIONS: LEAFY VEGETABLES**

- Do not apply within 14 days of harvest.
- Do not apply more than a total of 6 quarts per acre per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

## LEGUME VEGETABLES

**All members of the Edible Podded Legume Vegetable Subgroup 6A including:** Phaseolus sp. including runner bean, snap bean, and wax bean; Vigna sp. including asparagus bean, Chinese longbean, moth bean, and yardlong bean; Pisum sp. including dwarf pea, edible-pod pea, snow pea, sugar snap pea; Jackbean; Pigeon pea; Soybean (immature seed); Sword bean;

**All members of the Dried Shelled Legume Vegetable (except soybean) Subgroup 6C including:** Lupinus sp. including grain lupin, sweet lupin, white lupin, and white sweet lupin; Phaseolus sp. including field bean, kidney bean, dry lima bean, navy bean, pinto bean, tepary bean; Vigna sp. including adzuki bean, blackeyed pea, catjang, cowpea, Crowder pea, moth bean, mung bean, rice bean, southern pea, Urd bean; Pisum sp. including dwarf pea, edible-podded pea, English pea, field pea, garden pea, green pea, snow pea, sugar snap pea; Broad bean (dry); Chickpea (dry); Guar (dry); Lablab bean (dry); Lentil (dry); Pigeon pea (dry);

**All members of the Foliage of Legume Vegetables Crop Group 7:** Plant parts of any legume vegetables included in the legume vegetable (Crop Group 6) that will be used as animal feed;

### Soybeans.

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Bean leaf beetle Blister beetle Cucumber beetles Grape colapsis Green cloverworm Japanese beetle Mexican bean beetle Velvetbean caterpillar	1/2 to 1	Repeat applications as necessary up to a total of 4 times per year but not more often than once every 7 days.  For cutworm, this product is most effective against species which feed on the upper portions of the plant. Use lower rates for light to moderate populations and smaller instars  Use the higher rates for heavy populations and larger instars.
Corn earworm	1/2 to 1 1/2	
Alfalfa caterpillar Colorado potato beetle Flea beetles Leafhoppers Three cornered alfalfa hopper Thrips Western bean cutworm	1	
Armyworm Cutworms European corn borer Fall armyworm Stink bugs Tarnished plant bug Webworms	1 to 1 1/2	
Alfalfa looper (suppression) Cowpea curculio (suppression) Painted lady (Thistle caterpillar) Pea leaf weevil Pea weevil Saltmarsh caterpillar Woollybean caterpillar Yellowstriped armyworm	1 1/2	
<b>California only:</b> Corn earworm (suppression) Limabean podborer (suppression) Lygus bugs (suppression) Stink bugs (suppression)	1 1/2	

### RESTRICTIONS: LEGUME VEGETABLES

- Do not apply within 14 days of grazing or harvest for forage or within 3 days of harvest of fresh edible-podded beans or peas or within 21 days of harvest of dried beans or peas, seed, or hay.
- Do not apply more than a total of 6 quarts per acre per crop per year.
- Do not apply a combination of this product and 2,4-DB herbicides to soybeans as crop injury may result.
- Use on succulent, shelled peas and beans (Crop Subgroup 6B) is prohibited.
- Observe plant response precautions.
- **DO NOT USE ON LENTILS IN CALIFORNIA**
- **BEE CAUTION**

For crops in bloom (except soybeans): Do not apply this product to target crops or weeds in bloom.

For soybeans: If application cannot be avoided when target crop or weeds are in bloom, limiting applications to times when bees are least active, e.g. within 2 hours of sunrise or sunset, will minimize risk to bees.

Notifying beekeepers within 1 mile of treatment area at least 48 hours before product is applied will allow them to take additional steps to protect their bees.

**NONCROPLAND**

Conservation Reserve Program Acreage, Set-Aside Program Acreage, Wasteland, Rights-of-Way, Hedgerows, Ditchbanks, Roadsides

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Black grass bug	1/4 to 1/2 quart per acre (3/16 to 3/8 fl. oz per 1000 ft <sup>2</sup> )	Up to 2 applications per year may be made but not more often than once every 14 days.
Range caterpillar Range crane fly	1/2 to 1 quart per acre (3/8 to 3/4 fl. oz per 1000 ft <sup>2</sup> )	Accurately mark swaths to avoid over-application.
Mormon cricket	1/2 quart per acre (3/8 fl. oz. per 1000 ft <sup>2</sup> )	
Ticks*	1 quart per acre (3/4 fl. oz per 1000 ft <sup>2</sup> )	* Will kill only pests that are present at the time of application and directly contacted by product.

**RESTRICTIONS: NONCROPLAND**

- Do not apply within 14 days of grazing or harvest for forage or hay.
- Do not apply more than a total of 3 quarts per acre per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

**OKRA\***

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Corn earworm Stink bugs	1 to 1 1/2	Apply using ground equipment in sufficient volume to insure good coverage. Apply as needed on 6 to 8 day intervals. For grasshopper, refer to the general Grasshopper Section.

**RESTRICTIONS: OKRA**

- Do not apply within 3 days of harvest.
  - Do not apply more than a total of 6 quarts per acre per year.
  - **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.
- \* Use not permitted in CA.



**PEANUTS**

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Blister beetles Mexican bean beetle		1/2 to 1	Repeat applications as necessary up to a total of 5 times per year but not more often than once every 7 days.  For best results on thrips, use directed or banded sprays with hollow cone spray nozzles. Ensure adequate coverage for the underside of leaves.  For cutworm, this product is most effective against species which feed on the upper portions of the plant.
Alfalfa caterpillar	Rednecked peanutworm	1	
Bean leaf beetle	Three cornered alfalfa hopper		
Cucumber beetle	Thrips		
Green cloverworm	Velvetbean caterpillar		
Japanese beetle			
Leafhoppers			
Amyworm	Stink bugs	1 to 1 1/2	
Corn earworm	Webworms		
Fall armyworm			
Whitefringed beetle adults	Cutworms	2	

**RESTRICTIONS: PEANUTS**

- Do not apply within 14 days of harvest.
- Do not apply more than a total of 8 quarts per acre per crop per year.
- Observe plant response precautions.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

**PRICKLY PEAR CACTUS\***

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Cochineal scale (crawlers)		2	Apply using ground equipment in sufficient volume to insure good coverage.  Apply as needed on 7 to 10 day intervals.  For grasshopper, refer to the general Grasshopper Section.

**RESTRICTIONS: PRICKLY PEAR CACTUS**

- Do not apply within 3 days of harvest.
  - Do not apply more than a total of 6 quarts per acre per year.
  - **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.
- \* Use not permitted in CA.

**ROOT AND TUBER CROPS**  
**ROOT AND TUBER CROPS EXCEPT SUGAR BEETS AND SWEET POTATOES**

**All members of the Root and Tuber Vegetable Crop Group 1 except sugar beet and sweet potato:** Arracacha, Arrowroot, Artichoke (Chinese and Jerusalem), Beet (garden); Beet (sugar, root), Burdock (edible), Canna (edible, Queensland arrowroot), Carrot, Cassava (bitter & sweet), Celeriac (celery root), Chayote (root), Chervil (turnip-rooted), Chicory, Chufa, Dasheen (taro), Ginger, Ginseng, Horseradish, Leren, Parsley (turnip-rooted), Parsnip, Potato, Radish, Oriental radish (daikon), Rutabaga, Salsify (black), Salsify (oyster plant), Salsify (Spanish), Skirret, Tanier (cocoyam), Turmeric, Turnip, Yam bean (jicama, manioc pea), Yam (true).

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Flea beetles Leafhoppers	1/2 to 1	Repeat applications as necessary up to a total of 6 times per year but not more often than once every 7 days.
Armyworm Aster leafhopper Colorado potato beetle Corn earworm Cutworms European corn borer Fall armyworm	Lace bugs Lygus bugs Spittlebugs Stink bugs Tarnished plant bug 1 to 2	For cutworm, this product is most effective against species which feed on the upper portions of the plant.

**RESTRICTIONS: ROOT AND TUBER CROPS EXCEPT SUGAR BEETS AND SWEET POTATOES**

- Do not apply within 7 days of harvest.
- Do not apply more than a total of 6 quarts per acre per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

**SUGAR BEETS**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Armyworm Beet leaf beetle Fall armyworm	Flea beetles Leafhoppers Webworms 1 to 1 1/2	Repeat applications as necessary up to a total of 2 times per year but not more often than once every 14 days.
Cutworms	1 1/2	For cutworm, this product is most effective against species which feed on the upper portions of the plant.

**RESTRICTIONS: SUGAR BEETS**

- Do not apply within 28 days of harvest for roots or forage.
- Do not apply more than a total of 3 quarts per acre per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

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### SWEET POTATOES

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Corn earworm Cucumber beetles Flea beetles Sweet potato hornworm	Sweet potato weevil Tortoise beetles Whitefringed beetle	1 to 2	For foliar sprays, repeat applications as necessary up to a total of 8 times per year but not more often than once every 7 days.
Yellowstriped armyworm		2	

#### RESTRICTIONS: SWEET POTATOES

- Do not apply within 7 days of harvest.
- Do not apply more than a total of 8 quarts per acre per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

**SMALL FRUITS AND BERRIES**

**All members of the Caneberry Subgroup 13-07A including:**

**Blackberry** (*Rubus* spp. - including Andean Blackberry, Arctic blackberry, Bingleberry, Black satin berry, Boysenberry, Brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyene blackberry, Common blackberry, Coryberry, Darrowberry, Dewberry, Dirksen thornless berry, Evergreen blackberry, Himalayaberry, Hullberry, Lavacaberry, Loganberry, Lowberry, Lucretiaberry, Mammoth blackberry, Marionberry, Mora, Mures de ronce, Nectarberry, Northern dewberry, Olallieberry, Oregon evergreen berry, Phenomenalberry, Rangeberry, Ravenberry, Rosberry, Shawnee blackberry, Southern dewberry, Tayberry, Youngberry, Zarzamora, plus cultivars, varieties and/or hybrids of these).

**Raspberry** (*Rubus* spp. - including Bababerry, Black raspberry, Blackcap, Caneberry, Framboise, Frambueso, Himbeere, Keriberry, Mayberry, Purple raspberry, Red raspberry, Thimbleberry, Tulameen, Wild raspberry, Yellow raspberry, plus cultivars, varieties and/or hybrids of these).

**All members of the Bushberry Subgroup 13-07B including:** Aronia berry, Blueberry (*Vaccinium* spp. - highbush, lowbush and cultivars and/or hybrids of these [= all blueberry species]), Chilean guava, Currant (black, buffalo, native and red), European barberry, Gooseberry, Highbush cranberry, Honeysuckle (edible), Huckleberry, Jostaberry, Juneberry, Lingonberry, Salal, Sea buckthorn, plus cultivars, varieties and/or hybrids of these.

**Cranberries; Grapes; Strawberries.**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
European fruit lecanium European raspberry aphid Flea beetles Grape leaf folder Grape leafroller Japanese beetle Leafhoppers Leafrollers Meadow spittlebug Omnivorous leaf tier	Rose chafer Snowy tree cricket Strawberry bud weevil Strawberry clipper Strawberry fruitworm Strawberry leafroller Strawberry weevil Western grape leaf skeletonizer Western yellow striped armyworm	1 to 2
Blueberry maggot Cherry fruitworm Cranberry fireworm Cranberry fruitworms Cranberry twig girdler	Elm spanworm Gypsy moth Spaganothus worm Tarnished plant bug	1 1/2 to 2
Eight-spotted forester Cutworms Grape berry moth June beetles Omnivorous leafroller	Orange tortrix Raspberry fruitworm Raspberry sawfly Redbanded leafroller Saltmarsh caterpillar	2

**RESTRICTIONS: SMALL FRUITS AND BERRIES**

- Do not apply within 7 days of harvest.
- Do not apply more than a total of 10 quarts per acre per crop per year.
- Use on cranberries may kill shrimp and crabs. Do not use in areas where these are important resources.
- Carbaryl may injure Early Dawn and Sunrise varieties of strawberries.
- For **GRAPES** only:  
East of the Rocky Mountains, the restricted-entry interval (REI) = 2 days for all activities except grape girdling and cane turning.  
**EXCEPTION:** the REI is 6 days for grape girdling and cane turning.  
West of the Rocky Mountains, the restricted-entry interval (REI) = 6 days
- Restricted-entry interval (REI) = 12 hours for Caneberries, Bushberries, Cranberries, and Strawberries
- **BEE CAUTION**  
 Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product.

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## SUNFLOWERS

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Stem weevil Sunflower beetle	1 to 1 1/2	Up to 2 applications may be made per year but not more often than once every 7 days.
Armyworm Cutworms	1 1/2	For cutworm, this product is most effective against species which feed on the upper portions of the plant.
Fall armyworm Sunflower moth		

### RESTRICTIONS: SUNFLOWERS

- Do not apply within 30 days of grazing or harvest for forage or within 60 days of harvest for seed.
- Do not apply more than a total of 3 quarts per acre per crop per year.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.
- **DO NOT USE IN CALIFORNIA.**

## TOBACCO

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Budworms Fall armyworm Tobacco flea beetles Hornworms	1 to 2	<p><b>Plant bed and Field Treatment</b></p> <p>Repeat treatments as necessary up to a total of 4 times per year but not more often than once every 7 days.</p> <p>Use lower rate on young plants (up to knee height). Use at least 10 gallons of prepared spray per acre. Begin treatments when worms are small.</p>
Japanese beetle June beetle Suckfly		

### RESTRICTIONS: TOBACCO

- Do not apply within 2 days of harvest.
- Do not apply more than a total of 8 quarts per acre per crop per year.
- Observe plant response precautions.
- Restricted-entry interval (REI) = 2 days (48 hours).
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom.

## TREE FRUIT CROPS

On all tree fruit crops, apply in sufficient volume for adequate coverage. This will vary depending on the pest and its severity, the tree condition, size, and density, and other factors.

### CITRUS FRUITS

**All members of the Citrus Fruit Group 10 including:** Calamondin, Citrus citron, Citrus hybrids (*Citrus* spp.; includes chironja, tangelo and tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Orange (sweet and sour), Pummelo, Satsuma mandarin, White sapote (*Casimiroa* spp.), and other cultivars and/or hybrids of these.

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Avocado leafroller California orangedog Citrus cutworm Fruittree leafroller	Orange Tortrix Western tussock moth	2 to 3	OBSERVE BEE CAUTION. Repeat applications as necessary up to a total of 8 times per year but not more often than once every 14 days.
Citrus rust mite Eriophyid mites	Plant bugs Scale insects [Black scale, brown soft scale, California red scale (except in California), citrus snow scale, yellow scale (except in California)]	3 to 5	For scale, apply when crawlers are present. For best results on Eriophyid mites including citrus rust mite, apply when pest populations are low.
Apopka weevil (adult) Citrus root weevils (adults)	Fuller Rose Beetle Little leaf notcher (adult)	5	
<b>California only:</b> California red scale	Yellow scale	5 to 12	Do not make more than 1 application per crop per year for California red scale. Apply when crawlers are present.
<b>Florida only:</b> Adult citrus weevils (such as, <i>Diaprepes abbreviatus</i> , <i>Pantomorus cervinus</i> , <i>Artipes floridanus</i> , and <i>Pachnaeus</i> spp.)		5 to 8	Apply as a foliar spray in adequate volume to obtain uniform coverage. May be applied by ground as a dilute or concentrate spray. May be applied by air in 10-25 gallons of water per acre. Repeat application as necessary up to a total of 3 times per crop per year but not more often than once every 14 days.

#### RESTRICTIONS: CITRUS FRUITS

- Do not apply within 5 days of harvest.
- All States including Florida and California:  
Do not apply more than a total of 20 quarts per acre per crop per year.
- California only:  
Restricted-entry interval (REI) = 3 days for application rates  $\geq$  5 quarts per acre.  
Do not apply more than 12 quarts per acre per application.
- Florida only:  
Restricted-entry interval (REI) = 12 hours  
Do not apply more than 8 quarts per acre per application.
- All States other than California and Florida:  
Restricted-entry interval (REI) = 12 hours  
Do not apply more than 5 quarts per acre per application.
- **BEE CAUTION**  
Do not apply this product to target crop in bloom. Mowing weed or cover crop bloom prior to applying this product will reduce hazard to bees.

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OLIVES

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Scale insects (olive scale, black scale)	5 to 7 1/2	Up to 2 applications per crop may be made but not more often than once every 14 days.

RESTRICTIONS: OLIVES

- Do not apply within 14 days of harvest.
- Do not apply more than a total of 15 quarts per acre per crop per year.
- Restricted-entry interval (REI) = 3 days (72 hours).
- **BEE CAUTION**  
 Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product.

POME FRUITS

Members of the Pome Fruit Group 11 including: Apple, Crabapple, Loquat, Mayhaw, Pear, Oriental pear.

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
White apple leafhopper	1/2 to 1 1/2	OBSERVE BEE CAUTION
Apple aphid	Codling moth	On apples, avoid use during the period from full bloom until 30 days after full bloom unless fruit thinning is desired. Use for pesticial activity during this period may also result in fruit removal.
	1 to 3	
Apple aphid	Pearleaf blister mite	Repeat applications as necessary up to a total of 8 times per crop (including thinning sprays on apples) but not more often than once every 14 days.  For psylla, apply when eggs hatch or young nymphs are present. For scale, apply when crawlers are present.
Apple maggot	Pear psylla	
Apple mealybug	Pear rust mite	
Apple rust mite	Periodical cicada	
Bagworms	Plum curculio	
California pearslug (pear sawfly)	Redbanded leafroller	
European apple sawfly	Rosy apply aphid	
Eyespotted bud moth	Scale insects (Forbes scale,	
Fruittree leafroller	Lecanium scale,	
Gypsy moth	San Jose scale)	
Japanese beetle	Tarnished plant bug	
Lesser appleworm	Tentiform leafminers	
Lygus bugs	Woolly apple aphid	
Orange tortrix	Yellowheaded fireworm	

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**POME FRUITS**  
(continued)

CROP	PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Apples Only, for Fruit Thinning		1 to 3	<p><b>OBSERVE BEE CAUTION</b></p> <p>Apply 1 to 3 quarts per acre of SEVIN® brand 4F Carbaryl Insecticide between 80% petal fall and 16 mm fruit size. Use the higher rates on hard to thin varieties at the early timing which is the 80% petal fall to 6 mm fruit size. Use the lower rates on easy to thin varieties and at the later thinning period which is the 10 to 16 mm fruit size. The rate to use per acre will depend on varieties, tree size, row spacing, weather conditions at the time of and following applications.</p> <p>The most effective spray gallonage will depend on the tree size, planting density, row spacing and amount of foliage. Use sufficient spray volume to insure adequate coverage (100 to 400 gallons/acre). Avoid spray to the point of runoff. <b>Reduce spray coverage to the lower portion of the tree since overthinning may occur here.</b></p> <p>Factors such as climatic temperature, high humidity, frost, tree age, variety, nutrition, previous crop, pruning and bloom may influence fruit thinning results with the product. Exercise caution to avoid possible overthinning. For the most effective results, apply under good drying conditions and when daytime temperatures (°F) will be 70 to low 80's for the following one to three days. Application with daytime temperatures in excess of 80° F may result in overthinning.</p> <p>SEVIN brand 4F Carbaryl Insecticide may be mixed with other fruit thinners, however, use caution to avoid overthinning and other adverse effects. Consult with local fruit thinning experts in your area for recommendations on appropriate tank mixing partners. Refer to the other product labels for specific use directions.</p> <p><b>NOTE:</b> The use of SEVIN brand 4F Carbaryl Insecticide may result in fruit deformity under certain environmental conditions. Before using on any variety of apples, the user must weigh the risk versus benefits when using this product, particularly when using between <b>80% petal fall and 6 mm fruit size</b>. Red Delicious are more sensitive to this phenomenon and in particular, the varieties Bisbee, Red Chief and Vallee Spur are very susceptible to conditions causing fruit deformity. Precipitation and temperatures below 65° F increases the possibility of fruit deformity. The use with summer spray oils and wetting agents may increase the risk of fruit deformity and injury. Consult with fruit thinning experts in your area for advice on using this product on specific apple varieties under local growing conditions or other questions. Observe all restrictions on the use of this product for apple thinning.</p>

**RESTRICTIONS: POME FRUITS**

- Do not apply to quince.
- Do not use on pears between the tight flower cluster up to the 20 mm fruit size. Use during this period may result in undesirable fruit thinning and/or deformed fruit.
- Do not apply within 3 days of harvest.
- Do not apply more than a total of 15 quarts per acre per crop per year.
- Do not make more than a total of 8 applications per crop per year.

**FOR PROTECTION OF HONEY BEES:**

- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product.



**For Apple Thinning Use**

- Do not apply during bloom.
- Remove bee hives from orchard to be treated before applying this product. Removing bee hives from adjacent orchards will further minimize risk to bees.

**Drift Management**

For airblast application, follow the following drift management practices:

- Adjust deflectors and aiming devices so that spray is only directed into the canopy;
- Block off upward pointed nozzles when there is no overhanging canopy;
- Do not allow the spray to go beyond the edge of the cultivated area (i.e., turn off sprayer when turning at end rows); For applications to the outside rows, only spray inward, toward the orchard.

**STONE FRUITS**

**All members of the Stone Fruit Group 12 including:** Apricot, Cherry (including sweet and tart), Nectarine, Peach, Plum (including Chickasaw, Damson and Japanese), Plumcot, Prune (fresh).

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Apple pandemis Black cherry aphid Cherry fruitworm Cherry maggot (Cherry fruit fly) Codling moth Cucumber beetles Eastern tent caterpillar Eyespotted bud moth European earwig Fruittree leafroller Green fruitworm Gypsy moth Japanese beetle June beetle Lesser peachtree borer Mealy plum aphid	Orange tortrix Oriental fruit moth Peach twig borer Periodical cicada Plum curculio Prune leafhopper Redbanded leafroller Rose chafer Scale insects (Brown soft scale, Forbes scale, Lecanium scale, Olive scale, Oystershell scale, San Jose scale) Tarnished plant bug Tussock moth Variegated leafroller	2 to 3	<b>OBSERVE BEE CAUTION.</b> Repeat applications as necessary up to a total of 3 times per crop but not more often than once every 7 days. An additional application at the dormant or delayed dormant timing may be made. For best results on scale, apply when crawlers are present. For lesser peachtree borer, best results have been found by thoroughly spraying limbs and tree trunks at weekly intervals during moth flight.
Peach twig borer	Scale insects (Brown soft scale, Forbes scale, Lecanium scale, Olive scale, Oystershell scale, San Jose scale)	4 to 5	<b>For dormant or delayed dormant timing,</b> apply in combination with a recommended dormant oil. Refer to the dormant oil product label for additional use directions and restrictions.
<b>California Only:</b> Black cherry aphid Cherry fruitworm Cherry maggot (Cherry fruit fly) Codling moth Cucumber beetles Eyespotted bud moth European earwig Fruittree leafroller Green fruitworm Mealy plum aphid Orange tortrix		3 to 4	<b>OBSERVE BEE CAUTION.</b> Repeat applications as necessary up to a total of 3 times per crop but not more often than once every 14 days. An additional application at the dormant or delayed dormant timing may be made. For best results on scale, apply when crawlers are present.

**RESTRICTIONS: STONE FRUIT**

- Do not apply within 3 days of harvest, except in California. In California, do not apply within 1 day of harvest.
- All States including California:  
Do not apply more than a total of 14 quarts per acre per crop per year.  
Do not apply more than a total of 5 quarts per acre at the dormant or delayed dormant timing.

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Do not apply more than a total of 9 quarts per acre during the production season.

- California only:  
Do not apply more than 4 quarts per acre per application during the production season.
- All States other than California:  
Do not apply more than 3 quarts per acre (3 lbs ai/A) per application during the production season.

**BEE CAUTION**

Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product.

**TREE NUT CROPS**

On all tree nut crops, apply in sufficient volume for adequate coverage. This will vary depending on the pest and its severity, the tree condition, size, and density, and other factors.

**PISTACHIOS**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Brown soft scale Lecanium scale Navel orangeworm	3 to 5	Repeat applications as necessary up to a total of 4 times per crop per year (including any applications at the dormant or delayed dormant timing) but not more often than once every 7 days. For scale, apply when crawlers are present.
Scale insects	4 to 5	<b>For dormant or delayed dormant timing,</b> apply in combination with a recommended dormant oil. Refer to the dormant oil product label for additional use directions and restrictions.
<b>California only:</b> Armyworm Navel orangeworm	3 to 6	Apply by air in a minimum of 20 gallons of water per acre. Do not make more than 1 application at the maximum rate of 6 quarts per acre per crop per year for armyworm and navel orangeworm.  If needed, make up to 3 additional applications per crop per year at a rate not exceeding 5 quarts per acre (including any applications at the dormant or delayed dormant timing) but not more often than once every 7 days.

**RESTRICTIONS: PISTACHIOS**

- Do not apply within 14 days of harvest.
- All States including California:  
Do not apply more than a total of 15 quarts per acre per crop per year, including any application at the dormant or delayed dormant timing.
- California only:  
Do not make more than 1 application at the maximum rate of 6 quarts per acre per crop per year. For any additional applications, do not apply more than 5 quarts per acre per application.
- All States other than California:  
Do not apply more than 5 quarts per acre per application.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product.

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## TREE NUTS

**All members of the Tree Nut Group 14 including:** Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Filbert (hazelnut), Hickory nut, Macadamia nut (bush nut), Pecan, Walnut [including black and English (Persian) walnuts].

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Black margined aphid    Navel orangeworm Calico scale              Peach twig borer Codling moth              Pecan leaf European fruit            phylloxera lecanium                  Pecan stem Fall webworm              phylloxera Filbert aphid              Pecan nut Filbert leafroller         casebearer Filbertworm               Pecan spittlebug Frosted scale              Pecan weevil Fruittree leafroller       San Jose scale Hickory shuckworm       Twig girdler Lesser webworm          Walnut caterpillar	2 to 5	<p><b>OBSERVE BEE CAUTION.</b></p> <p>Repeat applications as necessary up to a total of 4 times per crop (including any applications at the dormant or delayed dormant timing) but not more often than once every 7 days.</p> <p>Use lower rates for pests attacking leaves. Use higher rates for pests attacking fruit and for higher infestations.</p> <p>For scale, apply when crawlers are present.</p> <p>For peach twig borer, best results with foliar applications have been found by making applications in "popcorn" or petal fall stages when the May brood begins to hatch.</p> <p>For navel orangeworm in almonds and walnuts, best results have been found by timing early and midseason applications to correspond with moth flight peaks.</p> <p>For filbert leafroller, best results have been found by making applications when eggs are hatching, repeating application on first appearance of moths and again 3 to 4 weeks later.</p> <p>For codling moth in walnuts, best results have been found by making applications when average cross-sectional diameters of developing nuts are 0.5 to 0.75 inches and again during middle or late June as needed.</p>
Chestnut weevil            European earwig	4 to 5	<p>For chestnut weevil, best results have been found with 4 applications at weekly intervals beginning in late July. The last application should be made prior to shuck split.</p> <p>For European earwig, thorough coverage of trunks, branches, and nuts is needed for best results.</p>
<b>Almonds only</b> Peach twig borer          Scale insects	4 to 5	<p><b>For dormant or delayed dormant timing,</b> apply in combination with a recommended dormant oil. Refer to the dormant oil product label for additional use directions and restrictions.</p>

**RESTRICTIONS: TREE NUTS**

- Do not apply within 14 days of harvest.
- Do not apply more than a total of 15 quarts per acre per crop per year, including any application at the dormant or delayed dormant timing.
- **BEE CAUTION**  
Do not apply this product to target crops or weeds in bloom. If weed or cover crop bloom is present, mow orchard floor or between rows prior to applying this product.

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**FORESTED AREAS AND RANGELAND TREES**

Apply by ground or air equipment in sufficient volume for adequate coverage. This will vary depending on the tree size, density and stage of growth.

**Forested areas:** Forests, Tree Plantations, Planted Christmas Trees, Parks, Rural Shelter Belts; Rangeland Trees.

PEST		QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Ants (except harvester, pharaoh and carpenter)	Maple leafcutter	1 quart per acre (3/4 fl. oz per 1000 ft <sup>2</sup> )	Observe plant response precautions. Obtain thorough coverage of upper and lower leaf surfaces. The addition of a sticker may improve product performance. To kill scale insects, treat trunks, stems and twigs in addition to plant foliage. For best results on worm, treat when pests are small. Make applications for maple leafcutter on sugar maple when larvae are in 2nd instar after mining and as cases are being formed. Repeat treatments as necessary up to a total of 2 times per year but not more often than once every 7 days. For gypsy moths, use the higher rate for heavy infestations.
Apple aphid	Mealy bugs		
Armyworm	Mimosa webworm		
Ash whitefly	Nantucket pine tip moth		
Azalea leafminer	Oak leafminers		
Bagworms	Oak moth		
Balsam twig aphid	Oak skeletonizer		
Birch leafminer	Oakworm complex		
Blister beetle	Oleander caterpillar		
Boxelder bug	Olive ash borer		
Boxwood leafminer	Orange-striped oakworm		
Brown tail moth	Periodical cicada		
Catalpa sphinx	Pine looper		
Chiggers*	Pine sawfly		
Cooley spruce gall	Pine spittlebug		
adelgid	Pitch pine tip moth		
Cutworms	Spruce budworm		
Cypress tip moth	Planit bugs		
Douglas-fir tussock moth	Poinsettia hornworm		
Eastern spruce gall	Psyllids		
adelgid	Puss caterpillar		
Elm leaf aphid	Redhumped oakworm		
Elm leaf beetle	Rose aphid		
Eriophyid mites	Rose chafer		
European pine shoot moth	Rose slug		
Fall armyworm	Saddled prominent		
Flea beetle	Sawflies (exposed)		
Fuschia gall mite	Scale insects (crawlers)		
Fuller rose beetle	Sowbugs		
Gall midges	Spiney elm caterpillar		
Gall wasps	Springtails		
Greenstriped mapleworm	Spruce needleminer		
Grasshoppers	Subtropical pine tip moth		
Hackberry nipplegall maker	Tent caterpillars		
Holly bud moth	Thorn bug		
Holly leafminer	Thrips (exposed)		
Jackpine budworm	Walnut caterpillar		
Japanese beetle	Webworms		
Jeffrey pine needleminer	Western spruce budworm		
June beetles	Willow leaf beetles		
Lace bugs	Wooly gall aphid		
Leafhoppers	Yellow poplar weevil		
Leafrollers			
Locust borer			
Gypsy Moth		3/4 to 1 quart per acre (1/2 to 3/4 fl. oz per 1000 ft <sup>2</sup> )	
Ticks*		1 quart per acre (3/4 fl. oz per 1000 ft <sup>2</sup> )	* Will kill only pests that are present at the time of application and directly contacted by product.

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## FORESTED AREAS AND RANGELAND TREES, CONTINUED

**Forested areas:** Forests, Tree Plantations, Planted Christmas Trees, Parks, Rural Shelter Belts; Rangeland Trees

PEST	FL OZ THIS PRODUCT	SPECIFIC DIRECTIONS
Elm bark beetle Ips engraver beetles Mountain pine beetle Roundheaded pine beetle Spruce beetle Western pine beetle	5 fluid ounces per gallon	<b>Direct Trunk Treatment:</b> Effective as a preventative treatment only. Treat annually to prevent beetle attacks. Apply 1 gallon of spray per 50 square feet of bark prior to beetle flight or host-tree attack. Treat tree trunk from ground level up, until trunk diameter is less than 5 inches. For elm bark beetle: apply approximately 20-30 gallons of spray mixture for each 50 feet of elm tree for thorough coverage of all bark surfaces on trunks, limbs and twigs. Do not make more than 2 applications per year or repeat applications more often than once every six months.

### RESTRICTIONS: FORESTED AREAS AND RANGELAND TREES

- Do not make more than 2 foliar applications and 2 direct trunk treatments per year.
- Do not use on syrup-producing sugar maples where sap is harvested.
- DO NOT ENTER OR ALLOW OTHERS TO ENTER TREATED AREAS UNTIL SPRAYS HAVE DRIED.
- BEE CAUTION: Do not apply this product to plants in bloom.

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**ORNAMENTAL TREES AND PLANTS**

Apply by ground in sufficient volume for adequate coverage. This will vary depending on the plant or tree size, density, and stage of growth.

**Roses, Flowers, Other Herbaceous Plants, Woody Plants, Evergreens, and Shrubs.**

PEST		QUARTS OF THIS PRODUCT	SPECIFIC DIRECTIONS
Ants (except harvester, pharaoh and carpenter ants) Apple aphid Armyworm Ash whitefly Azalea leafminer Bagworms Balsam twig aphid Birch leafminer Blister beetle Boxelder bug Boxwood leafminer Brown tail moth Catalpa sphinx Chiggers* Cooley spruce gall adelgid Cutworms Cypress tip moth Douglas-fir tussock moth Eastern spruce gall adelgid Elm leaf aphid Elm leaf beetle Eriophyid mites European pine shoot moth Fall armyworm Flea beetle Fuchsia gall mite Fuller rose beetle Gall midges Gall wasps Glassy winged sharpshooter Greenstriped mapleworm Grasshoppers Hackberry nipplegall maker Holly bud moth Holly leafminer Jackpine budworm Japanese beetle Jeffrey pine needleminer June beetles Lace bugs Leafhoppers Leafrollers Locust borer	Maple leafcutter Mealy bugs Mimosa webworm Nantucket pine tip moth Oak leafminers Oak moth Oak skeletonizer Oakworm complex Oleander caterpillar Olive ash borer Orange-striped oakworm Periodical cicada Pine looper Pine sawfly Pine spittlebug Pitch pine tip moth Spruce budworm Plant bugs Poinsettia hornworm Psyllids Puss caterpillar Redhumped oakworm Rose aphid Rose chafer Rose slug Saddled prominent Sawflies (exposed) Scale insects (crawlers) Sowbugs Spiny elm caterpillar Springtails Spruce needleminer Subtropical pine tip moth Tent caterpillars Thorn bug Thrips (exposed) Walnut caterpillar Webworms Western spruce budworm Willow leaf beetles Woolly gall aphid Yellow poplar weevil	1 quart per acre or per 100 gal (3/4 fluid oz per 1000 ft <sup>2</sup> )	Observe plant response precautions. Obtain thorough coverage of upper and lower leaf surfaces. The addition of a sticker may improve product performance. To kill scale insects, treat trunks, stems and twigs in addition to plant foliage. For best results on worms, treat when pests are small. Make applications for maple leafcutter on sugar maple when larvae are in 2nd instar after mining and as cases are being formed. Repeat treatments as necessary up to a total of 6 times per year but not more often than once every 7 days. For gypsy moths, use the higher rate for heavy infestations.
Gypsy Moth		3/4 to 1 quart per acre or per 100 gal (1/2 to 3/4 fluid oz per 1000 ft <sup>2</sup> )	
Ticks*		1 quart per acre or per 100 gal (3/4 fluid oz per 1000 ft <sup>2</sup> )	*Will kill only pests that are present at the time of application and directly contacted by product.

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## ORNAMENTAL TREES AND PLANTS, CONTINUED

### Roses, Flowers, Other Herbaceous Plants, Woody Plants, Evergreens, and Shrubs.

PEST	FL OZ THIS PRODUCT	SPECIFIC DIRECTIONS
Elm bark beetle Ips engraver beetles Mountain pine beetle Roundheaded pine beetle Spruce beetle Western pine beetle	5 fluid ounces per gallon	<p><b>Direct Trunk Treatment:</b></p> <p>Effective as a preventative treatment only. Treat annually to prevent beetle attacks.</p> <p>Apply 1 gallon of spray per 50 square feet of bark prior to beetle flight or host-tree attack. Treat tree trunk from ground level up, until trunk diameter is less than 5 inches.</p> <p>For elm bark beetle: apply approximately 20-30 gallons of spray mixture for each 50 feet of elm tree for thorough coverage of all bark surfaces on trunks, limbs and twigs.</p> <p>Do not make more than 2 applications per year or repeat applications more often than once every six months.</p>

#### RESTRICTIONS: ORNAMENTAL TREES AND PLANTS

- Do not make more than 6 foliar and 2 direct trunk treatments per year.
- Do not use on syrup-producing sugar maples where sap is harvested.
- DO NOT ENTER OR ALLOW OTHERS TO ENTER TREATED AREA UNTIL SPRAYS HAVE DRIED.
- Restricted-entry interval (REI) = 12 hours.
- EXCEPTION: the restricted-entry interval is 18 days for ornamentals grown for cuttings (cut flowers or cut foliage) where production is in outdoor areas and where average annual rainfall is less than 25 inches a year. Notify workers of the application and restricted-entry interval by warning them orally and by posting warning signs at entrances to treated area. Note: information on average annual rainfall for your area is available from any nearby weather bureau, such as one located at a local airport or one affiliated with the National Oceanographic and Atmospheric Administration (NOAA).
- BEE CAUTION: Do not apply this product to plants in bloom.

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## TURFGRASS

Apply using ground pressure-type equipment in sufficient spray volume for thorough coverage and thatch penetration.

**Turfgrass:** golf turf, sports fields, sod farms, domestic and commercial lawns, cemeteries, parks, campsites, recreational areas.

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Ants (except harvester, pharaoh and carpenter ants) * Armyworm Cutworms Essex skipper European chafer Fall armyworm Fiery skipper Grasshoppers Green June beetle larvae Leafhoppers Lucerne moth Millipedes Mosquitoes (adults)* Scarab beetle adults (May beetle, June beetle, Japanese beetle, green June beetle) Sowbugs Spittlebugs Yellowstriped armyworm	2 to 4  (1 1/2 to 3 fl. oz. per 1000 SQ.FT.)	<p><b>For Armyworm, Cutworm, and Fall Armyworm:</b> Do not irrigate treated areas within 24 hrs. following insecticide application.</p> <p><b>For Green June Beetle Grub (larvae):</b> Make applications when grubs are feeding near the soil surface. Water or irrigate turfgrass within 48 hours after treatment.</p> <p>Repeat applications as necessary up to a total of 4 times per year but not more often than once every 7 days.</p> <p>* Will kill only pests that are present at the time of application and directly contacted by product.</p>
Ticks*	1 quart per acre (3/4 fl. oz. per 1000 SQ. FT.)*	
Centipedes* Chiggers* Earwigs*	4 quarts per acre (3 fl. oz. per 1000 SQ. FT.)	
Chinch bugs Sod Webworm (lawn moths)	6 to 8 quarts per acre (4.4 to 6 fl.oz. per 1000 SQ.FT)	<p><b>For Chinch bug:</b> Treat entire grass area rather than just damaged areas. Irrigation prior to treatment will aid in penetration of insecticide into turfgrass. Do not irrigate treated areas within 24 hrs. following insecticide application.</p> <p><b>For European Crane Fly:</b> Apply in early spring, April 1 to April 15, or at timing recommended by local Agricultural Extension Service agents. Water or irrigate turfgrass within 48 hours after treatment.</p> <p><b>For White Grub:</b> Apply when grubs are feeding near the soil surface, usually during late March through May, or July through early September, or at timing recommended by local Agricultural Extension Service agents. Water or irrigate turfgrass within 48 hours after treatment.</p> <p>Repeat applications as necessary up to 2 times per year but not more often than once every 7 days.</p>
Bluegrass billbug larvae European crane fly White grubs (Japanese beetle, Chafer beetle, and <i>Phyllophaga</i> spp. larvae) Black turfgrass ataenius beetle larvae Hyperoides weevil (bluegrass weevil) larvae Springtails	8 quarts per acre (6 fl.oz. per 1000 SQ.FT.)	
Fleas*	8 quarts per acre (6 fl.oz. per 1000 SQ.FT.)	* Will kill only pests that are present at the time of application and directly contacted by product.

### RESTRICTIONS: TURFGRASS

- Do not apply more than a total of 16 quarts per acre per year.
- Broadcast applications to turfgrass are permitted only on golf courses, sod farms, cemeteries, and commercial landscapes. Applications to all other lawns or turf (residential settings) are limited to spot treatments.
- Restricted-entry interval (REI) = 24 hours for turf grown for sod productions.
- DO NOT ENTER OR ALLOW OTHERS TO ENTER TREATED AREA UNTIL SPRAYS HAVE DRIED.
- Do not apply by air or chemigation.
- BEE CAUTION: Do not apply this product to plants in bloom.



**SPECIFIC PESTS ACROSS MULTIPLE SITES**

**GRASSHOPPERS**

All crops on this label

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
Grasshoppers	1/2 to 1.1/2*	Apply 1/2 to 3/4 quarts per acre of this product for nymphs on small plants or sparse vegetation. Apply 1 to 1 1/2 quarts per acre for mature grasshoppers or applications to dense foliage. Be certain spray volumes are appropriate to assure adequate coverage.

**RESTRICTIONS: GRASSHOPPER**

- \*NOTE: Refer to individual site listings elsewhere on this label for use restrictions. Do not use rates higher than listed for the site. Observe all use restrictions.

**TICKS WHICH MAY VECTOR LYME DISEASE**

To kill juvenile and adult ticks which may vector Lyme Disease, apply in sufficient volume for thorough coverage\*. Will kill only pests that are present at the time of application and directly contacted by product.

**All crops on this label; Pastures; Forested Areas; Wasteland, (Rights-of-Way, Hedgerows, Ditchbanks, Roadsides, Set-Aside and Conservation Reserve Program Acreage); Ornamental trees and plants; Turfgrass\*\*.**

PEST	QUARTS OF THIS PRODUCT PER ACRE	SPECIFIC DIRECTIONS
<i>Ixodes</i> spp. (Deer tick, Bear tick, Black legged tick)  <i>Amblyomma</i> spp. (Lone star tick)	1 quart per acre (3/4 fl. oz. per 1000 ft <sup>2</sup> )	To kill juvenile ticks, apply in late spring or early summer. To kill adult ticks, apply in late summer to fall.  Treat entire area and perimeter areas where exposure to ticks may occur. Ticks may be reintroduced from surrounding areas on host animals. Retreat as necessary to maintain low population levels.

**RESTRICTIONS: TICKS WHICH MAY VECTOR LYME DISEASE**

- Do not make more than 4 applications per year for ticks.
- \* Refer to individual site listings elsewhere on this label for use limitations and restrictions. Do not use rates higher than listed for the site or exceed other use restrictions. If product is used to kill ticks on any use site listed on this label, the use rate must not exceed 1 quart/A (3/4 fl. oz. /1,000 ft<sup>2</sup>). Observe all use restrictions.  
\*\* Broadcast applications to turfgrass are permitted only on golf courses, sod farms, cemeteries, and commercial landscapes. Applications to all other lawns or turf (residential settings) are limited to spot treatments.
- DO NOT ENTER OR ALLOW OTHERS TO ENTER TREATED AREA UNTIL SPRAYS HAVE DRIED.

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### IMPORTED FIRE ANTS

All crops/sites on this label

PEST	FL OZ OF THIS PRODUCT	DIRECTIONS
Imported fire ants	3/4 fluid ounce per gallon	<p><b>DRENCH APPLICATION</b></p> <p>To kill active mounds, apply a total of 2 gallons of the diluted solution over the surface of each mound or at least 1 quart per 6 inches of mound diameter using a bucket, can or other appropriate equipment. Thoroughly wet mound and surrounding areas to a 4 ft diameter (12 sq.ft.). Do not disturb mound prior to treatment. Pour solution from a height of about three feet to give sufficient force to break mound apex and flow into ant tunnels. For best results apply in cool weather (65-80°F) or in early morning or late evening hours. Repeat application if mound activity resumes after 30 days. Treat new mounds as they appear. Pressurized sprays may disturb the ants and cause migration, reducing product effectiveness.</p>
Imported fire ants (foraging)	1 ½ fluid ounce per gallon	<p><b>BROADCAST APPLICATION (outdoor use only)**</b></p> <p>Treat only the growing media when using on bedding plants and avoid contact with foliage.</p> <p>Do not make more than one application per year.</p>

**RESTRICTIONS: IMPORTED FIRE ANTS**

- DO NOT ENTER OR ALLOW OTHERS TO ENTER TREATED AREA UNTIL SPRAYS HAVE DRIED.
- FOR OUTDOOR USE ONLY. DO NOT USE IN GREENHOUSES.
- DO NOT USE ON ANY FOOD CROP NOT LISTED ON THIS LABEL. Refer to the specific site use directions elsewhere on this label for additional restrictions.

\*\* Broadcast applications to turfgrass are permitted only on golf courses, sod farms, cemeteries, and commercial landscapes. Applications to all other lawns or turf (residential settings) are limited to spot treatments.

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### NUISANCE PESTS

For use as a perimeter treatment to kill the listed nuisance pests, apply the specified dosage in a band 6 to 10 feet wide around the outside perimeter of the structure.

PEST	FL OZ OF THIS PRODUCT	SPECIFIC DIRECTIONS
Ants* Bees* Brown dog tick* Centipedes* Cockroaches* Crickets Darkling beetle (lesser mealworm or litter beetle) Earwigs Firebrats Fleas* Millipedes Scorpions* Silverfish* Spiders* Wasps*	2 1/2 fluid ounces per gallon	Observe plant response precautions.  Apply as a coarse wet spray in a band 6 to 10 feet wide around the outside perimeter of buildings, contacting as many pests as possible. Confine applications to areas immediately adjacent to the building. Direct application to the outside of structure should be minimal and restricted to cracks, crevices, and areas where insects tend to congregate.  For use in and around flower beds and ornamental plantings, apply as a coarse wet spray.

**RESTRICTIONS: NUISANCE PESTS**

- Do not make more than 4 applications per year. Do not apply more often than once every 7 days.
- DO NOT ENTER OR ALLOW OTHERS TO ENTER TREATED AREA UNTIL SPRAYS HAVE DRIED.
- NOTE: Staining may occur on certain surfaces such as stucco, brick, cinder block, wood, fabrics, and carpet. Spray deposits on painted or stained surfaces of finishes (eg., cars, house trailers, boats, etc.) should be removed immediately by washing to prevent discoloration. Avoid application to surfaces where visible spray residues are objectionable. Staining of fabrics and carpet may be permanent. For outdoor use only.

\* Will kill only pests that are present at the time of application and directly contacted by product.

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**IMPORTANT: READ BEFORE USE**

Read the entire Directions for Use, Conditions, Disclaimer of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

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**NET CONTENTS: 2.5 GALLONS**

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**Bayer CropScience**

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SEVIN 4F Carbaryl Insecticide (PENDING) 11/10/09