

**RESTRICTED USE PESTICIDE**

**Due to toxicity to fish and aquatic organisms**

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

**GROUP 3 INSECTICIDE**



# PERMETHRIN

**ACTIVE INGREDIENT:**

\*Permethrin\*\* ..... **38.4%**

OTHER INGREDIENTS:\*\*\* ..... **61.6%**

**100.0%**

\*(3-Phenoxyphenyl)methyl (±) cis-trans 3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate

\*\*cis/trans ratio: Maximum 55% (±) cis and minimum 45% (±) trans

\*\*\*Contains petroleum distillate

Contains 3.2 pounds permethrin per gallon.

U.S. Patent No. 4,024,163

## KEEP OUT OF REACH OF CHILDREN WARNING—AVISO

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

### FIRST AID

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

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

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

**Note to Physician:** Contains petroleum distillates. Vomiting may cause aspiration pneumonia. Probable mucosal damage may contraindicate the use of gastric lavage.

**See other panels for additional precautionary information.**

EPA REG. NO. 34704-873

EPA EST. NO. 279-FL-001

NET CONTENTS 1.0 GAL (3.78 KG.)

092115 V1D 10Y15

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**PRECAUTIONARY STATEMENTS**  
**HAZARDS TO HUMANS AND DOMESTIC ANIMALS**  
**WARNING**

Harmful if swallowed, absorbed through skin or inhaled. Causes skin irritation. Causes moderate eye irritation. Do not get on skin or clothing. Avoid breathing spray mist. Avoid contact with eyes. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

**Personal Protective Equipment (PPE):**

Some materials that are chemical-resistant to this product are barrier laminate or viton.

**Applicators and other handlers must wear:**

- Coveralls over long-sleeved shirt and long pants,
- Chemical-resistant gloves,
- Chemical-resistant footwear plus socks, and
- Protective eyewear.

When mixing and loading, wear a chemical resistant apron.

For overheard exposure, wear chemical-resistant headgear.

When cleaning equipment, wear a chemical-resistant apron.

- Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.
- 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 that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

**USER SAFETY RECOMMENDATIONS**

**Users should:**

- Wash hands with plenty of 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 pesticide is extremely toxic to aquatic organisms, including fish and invertebrates. Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Do not contaminate water when disposing of equipment wash waters.

Under some conditions, it may also have a potential for transport into surface water in runoff (primarily absorbed to suspended soil particles) for several months or more after application. These include poorly draining or wet soils with readily visible slopes toward adjacent surface waters, frequently flooded areas, and areas overlying extremely shallow groundwater, areas with in-field canals or ditches that drain to surface water, areas not separated from adjacent surface waters with vegetated filter strips, and areas over-lying tile drainage systems that drain to surface waters.

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

Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the local sewage treatment plant authority. For guidance contact your State Water board or Regional Office of the EPA.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**PHYSICAL/CHEMICAL HAZARDS**

Do not use or store near heat or open flame.

**DIRECTIONS FOR USE**  
**RESTRICTED USE PESTICIDE**

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

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

**Application Restrictions:**

Application is prohibited directly under sewers or drains or to any area like a gutter where drainage to sewers, storm drains, water bodies or aquatic habitat can occur. Do not allow product to enter any drain during or after application.

Use in a handheld cold or thermal fogger is prohibited.

Not for use in outdoor residential misting systems.

Do not enter or allow others to enter until vapors, mists, and aerosols have dispersed and the treated area has been thoroughly ventilated.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR part 170. This Standard contains requirements for the protection of agricultural workers on farms, forests, nurseries, and greenhouses, and handlers of agricultural pesticides. It contains requirements for training, decontamination, notification, and emergency assistance. It also contains specific instructions and exceptions pertaining to the statements on this label about personal protective equipment (PPE) and restricted-entry interval. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

**Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.**

PPE required for early entry to treated areas that is permitted under the Worker Protection Standard and that involves contact with anything that has been treated, such as plants, soil, or water, is:

- Coveralls,
- Shoes plus socks,
- Chemical-resistant gloves made of any waterproof material.

**PROHIBITION** - Harvesting of conifer seed cones is prohibited within 30 days of application.

**CHEMIGATION USE DIRECTIONS**

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

Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

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

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

The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

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.

Permethrin insecticide should be applied continuously for the duration of the water application. Permethrin should be diluted in sufficient volume to ensure accurate application over the area to be treated. When using chemigation, a minimum of 0.1 inch per acre of irrigation water is recommended. Agitation generally is not required when a suitable diluent is used. A diluent test should be conducted to ensure that phase separation will not occur during dilution and application. Failure to achieve a uniform dilution throughout the time of application may result in undesirable residues or less than desirable control.

### **COMMERCIAL IMPREGNATION AND APPLICATION OF PERMETHRIN ON DRY BULK FERTILIZERS**

Permethrin insecticide may be impregnated on dry bulk fertilizers. When applied as directed, Permethrin/dry bulk fertilizer mixtures provide insect control equal to that provided by the same rates of Permethrin applied in water.

The Permethrin/fertilizer mixtures may be surface applied or shallow incorporated. The higher listed rate should be used if incorporation is used.

**Impregnation:** Apply using a minimum of 200 pounds of dry bulk fertilizer per acre and up to a maximum of 450 pounds per acre with the recommended amount of Permethrin insecticide per acre. Use a closed rotary-drum mixer or a similar type of closed blender equipped with suitable spray equipment. The spray nozzle(s) should be positioned to provide a uniform, fine spray pattern over the tumbling fertilizer for thorough coverage. The physical properties of fertilizers vary, particularly in liquid absorptive capacity. When absorptivity is sufficient, simple spray impregnation of the fertilizer with Permethrin provides a satisfactory, dry mixture. If the absorptive capacity is inadequate, the use of a highly absorptive powder is required to provide a dry, flowable mixture. Microcel® E is a recommended absorbent powder. Generally less than 2% by weight of Microcel E is required. **DO NOT** impregnate Permethrin onto straight coated ammonium nitrate or straight limestone because these materials will not absorb the insecticide. Dry fertilizer blends containing mixtures of ammonium nitrate or limestone may be impregnated with Permethrin.

The amount of Permethrin actually required in the preparation of individual fertilizer mixtures should be determined carefully for each production operation. This is necessary to ensure that the amount of pesticide actually contained in the mixture applied to the soil represents the correct rate of use. Bulk fertilizer impregnated with Permethrin insecticide should be applied immediately, not stored.

All individual state regulations relating to bulk dry fertilizer blending, registration, labeling, and application of the mixtures are the responsibility of the individual and/or company selling the fertilizer and Permethrin mixture.

### **SPRAY DRIFT REQUIREMENTS**

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

Only apply this product if the wind direction favors on-target deposition.

Do not apply when the wind velocity exceeds 15 mph.

#### **Temperature Inversion**

Do not make aerial or ground applications into temperature inversions.

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

#### **Droplet Size**

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

#### **Additional Requirements for Ground Applications**

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.

For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer 2 rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.

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

The spray boom should be mounted on the aircraft as to minimize drift caused by wingtip or rotor vortices. The minimum practical boom length should be used and must not exceed 75% of the wing span or 80% rotor diameter.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

Flight speed and nozzle orientation must be considered in determining droplet size.

Spray must be released at the lowest height consistent with pest control and flight safety. Do not release spray at a height greater than 10 feet above the crop canopy unless a greater height is required for aircraft safety.

When applications are made with a cross-wind, the swath will be displaced downwind. The applicator must compensate for this displacement at the downwind edge of the application area by adjusting the path of the aircraft upwind.

**BUFFER ZONES:**

**Vegetative Buffer Strip**

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

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

For guidance, refer to the following publication for information on constructing and maintaining effective buffers: Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21 pp. [www.in.nrcs.gov/technical/agronomy/newconbuf.pdf](http://www.in.nrcs.gov/technical/agronomy/newconbuf.pdf)

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

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

**Buffer Zone for ULV Aerial Application:**

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

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

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

**APPLICATION INSTRUCTIONS**

Unless otherwise directed by registered supplemental labeling, follow the Directions for Use in each crop group section.

**Resistance.** Some insects are known to develop resistance to products used repeatedly for control. Because the development of resistance cannot be predicted, the use of this product should conform to resistance management strategies established for the use area. Consult your local or state agricultural authorities for details.

If resistance to this product develops in your area, this product, or other products with a similar mode of action, may not provide adequate control. If poor performance cannot be attributed to improper application or extreme weather conditions, a resistant strain of insect may be present. If you experience difficulty with control and resistance is a reasonable cause, immediately consult your local company representative or agricultural advisor for the best alternative method of control for your area.

Permethrin is a 3.2 pounds per gallon formulation of the insecticide permethrin. Apply Permethrin when insects appear or feeding is noticed. The higher listed rate should be used as pest populations increase. Repeat the application as necessary to maintain control. Permethrin may be applied by both ground and aerial equipment. Use sufficient water to obtain full coverage. With the exception of crops listed below, rotational crops must not be planted within 60 days of last application.

Not for use in outdoor residential misting systems.

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

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Alfalfa; Alfalfa grown for seed (0 day phi)\*** (includes birdsfoot trefoil, esparcet, holy clover, lucerne, sainfoin and varieties and/or hybrids of these)

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Alfalfa caterpillar	2.0 to 8.0 fl oz	Use higher listed dosage for increased pest pressure or for increased residual pest control. Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or 2.0 gal of finished spray/A by aircraft.
Armyworms	(0.05 to 0.2 lb AI)/A	
Blue alfalfa aphid		
Cutworms		
Green cloverworm		
Green peach aphid		
Loopers		
Pea aphid		
Spotted alfalfa aphid		
Velvet bean caterpillar		
Webworms		
Alfalfa weevil	4.0 to 8.0 fl oz	
Cucumber beetle	(0.1 to 0.2 lb AI)/A	
Egyptian alfalfa weevil		
Meadow spittlebug		
Plant bugs (including <i>Lygus</i> spp.)		
Potato leafhopper		
Stink bugs		

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 30 days.

Seasonal maximum application rate is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre per cutting.

Do not apply to mixed stands with intentionally-grown forage grasses and/or legumes.

\* When rates greater than 0.1 pound active ingredient per acre are used, do not apply within 14 days of harvest.

**Almonds (7 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Navel orangeworm	8.0 to 10.0 fl oz	Apply when insects appear. Apply in a minimum of 15.0 gal of finished spray/A by aircraft or 25.0 to 400 gal of finished spray/A with ground equipment.
Peach twig borer	(0.2 to 0.25 lb AI)/A	
Ants	10.0 fl oz (0.25 lb AI)/A	Apply by ground equipment in a minimum of 15.0 gal of finished spray/A. Application should follow mowing of weed growth to insure maximum coverage of the soil surface. Overhead moisture following application will enhance activity.

Maximum rate per application is 10.0 fluid ounces of product (0.25 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 30.0 fluid ounces of product (0.75 pound active ingredient) per acre.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

**Apples**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Green fruitworm	4.0 to 10.0 fl oz	Use with ground equipment only. Apply in 25.0 to 400 gal of finished spray/A when insects appear.
Leafminer	(0.1 to 0.25 lb AI)/A	
Oblique banded leafroller		
Plum curculio		
Redbanded leafroller		
Rosy apple aphid		
Spotted tentiform		
Tarnished plant bug		
White apple leafhopper		

Maximum rate per application is 10.0 fluid ounces of product (0.25 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 20.0 fluid ounces of product (0.5 pound active ingredient) per acre.

Do not apply after petal fall.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Artichoke (0 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Artichoke plume moth Leafminers	4.0 to 12.0 fl oz (0.1 to 0.3 lb AI)/A	Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal/A by aircraft. Buds may be harvested on the day of application.

Maximum rate per application is 12.0 fluid ounces of product (0.3 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 36.0 fluid ounces of product (0.9 pound active ingredient) per acre.

**Asparagus (1 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Asparagus beetle Cutworms	2.0 to 4.0 fl oz (0.05 to 0.1 lb AI)/A	Apply with ground equipment in a minimum of 10.0 gal of finished spray/A.
Asparagus beetle Japanese beetle (Adult stage)* Lygus bugs Tarnished plant bug	4.0 fl oz (0.1 lb AI)/A	For post harvest application, apply to the fern stage of the asparagus plant after spear harvest when larval and adult stage are present. *Not for control of this insect in CA.

Maximum rate per application is 4.0 fluid ounces of product (0.1 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 16.0 fluid ounces of product (0.4 pound active ingredient) per acre.

**Avocado (7 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Avocado caterpillar Avocado lace bug Avocado leafhopper Avocado leafroller Avocado looper Avocado tree girdler Avocado whitefly Brown soft scale Mirids Omnivorous looper Orange tortrix Scale crawlers Spanworm Thrips Twig borers	8.0 fl oz (0.2 lb AI)/A	Apply with ground equipment in 25.0 to 400 gal of finished spray/A. Apply when insects first appear and repeat at 7- to 10-day intervals.

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

**Broccoli; Chinese Broccoli (gai lan, white flowering broccoli); Brussels sprout; Cauliflower (1 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Armyworm spp. Cabbage looper Diamondback Moth Imported cabbageworm Plant bugs Thrips	2.0 to 8.0 fl oz (0.05 to 0.2 lb AI)/A	Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal/A by aircraft.

**Broccoli, Chinese Broccoli:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 5 days.

Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre.

**Brussels Sprout:**

Maximum rate per application is 4.0 fluid ounces of product (0.1 pound active ingredient) per acre.

Minimum retreatment interval is 5 days.

Seasonal maximum application rate is 16.0 fluid ounces of product (0.4 pound active ingredient) per acre.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Broccoli; Chinese Broccoli** (*gai lon, white flowering broccoli*); **Brussels sprout; Cauliflower (1 day phi) cont'd.:**

**Cauliflower:**

Maximum rate per application is 4.0 fluid ounces of product (0.1 pound active ingredient) per acre.

Minimum retreatment interval is 5 days.

Seasonal maximum application rate is 16.0 fluid ounces of product (0.4 pound active ingredient) per acre (24.0 fluid ounces of product in Hawaii (0.6 pound active ingredient) per acre).

**Cabbage; Cabbage, Chinese** (tight-heading varieties only) **(1 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Cabbage looper	2.0 to 8.0 fl oz	Apply with ground equipment in a minimum of 10.0 gal/A or in a minimum of 2.0 gal/A by aircraft.
Diamondback moth	(0.05 to 0.2 lb AI)/A	
Imported cabbageworm		
Southern white butterfly		
Armyworm spp.	4.0 to 8.0 fl oz	
Cutworms	(0.1 to 0.2 lb AI)/A	
Flea beetles		

**Cabbage:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 5 days.

Seasonal maximum application rate is 16.0 fluid ounces of product (0.4 pound active ingredient) per acre (32.0 fluid ounces of product in Hawaii (0.8 pound active ingredient) per acre).

**Cantaloupes:** For use directions refer to the **Cucurbit Vegetables** crop grouping.

**Celery, Florence fennel** (sweet anise, sweet fennel, finocchio) (fresh leaves and leaf petioles only): For use directions refer to the **Leafy Vegetable** crop grouping.

**Cherries** (Includes sweet cherries and tart cherries) **(3 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Green fruitworm	4.0 to 8.0 fl oz	Use Permethrin insecticide as a dilute spray. Apply when insects appear. Apply with ground equipment in 25.0 to 400 gal of finished spray/A.
Lesser peach tree borer	(0.1 to 0.2 lb AI)/A	
Plum curculio		
Redbanded leafroller		
Rose chafer		
Tarnished plant bug		

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 24.0 fluid ounces of product (0.6 pound active ingredient) per acre.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

Do not exceed 3 applications per year.

**Chrysanthemums**

For Terrestrial Non-Food Use. See Leafy Vegetables Crop Section for Food Use Instructions.

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Liriomyza leafminer flies	20.0 fl oz (0.5 lb AI)/100 gal (1.0 tsp/gal)	Avoid spraying the blooms. Permethrin may be applied on a weekly schedule. <b>Caution:</b> Permethrin has demonstrated excellent plant safety, however, not all cultivars have been tested. Before treating large numbers of plants of a particular cultivar, treat a few plants and observe prior to full scale applications.



**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Collards and Turnips (1 day phi)**

**Collards (only in Arkansas, Arizona, Georgia, Illinois, North Carolina, Oklahoma, South Carolina, and Texas)**

**Turnips (only in Florida, Georgia, Illinois, Indiana, Oklahoma, South Carolina, Texas, and Washington)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Aphids*	2.0 to 6.0 fl oz	Apply with ground equipment in a minimum spray volume of 10.0 gal of finished spray/A <b>For AR, IN, TX only</b> aerial application is allowed. Apply in a minimum of 1.0 gal/A.
Beet armyworm	(0.05 to 0.15 lb AI)/A	
Cabbage looper		
Corn earworm		
Cutworms		
Diamondback moth		
European corn borer		
Fall armyworm		
Green cloverworm		
Imported cabbageworm		
Leafhoppers		
Leafminer		
Southern armyworm		
Southern white butterfly		
Tobacco budworm		
Vegetable leafminer		

Maximum rate per application is 6.0 fluid ounces of product (0.15 pound active ingredient) per acre.

Minimum retreatment interval is 3 days.

Seasonal maximum application rate is 18.0 fluid ounces of product (0.45 pound active ingredient) per acre.

**Turnips** - Do not graze treated areas or feed crop refuse to livestock.

\* Suppression only.

**Conifers (Container and Field Grown)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Nantucket pine tip moth	4.0 to 8.0 fl oz (0.1 to 0.2 lb AI)/A	Permethrin may be diluted in a non-volatile vegetable oil or water in a minimum of 1.0 gal of finished spray/A using equipment calibrated to give adequate coverage. Begin application when the adults appear and repeat at 5- to 7-day intervals throughout the season.

**Corn (Field), Field Corn Grown for Seed, Popcorn**

(0-day phi – Forage)

(30-day phi – Grain and Fodder (Stover))

**Field Corn:**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
<i>Preemergent Use:</i>	4.0 to 6.0 fl oz	Permethrin may be applied as a preplant incorporated, pre-emergence, or at planting time application. Apply as a broadcast spray by ground or air (minimum of 2.0 gal finished spray/A by air) or 4- to 15-inch band using sufficient spray volume to achieve adequate coverage. Linear row calculations should be used proportional to the standard band width/row width formula to adjust rates for different band widths or row spacings. Use higher rates of Permethrin when incorporating into the soil without exceeding the listed dosage. When using tank mixes, observe all restrictions and precautions which appear on the labels of these products. Provide constant agitation during mixing and application to keep the mixture in solution. Apply as an in-furrow, band or T-band treatment using a minimum 4" band. Use table below to determine the Permethrin needs for each acre.
Armyworms	(0.1 to 0.15 lb AI)/A as a broadcast spray	
Cutworms		
Seed corn maggot*		
Stalk borers	OR	
Wireworm*	0.3 to 0.45 fl oz/1000 linear ft row (based on a 4" band and 40" row spacing)	

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

***Corn (Field), Field Corn Grown for Seed, Popcorn cont'd.:***

Row Spacings (inches) at 0.3 fluid ounce rate	40.0	30.0
Permethrin (pounds active ingredient per acre)	0.10	0.15
Permethrin (formulated ounces per acre)	4.0	6.0

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
<i>Foliar Use:</i>		
Armyworm (including Fall and Southern armyworm)	4.0 to 6.0 fl oz (0.1 to 0.15 lb AI)/A	When treating for Stalk borers, Permethrin must be applied when or shortly before the Stalk borer larvae are moving into the corn from surrounding weeds and grasses. Mowing or burndown herbicide are suggested to initiate movement. For control of Corn earworm apply just before silking and continue as necessary to maintain control. Apply a minimum of 2.0 gal of finished spray/A by air or 10.0 gal/A with ground equipment.
Corn borer (including European and Southwestern corn borer)		
Corn earworm		
Corn rootworm beetles*		
Cutworms		
Flea beetle		
Hop vine borer		
Leafhoppers		
Stalk borers		
Webworms		
Western bean cutworm	2.0 to 4.0 fl oz (0.05 to 0.1 lb AI)/A	

Maximum rate per application is 6.0 fluid ounces of product (0.15 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 18.0 fluid ounces of product (0.45 pound active ingredient) per acre.

Forage may be harvested on the day of application.

\*Not in California

**Corn, Sweet: (1 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Corn earworm	4.0 to 8.0 fl oz	Apply every 3 to 5 days. Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal/A by aircraft.
Corn rootworm beetles*	(0.1 to 0.2 lb AI)/A	
Cutworms		
European corn borer		
Fall armyworm		
Flea beetle		
Hop vine borer		
Leafhoppers		
Southern armyworm		
Southwestern corn borer		
Stalk borers		
Webworm		

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 3 days.

Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre.

\*Pest does not occur on this crop in CA.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Cucurbit Vegetables (0 day phi):** such as **Chayote (fruit)** (*Sechium edule*); **Chinese waxgourd (Chinese preserving melon)** (*Bernincasa hispida*); **Citron melon** (*Citrullus lanatus* var. *citroides*); **Cucumber** (*Cucumis sativus*); **Gherkin** (*Cucumis anguria*); **Gourd, edible** (*Lagenaria* spp.) (includes hyotan, cucuzza); **Luffa spp.** (includes hechima, Chinese okra); **Momordica spp** (includes balsam apple, balsam pear, bitter melon, Chinese cucumber); **Muskmelon** hybrids and/or cultivars of *Cucumis melo* (includes true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon); **Pumpkin** (*Cucurbita* spp.); **Squash, summer** (*Cucurbita pepo* var. *melopepo*) (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); **Squash, winter** (*Cucurbita maxima*; *C. moshata*) (includes butternut squash, calabaza, hubbard squash); **C. mixta**; **C. pepo** includes acorn squash, spaghetti squash); **Watermelon** (includes hybrids and/or varieties of *Citrullus* spp.).

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Aphids	8.0 fl oz	Apply with ground equipment in a minimum spray volume of 20.0 gal of finished spray/A or in a minimum of 4.0 gal/A by aircraft.
Leafminers	(0.2 lb AI)/A	
Squash bug		
Cabbage looper	4.0 to 8.0 fl oz	
Cucumber beetle (adults)	(0.1 to 0.2 lb AI)/A	
Cutworms		
Leafhoppers		
Melonworm		
Pickleworm		
Plant Bugs (including Lygus and Stink bugs)		
Rindworms		
Squash vine borer		

**Cantaloupes:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre (48.0 fluid ounces of product in Hawaii (1.2 pounds active ingredient) per acre).

**Cucumbers, Pumpkins, Squash and Watermelon:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 48.0 fluid ounces of product (1.2 pounds active ingredient) per acre.

**Eggplants (3 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Colorado potato beetle	6.0 fl oz (0.15 lb AI)/A	Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or a minimum of 2.0 gal by aircraft. Apply using sufficient water to obtain uniform coverage.
Cabbage looper	4.0 to 6.0 fl oz	
Flea beetles	(0.1 to 0.15 lb AI)/A	
Vegetable leafminer		

Maximum rate per application is 6.0 fluid ounces of product (0.15 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 24.0 fluid ounces of product (0.6 pound active ingredient) per acre (40.0 fluid ounces of product in Hawaii (1.0 pound active ingredient) per acre).

**Filberts (Hazelnuts) (14 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Filbertworm	8.0 to 10.0 fl oz	For full coverage application, apply 0.05 to 0.06 lb AI/100 gal (based on 400 gal finished spray/A) and spray to run-off, OR for low volume concentrate application, apply 0.2 to 0.25 lb AI/A (50.0 to 200 gal finished spray/A). For aerial application, apply 0.2 to 0.25 lb AI in a minimum of 10.0 gal of finished spray/A. Apply when insects appear.
Oblique banded leafroller	(0.2 to 0.25 lb AI)/A	

Maximum rate per application is 10.0 fluid ounces of product (0.25 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 30.0 fluid ounces of product (0.75 pound active ingredient) per acre.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Horseradish (30 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Imported crucifer weevil ( <i>Baris lepidii</i> )	0.1% AI solution (2.0 pt, 1.0 fl oz of Permethrin/100 gal)	As a spring preplant dip, soak sets for 30 minutes and air-dry before planting.
	6.0 fl oz (0.15 lb AI)/A	For foliar application, apply with ground equipment in a minimum spray volume of 20.0 gal finished spray/A. Make up to 3 foliar applications as needed to control Weevil adults during oviposition.

Maximum rate per application is 6.0 fluid ounces of product (0.15 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 18.0 fluid ounces of product (0.45 pound active ingredient) per acre.

**Leafy Vegetables (except Brassica) (1 day phi):** such as: **Amaranth** (leafy amaranth, Chinese spinach, tampala); **Arugula** (roquette); **Cardoon**; **Celery**; **Celery, Chinese**; **Celtuce**; **Chervil**; **Chrysanthemum, edible-leaved and garland**; **Corn salad**; **Cress, garden**; **Cress, upland** (yellow rocket, winter cress); **Dandelion**; **Dock** (sorrel); **Endive** (escarole); **Fennel, Florence** (finocchio); **Lettuce, head and leaf**; **Orach**; **Parsley**; **Purslane, garden**; **Purslane, winter**; **Radicchio** (red chicory); **Rhubarb**; **Spinach** (including New Zealand and vine, Malabar spinach, Indian spinach), **Swiss chard**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Aphids	4.0 to 8.0 fl oz	Apply every 3 to 5 days by air or ground. Use sufficient water to obtain full coverage of foliage. Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal/A by aircraft.
Beet armyworm	(0.1 to 0.2 lb AI)/A	
Corn earworm		
Cutworms		
European corn borer		
Fall armyworm		
Green cloverworm		
Leafminers		
Southern armyworm		
Tobacco budworm		
Alfalfa looper	2.0 to 8.0 fl oz	
Cabbage looper	(0.05 to 0.2 lb AI)/A	
Leafhoppers		

**Leafy Vegetables** (except brassica, spinach, lettuce, celery):

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 3 days.

Seasonal maximum application rate is 8.0 fluid ounces (0.2 pound active ingredient) per acre.

**Spinach:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 3 days.

Seasonal maximum application rate is 24.0 fluid ounces of product (0.6 pound active ingredient) per acre.

**Lettuce:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre (48.0 fluid ounces of product in Hawaii (1.2 pounds active ingredient) per acre).

**Celery:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 40.0 fluid ounces of product (1.0 pound active ingredient) per acre (48.0 fluid ounces of product in Hawaii (1.2 pounds active ingredient) per acre).

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Mushrooms (Mushroom houses) (3 day phi)**

Use of high pressure hand wand prohibited in mushroom houses.

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Mushroom flies (Sciarid and Phorid adults)	Apply as a fogging or aerosol treatment at the rate of 2.0 to 2.5 fl oz (0.05 to 0.0625 lb AI)/30.0 fl oz of water or suitable diluent. Use 1.0 qt of solution/standard double house (35,000 cu ft: 8000 sq ft)	Preparation of the building prior to fogging: (1) Close all doors, windows, and ventilators, (2) Lock or barricade all entrances, turn off pilot lights, post warning signs, and take precautions to prevent persons and animals from entering the area. Use prior to filling the house, during cool-down, during spawning, up to pinning, and between breaks. Do not use when mushrooms are present. Treat once daily as needed when Flies appear. Do not make more than 20 applications prior to pinning of first break; apply no more than 2 applications between each break. Do not apply more than 30 applications total/crop of 5 breaks. Length of exposure time should be limited to 1 hour; then ventilate the house. Use fans to ventilate in houses that do not have forced air circulation.

Wear a respirator with either an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

**Onions, Bulb and Garlic (1 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Armyworms	6.0 to 12.0 fl oz	Apply with ground equipment in a minimum of 20.0 gal of finished spray/A or in a minimum of 5.0 gal/A by aircraft. Begin applications when pests appear. Use the higher label rates as Onion thrips population increases and avoid rescue situations.
Onion thrips	(0.15 to 0.3 lb AI)/A	
Cutworms	4.0 to 12.0 fl oz	
Leafminers	(0.1 to 0.3 lb AI)/A	
Onion maggots (adults)		
Stink bugs		

**Onions:**

Maximum rate per application is 12.0 fluid ounces of product (0.3 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 40.0 fluid ounces of product (1.0 pound active ingredient) per acre.

**Garlic:**

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Ornamental Nursery Stock (Field and Container Grown)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Ants	4.0 to 8.0 fl oz	Permethrin may be used to control specified pests on non-edible ornamental and non-bearing plants of fruiting species. <b>Caution:</b> Marginal leaf burn may occur on salvia, dieffenbachia and pteris fern. Application to blooming plants may cause browning of petals. Permethrin has demonstrated excellent plant safety; however, not all species and varieties have been tested. Before treating large numbers of plants of a particular variety, treat a few plants and observe prior to full scale application.
Aphids	(0.1 to 0.2 lb AI)/100 gal of water	
Bagworm		
Beet armyworm		
Birch leafminer		
Cabbage looper		
Citrus thrips		
Fungus gnats		
<i>Heliothis</i> spp.		
Japanese beetles		
Lace bug		
Leafhoppers		
Leafminers		
Leafrollers		
Lygus bugs		
Pinesaw flies		
Plant bugs		
Root weevils (Adults)		
Webworms		
Whiteflies		
Zimmerman pine moths		
<b>Ornamental Trees</b>	1.0 to 2.0 qt/100 gal	Apply to the lower branches and trunks prior to adult emergence. Adult emergence varies according to pest species, host tree, environmental conditions and environmental conditions and geographic location. Thorough coverage of bark is required for control.
Ash borer	(0.8 to 1.6 lb AI)/A	
Banded ash clearwing		
Clearwing moth borer		
Dogwoodborer		
Lesser peachtree borer		
Lilac borer		
Oak borer		
Rhododendron borer		
Bark Beetles:	2.0 to 5.0 qt/100 gal	
<i>Dendroctonus</i> spp.	(1.6 to 4.0 lb AI)/A	
Elm bark beetles		
Mountain pine beetles		
Pine engravers		
Turpentine beetles		
Western pine beetles		
Coleopteran borers:	2.0 to 5.0 qt/100 gal	
Bronze birch borer	(1.6 to 4.0 lb AI)/A	
Flatheaded borers		
For the maximum residual control of the above listed pests	5.35 qt/100 gal (4.28 lb AI)/A	

**Papaya (Florida Only) (7 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Aphids	6.0 fl oz	Apply with ground equipment in 25.0 to 400 gal of finished spray/A. Apply when insects first appear and repeat at a minimum of a 10-day interval as needed to provide control.
Brown soft scale	(0.15 lb AI)/A	
Mealybug		
Papaya fruit fly		
Papaya webworm		
Papaya whitefly		
Scale crawlers		

Maximum rate per application is 6.0 fluid ounces of product (0.15 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 30.0 fluid ounces of product (0.75 pound active ingredient) per acre.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Peaches, Nectarines (14 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Green fruitworm Lesser peach tree borer Oriental fruit moth Peachtwig borer Plum curculio Rose chafer Tarnished plant bug	4.0 to 10.0 fl oz (0.1 to 0.25 lb AI)/A	Apply with ground equipment using 25.0 to 400 gal of spray/A or a minimum of 10.0 gal/A by aircraft. Spray to wet all foliage.
Maximum rate per application is 10.0 fluid ounces of product (0.25 pound active ingredient) per acre. Minimum retreatment interval is 10 days. Seasonal maximum application rate is 30.0 fluid ounces of product (0.75 pound active ingredient) per acre per year. Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.		

**Pears (Dormant through Delayed Dormant)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Pear psylla	8.0 to 16.0 fl oz (0.2 to 0.4 lb AI)/A	Permethrin may be combined with 2.0 to 8.0 gal of spray oil/A. Apply during the dormant through delayed dormant growth periods only. Apply in a minimum of 10.0 gal of finished spray/A by aircraft and 25.0 to 400 gal/A by ground equipment.
Maximum rate per application is 16.0 fluid ounces of product (0.4 pound active ingredient) per acre (dormant only). Minimum retreatment interval is 10 days. Seasonal maximum application rate, including both Pre-Bloom and Dormant through Delayed Dormant applications is 26.0 fluid ounces of product (0.65 pound active ingredient) per acre. Do not exceed a total of 26.0 fluid ounces of product (0.65 pound active ingredient) per acre for accumulative seasonal applications. Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.		

**Pears (Pre-Bloom)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Codling moth Green fruitworm Pear psylla	8.0 to 10.0 fl oz (0.2 to 0.25 lb AI)/A	Apply with ground equipment using 25.0 to 400 gal of finished spray/A or a minimum of 10.0 gal/A by aircraft. Pre-bloom sprays can be applied from dormant through bud burst stages.
Maximum rate per application is 10.0 fluid ounces of product (0.25 pound active ingredient) per acre. Minimum retreatment interval is 10 days. Seasonal maximum application rate, including both Pre-Bloom and Dormant through Delayed Dormant applications is 26.0 fluid ounces of product (0.65 pound active ingredient) per acre. Do not exceed a total of 26.0 fluid ounces of product (0.65 pound active ingredient) per acre for accumulative seasonal applications. Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.		

**Peppers, Bell (3 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Cabbage looper Corn earworm Cutworms Flea beetle Pepper weevil Vegetable leafminer	4.0 to 8.0 fl oz (0.1 to 0.2 lb AI)/A	Apply using sufficient water to obtain uniform coverage. Apply with ground equipment using a minimum of 10.0 gal of finished spray/A or a minimum of 2.0 gal/A by aircraft.
European corn borer	8.0 oz (0.2 lb AI)/A	
Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre. Minimum retreatment interval is 5 days. Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre.		

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Pine Seed Orchards**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Coneworms Seed bugs	Use 8.0 to 16.0 fl oz of product/treated acre (0.2 to 0.4 lb AI/treated acre) using a final carrier solution of 25.0 to 400 gal depending on the type of sprayer system being used.	Ground (low and high volume applications): Make up to 3 applications/season. Aerial Applications: Rates: Use 24.0 fl oz of product/treated acre (0.6 lb AI/treated acre). Methods of Application: Apply in a minimum of 5.0 gal of finished spray/A Apply once/season.

To control Webbing coneworm—make first application within 1 week of female flower closure or peak pollen flight.

To control other Coneworms and Seed bugs—make first application within 30 days following female flower closure.

Repeat applications at 4-week intervals, but do not apply more than 3 ground applications or 1 aerial application/yr.

Do not graze livestock in treated areas.

Do not feed cover crops from treated areas to livestock.

**PROHIBITION** - Harvesting of conifer seed cones is prohibited within 30 days of application.

**Pistachios (0 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Leaffooted bugs Navel orangeworm Peach twig borer Plant bugs Stink bugs	8.0 to 12.0 fl oz (0.2 to 0.3 lb AI)/A	Use sufficient water to obtain full coverage of foliage. Apply Permethrin in a minimum of 10.0 gal of finished spray/A by aircraft or by ground equipment in 25.0 to 400 gal of finished spray/A.
Ants	12.0 fl oz (0.3 lb AI)/A	Application should follow mowing of weed growth to insure maximum coverage of the soil surface. Overhead moisture following application will enhance activity.

Do not apply after 10% hull split.

Maximum rate per application is 12.0 fluid ounces of product (0.3 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 36.0 fluid ounces of product (0.9 pound active ingredient) per acre per year.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

**Potatoes (14 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Aster leafhopper Beet armyworm Cabbage looper Colorado potato beetle Cutworms European cornborer Potato aphid Potato fleabeetle Potato leafhopper Potato psyllid Potato tuberworm Tarnished plant bug	4.0 to 8.0 fl oz (0.1 to 0.2 lb AI)/A	Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal/A by aircraft. Permethrin may also be applied using refined non-volatile vegetable oil for control of listed pests. Permethrin should be diluted with oil and applied in a minimum of 1.0 qt total volume/A using equipment calibrated to give adequate coverage. Use sufficient spray volume to obtain full coverage.

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 32.0 fluid ounces of product (0.8 pound active ingredient) per acre.



**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Pumpkins:** For general use directions refer to the **Cucurbit Vegetables** crop grouping.

**Range Grass (New Mexico Only)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Range caterpillar	0.4 fl oz (0.1 lb AI)/A	Apply using sufficient spray volume to obtain uniform coverage. Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal/A by aircraft.

Do not apply more than once per year.  
Cattle may be present during application.  
Do not harvest or feed hay to livestock.

**Roses (Field Grown)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
<i>Heliothis</i> spp.	4.0 to 8.0 fl oz (0.1 to 0.2 lb AI)/A	Permethrin may be applied with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal of finished spray/A by aircraft.

**Roses (Greenhouse)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Beet armyworm Cabbage looper Omnivorous leafroller	8.0 fl oz (0.2 lb AI)/100 gal of water	<b>Caution:</b> Permethrin is not phytotoxic to the following varieties of greenhouse roses: Ballena, Bettina, Cara Mia, Coquette, Excitement, Forever Yours, G. Wave, Jack Frost, Jr., Bridesmaid, Matador, Paul's Pink, Samantha, Seventeen, Sonia, Town Crier, Tropicana and Visa. Other varieties may vary in their sensitivity to Permethrin, and a small number of plants should be treated under local conditions to determine plant safety prior to commercial use.

**Soybeans (60 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Bean leaf beetle Cabbage looper Corn rootworm beetles Cutworms Flea beetle Green cloverworm Japanese beetle Mexican bean beetle Potato leafhopper Saltmarsh caterpillar (Woollybear caterpillar) Thistle caterpillar Velvetbean Caterpillar	2.0 to 4.0 fl oz (0.05 to 0.1 lb AI)/A	Apply with ground equipment in a minimum of 10.0 gal of finished spray/A or in a minimum of 2.0 gal/A by aircraft. Permethrin may also be applied using refined non-volatile vegetable oil for control of listed pests. Permethrin should be diluted with oil and applied in a minimum of 1.0 qt total volume/A using equipment calibrated to give adequate coverage. When applying in water by aircraft, 1.0 qt of oil may be substituted for 1.0 qt of water/gal of finished spray. For use in AR, FL, LA, MS, OK, and TX. A 40-day PHI may be used at the application rate of 4.0 fl oz of product (0.1 lb AI)/A. Apply with ground equipment in a minimum of 5.0 gal/A of finished spray and in a minimum of 1.0 gal/A by aircraft. Applications can include vegetable oil at 1.0 qt/A.
Beet armyworm Corn earworm Soybean looper Webworms	4.0 to 8.0 fl oz (0.1 to 0.2 lb AI)/A	

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.  
Minimum retreatment interval is 10 days.  
Seasonal maximum application rate is 16.0 fluid ounces of product (0.4 pound active ingredient) per acre.  
Do not graze or feed soybean forage or hay.

**PERMETHRIN**  
**EPA REG. NO. 34704-873**

**Spinach:** Refer to **Leafy Vegetable** crop grouping for general use directions.

**Tomatoes, Tomatillos (0 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Beet armyworm	2.0 to 8.0 fl oz	Apply with ground equipment in a minimum of 10.0 gal finished spray/A or in a minimum of 2.0 gal/A by aircraft.
Cabbage looper	(0.05 to 0.2 lb AI)/A	
Colorado potato beetle		
Granulate cutworm		
Hornworms		
Southern armyworm		
Tomato fruitworm		
Tomato pinworm		
Vegetable leafminers		

Maximum rate per application is 8.0 fluid ounces of product (0.2 pound active ingredient) per acre.

Minimum retreatment interval is 7 days.

Seasonal maximum application rate is 24.0 fluid ounces of product (0.6 pound active ingredient) per acre per year (32.0 fluid ounces of product in Hawaii (0.8 pound active ingredient) per acre).

Do not apply to tomato varieties which produce mature fruit less than 1 inch in diameter.

**Walnuts (1 day phi)**

<b>Insects Controlled</b>	<b>Rate of Application</b>	<b>Method of Application</b>
Codling moth	8.0 to 10.0 fl oz	For full coverage application apply 0.05 to 0.1 lb AI/100 gal (based on 400 gal finished spray/A), spray to run-off; OR, for low volume application apply 0.25 lb AI/A (25.0 to 200 gal finished spray/A). For aerial application apply 0.25 lb AI in a minimum of 10.0 gal of finished spray/A. Apply when insects appear.
Navel orangeworm	(0.2 to 0.25 lb AI)/A	
Walnut husk fly		

Maximum rate per application is 10.0 fluid ounces of product (0.25 pound active ingredient) per acre.

Minimum retreatment interval is 10 days.

Seasonal maximum application rate is 30.0 fluid ounces of product (0.75 pound active ingredient) per acre.

Do not graze livestock in treated areas or feed cover crops from treated areas to livestock.

**Premises Spray**

For agricultural use only.

Spray directly to walls and ceiling as residual surface treatment only. Do not treat manure or litter. Avoid contamination of feed and water. Do not apply directly to livestock or poultry.

<b>For Application In</b>	<b>Target Insect</b>	<b>Method of Application</b>	<b>Dilute</b>	<b>Application Rate</b>
Barns	House flies	Sprayer	4.0 fl oz	1.0 gal/750 sq ft of surface product (0.1 lb AI) in 12.5 gal water
Dairies	Stable flies and other manure			
Feedlots	breeding flies			
Livestock houses	Also aids in the reduction of			
Poultry houses	Cockroaches,			
Stables	Mosquitoes			
Swine houses	and Spiders			

Retreat as necessary, but not more often than once every 1 to 2 weeks.

The use of any residual fly spray should be supplemental with proper manure management and general sanitation to reduce or eliminate fly breeding site.

When used in dairy barns or facilities: Close milk bulk tank lids to prevent contamination from spray and from dead or falling insects. Remove or cover milking utensils before application. Wash teats of animals before milking.

**Rate Conversion Chart**

Pounds Active per Acre	Formulation Ounces per Acre
0.05	2.0
0.10	4.0
0.15	6.0
0.20	8.0
0.25	10.0
0.30	12.0
0.40	16.0

**Dealers Must Sell in Original Packages Only.**

**STORAGE AND DISPOSAL**

**PESTICIDE STORAGE:** Do not store below 10 °F, (- 12 °C).

Do not use or store near heat, open flame or hot surfaces.

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

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

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

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

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

Triple rinse or pressure rinse container (or equivalent) promptly after emptying.

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

**For packages greater than 5 gallons and less than 56 gallons: Triple rinse as follows:** Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip.

**For packages greater than 56 gallons:** To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times.

**For refillable containers:** Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. To clean the container before final disposal, empty the remaining contents from this container into application equipment or mix tank. Fill the container about 10 percent full with water. Agitate vigorously or recirculate water with the pump for 2 minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Offer for recycling or puncture and dispose of in a sanitary landfill or by incineration.

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

**CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY**

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

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