

APPENDIX C. Permethrin Post RED Mitigation Measures and Non-Agricultural Labeled Uses

(1) Post RED Mitigation Measures

Products labeled for use in mushroom houses:

“Use of high pressure hand wand prohibited in mushroom houses.”

Products formulated as dusts:

“Use of handheld power duster equipment is prohibited.”

Reduced maximum application rate, retreatment intervals, and seasonal maximum application rates:

Crop	Maximum rate per application (lb ai/A)	Retreatment interval (Days)	Seasonal Maximum Application Rate (lb ai/A)
Alfalfa	0.2	30	0.2 per cutting
Almonds	0.25	10	0.75
Hazelnuts	0.25	10	0.75
Pistachios	0.3	10	0.9
Walnuts	0.25	10	0.75
Apples	0.25	10	0.5
Pears	0.25 (0.4 dormant only)	10	0.65
Cherries	0.2	10	0.6
Peaches/ Nectarines	0.25	10	0.75
Artichokes	0.3	10	0.9
Asparagus	0.1	7	0.4
Avocados	0.2	7	0.8
Broccoli	0.2	5	0.8
Brussels Sprouts	0.1	5	0.4
Cabbage	0.2	5	0.4 (0.8 in HI)
Cauliflower	0.1	5	0.4 (0.6 in HI)
Cantaloupes	0.2	7	0.8 (1.2 in HI)
Cucumbers	0.2	7	1.2
Pumpkins	0.2	7	1.2
Squash (summer, winter)	0.2	7	1.2
Watermelon	0.2	7	1.2
Eggplant	0.15	7	0.6 (1.0 in HI)
Peppers, bell	0.2	5	0.8
Tomatoes	0.2	7	0.6 (0.8 in HI)
Celery	0.2	7	1.0 (1.2 in HI)
Lettuce	0.2	7	0.8 (1.2 in HI)
Spinach	0.2	3	0.6
Collards	0.15	3	0.45
Greens, Turnip	0.15	3	0.45
Corn, Field	0.15	7	0.45

Sweet Corn	0.2	3	0.8
Garlic	0.2	10	0.8
Onions	0.3	7	1.0
Horseradish	0.15	10	0.45
Papaya	0.15	10	0.75
Potatoes	0.2	10	0.8
Soybeans	0.2	10	0.4

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 (*name of pyrethroid*) 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.

<http://www.in.csusda/v/technical/agronom/newconbuf.pdf>

Revised Spray Drift Requirements:

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

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

Buffer Zone for ULV Aerial Application

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

Buffer Zone for Non-ULV Aerial Application

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

Wind Direction and Speed

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

“Do not apply when the wind velocity exceeds 15 mph.”

Temperature Inversion

“Do not make aerial or ground applications into temperature inversions.”

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

Droplet Size

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

Additional Requirements for Ground Applications

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

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

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

Additional Requirements for Aerial Applications

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

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

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

“When applications are made with a 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.”

Table 1. Amended Permethrin RED Label Table
(Abbreviated Table: Includes Agricultural Label sections only)

Summary of Labeling Changes for Permethrin		
Description	Amended Labeling Language	Placement on Label
Manufacturing Use Products		
For all Manufacturing Use Products	<p>“Only for formulation into an <i>insecticide</i> for the following use(s) [fill blank only with those uses that are being supported by MP registrant].”</p> <p>Formulation into Wettable Powder: “Not for formulation into Wettable Powder formulations unless they are packaged in water soluble bags.”</p> <p>Outdoor Residential Misting Systems: If Registrants are not supporting outdoor residential misting systems use for their products, the following statement must appear on the MUP label of all liquid or wettable powder products: “Not for formulation into an end use product for use in outdoor residential misting systems”</p> <p>Formulation into Ready to Use Products labeled or intended for use on residential indoor surfaces:</p> <p>Ready to Use consumer spray products labeled for use on indoor surfaces (broadcast, spot, and crack and crevice) at residential sites must be formulated to contain no more than 0.5% of permethrin active ingredient.</p> <p><i>Note to Registrant:</i> The Agency will consider specialized sprays with higher concentrations, up to 3% ai, which are intended to be injected directly into cracks and crevices and behind walls or spaces if the registrants of the products can provide justification or data to the Agency which demonstrates that the specialized use will result in little to no exposure. In addition, these products must state the following “Not for broadcast use.”</p> <p>Formulation into products intended for use in Total Release Foggers (residential indoor use):</p> <p>“Total release foggers labeled for indoor use at residential sites must be formulated to contain no more than 0.25% permethrin active ingredient.”</p> <p><i>Note to Registrant:</i> The Agency will consider products with higher concentrations if the registrants of the products can provide justification or data to the Agency which demonstrates that an equivalent ISR of 2.4 µg/cm², or less, will results in a room size of 2000 ft³ or less.</p>	Directions for Use

Summary of Labeling Changes for Permethrin		
Description	Amended Labeling Language	Placement on Label
	<p>Formulations into products intended for impregnated fabric applications:</p> <p>“Do not exceed an application rate equivalent to 1.25 grams of a.i. per square meter of fabric.”</p>	
One of these statements may be added to a label to allow reformulation of the product for a specific use or all additional uses supported by a formulator or user group	<p>“This product may be used to formulate products for specific use(s) not listed on the MP label if the formulator, user group, or grower has complied with U.S. EPA submission requirements regarding support of such use(s).”</p> <p>“This product may be used to formulate products for any additional use(s) not listed on the MP label if the formulator, user group, or grower has complied with U.S. EPA submission requirements regarding support of such use(s).”</p>	Directions for Use
Environmental Hazards Statements Required by the RED and Agency Label Policies	<p>“This pesticide is extremely toxic to aquatic organisms, including fish and invertebrates. 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.”</p>	Precautionary Statements

Description	Amended Labeling Language	Placement on Label
End Use Products Primarily Intended for WPS and Occupational Use (includes commercial pest control operators)		
Restricted Use Pesticide (For all products used for wide area outdoor broadcast application including agricultural crops, golf courses, nurseries, and sod farms)	“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.”	Top front panel of label
<p>PPE Requirements Established by the RED¹ For Wettable Powder, Liquid, and Dry Flowable Concentrates (Dry Flowables not registered at this time, but may be registered in the future.)</p> <p>Note: If the use of ULV foggers or fog or mist generators is not permitted or not feasible for the end-use product, the statement requiring special PPE and respirators for those uses may be omitted.</p>	<p>“Personal Protective Equipment (PPE)</p> <p>Some materials that are chemical-resistant to this product are (<i>registrant inserts correct chemical-resistant material</i>). If you want more options, follow the instructions for category@ [<i>registrant inserts A,B,C,D,E,F,G, or H</i>] on an EPA chemical-resistance category selection chart.”</p> <p>“Applicators using ULV cold foggers or fog/mist generators in indoor spaces must wear:</p> <ul style="list-style-type: none"> > Coveralls over long-sleeved shirt and long pants, > Chemical-resistant gloves, > Chemical resistant footwear plus socks, and > Chemical-resistant headgear, if overhead exposure.” <p>“Applicators using ULV cold foggers and/or fog/mist generators in outdoor spaces must wear:</p> <ul style="list-style-type: none"> > Long-sleeve shirt and long pants, > Shoes plus socks, and > Chemical-resistant gloves.” <p>Note to Registrant: If cold fogger and/or fog/mist generator use is prohibited on the label, the above PPE for these uses may be omitted.</p> <p>“All other mixers, loaders, applicators, and other handlers must wear:</p> <ul style="list-style-type: none"> > Long-sleeve shirt and long pants, > Shoes plus socks, > Chemical-resistant gloves for all handlers except for applicators using motorized ground equipment, pilots, and flaggers, > Chemical-resistant apron for mixers/loaders, persons cleaning equipment, and persons exposed to the concentrate and for handlers performing animal dip applications.” <p>“See engineering controls for additional requirements.”</p> <p>Instruction to Registrant: Drop the “N” type prefilter from the respirator statement, if the pesticide product contains, or is used with, oil.</p>	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals

Description	Amended Labeling Language	Placement on Label
PPE Requirements Established by the RED ¹ For Granular Formulations	<p>“Personal Protective Equipment (PPE)</p> <p>Some materials that are chemical-resistant to this product are” (<i>registrant inserts correct chemical-resistant material</i>). “If you want more options, follow the instructions for category” [<i>registrant inserts A,B,C,D,E,F,G, or H</i>] “on an EPA chemical-resistance category selection chart.”</p> <p>“All loaders , applicators, and other handlers must wear:</p> <ul style="list-style-type: none"> > Long-sleeve shirt and long pants, > Shoes plus socks, and > Chemical-resistant gloves for all handlers except for applicators using motorized ground equipment, pilots, and flaggers.” <p>“See engineering controls for more requirements.”</p>	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals
PPE Requirements Established by the RED ¹ For Dust Formulations Note: if application with aerial or motorized ground equipment is not feasible with the labeled uses, the prohibition statement may be eliminated.	<p>“Personal Protective Equipment (PPE)</p> <p>Some materials that are chemical-resistant to this product are (<i>registrant inserts correct chemical-resistant material</i>). If you want more options, follow the instructions for category [<i>registrant inserts A, B, C, D, E, F, G, or H</i>] on an EPA chemical-resistance category selection chart.”</p> <p>“Loaders, applicators, and other handlers must wear:</p> <ul style="list-style-type: none"> > Long-sleeve shirt and long pants, > Shoes plus socks, > Chemical-resistant gloves, and > A NIOSH-approved respirator with: <ul style="list-style-type: none"> -- a dust/mist filter with MSHA/NIOSH approval number prefix TC-21C or -- any N, R, P, or HE filter.” <p>“Application with aerial or motorized ground equipment is prohibited.”</p>	Immediately following/below Precautionary Statements: Hazards to Humans and Domestic Animals
User Safety Requirements	<p>“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.</p> <p>Discard clothing and other absorbent materials that have been drenched (except as required by directions for use) or heavily contaminated with this product=s concentrate. Do not reuse them.”</p>	Precautionary Statements: Hazards to Humans and Domestic Animals immediately below PPE requirements
Engineering controls for Wettable Powder Formulations Note if aerial application is not permitted or not feasible for the end-use product, the engineering control statements referring to pilots may be omitted.	<p>“Engineering controls</p> <p>Water-soluble packets when used correctly qualify as a closed mixing/loading system under the Worker Protection Standard for Agricultural Pesticides [40 CFR 170.240(d)(4)]. Mixers and loaders using water-soluble packets must:</p> <ul style="list-style-type: none"> -- wear the personal protective equipment required in the PPE section of this labeling for mixers and loaders, and -- be provided and must have immediately available for use in an emergency, such as a broken package, spill, or equipment breakdown chemical resistant footwear and dust/mist respirators. <p>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)].”</p>	Precautionary Statements: Hazards to Humans and Domestic Animals immediately below User Safety Requirements

Description	Amended Labeling Language	Placement on Label
<p>Engineering controls for Liquids, Dry Flowable, and Granular Formulations</p> <p>Note if aerial application is not permitted or not feasible for the end-use product, the engineering control statements referring to pilots may be omitted.</p>	<p>“Pilots must use an enclosed cockpit that meet the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].”</p>	<p>Precautionary Statements: Hazards to Humans and Domestic Animals immediately below PPE requirements</p>
<p>Environmental Hazards (For Products with any Outdoor Use, except wide area mosquito adulticide application)</p>	<p>“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 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.”</p> <p>“Under some conditions, it may also have a potential for transport into surface water in runoff (primarily adsorbed 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.”</p> <p>“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 actively visiting the treatment area.”</p> <p>For commercial, industrial, and institutional use products packaged in containers equal or greater than 5 gallons or 50 pounds, add the following statement:</p> <p>“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.”</p>	<p>Precautionary Statements immediately following the User Safety Recommendations</p>
<p>Environmental</p>	<p>“ENVIRONMENTAL HAZARDS for TERRESTRIAL APPLICATIONS”</p>	<p>Precautionary Statements under</p>

Description	Amended Labeling Language	Placement on Label
<p>Hazards</p> <p>Statements for products labeled as a wide area mosquito adulticide and is labeled for other outdoor uses as well:</p> <p>(PR Notice 2005-1 recommends separating labels intended for wide area mosquito adulticiding applications.)</p>	<p>“This pesticide is extremely toxic to aquatic organisms, including fish and invertebrates. This product may contaminate water through drift of spray in wind or via runoff events. Use care when applying in areas adjacent to any body of water. Do not apply when weather conditions favor drift from target area.”</p> <p>“Except as specified in the directions for use, do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment wash-waters or rinsate.”</p> <p>“ENVIRONMENTAL HAZARDS for WIDE AREA MOSQUITO ADULTICIDE APPLICATIONS”</p> <p>“This pesticide is extremely toxic to aquatic organisms, including fish and invertebrates. Runoff from treated areas or deposition of spray droplets into a body of water may be hazardous to fish and aquatic invertebrates.”</p> <p>“When applying as a wide area mosquito adulticide, before making the first application in a season, it is advisable to consult with the state or tribal agency with primary responsibility for pesticide regulation to determine if other regulatory requirements exist.”</p> <p>“When applying as a wide area mosquito adulticide, do not apply over bodies of water (lakes, rivers, permanent streams, natural ponds, commercial fish ponds, swamps, marshes or estuaries), except when necessary to target areas where adult mosquitoes are present, and weather conditions will facilitate movement of applied material away from the water in order to minimize incidental deposition into the water body. “</p>	<p>Environmental Hazards</p>
<p>Restricted-Entry Interval for products with directions for use within scope of the Worker Protection Standard for Agricultural Pesticides (WPS)</p> <p>Note: If use on conifer cone seeds is not on the label, the above prohibition statement may be omitted.</p>	<p>“Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 12 hours.”</p> <p>“PROHIBITION - Harvesting of conifer seed cones is prohibited within 30 days of application.”</p>	<p>Directions for Use, Agricultural Use Requirements Box</p>
<p>Early Entry Personal Protective Equipment for products with directions for use</p>	<p>“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:</p> <ul style="list-style-type: none"> * coveralls, * shoes plus socks 	<p>Direction for Use Agricultural Use Requirements box</p>

Description	Amended Labeling Language	Placement on Label
within the scope of the WPS	* chemical-resistant gloves made of any waterproof material”	
<p>General Application Restrictions for products with WPS or non-WPS uses on the label</p> <p>Note: This excludes products that contain any directions for when people are permitted to be present in the treated area (e.g. wide-area mosquito adulticide applications, fabric treatments, and applications to livestock and pets)</p>	<p>“Do not apply this product in a way that will contact workers or other persons, either directly or through drift.”</p> <p>“Only protected handlers may be in the area during application.”</p>	Place in the Direction for Use.
<p>General Application Restrictions for products with WPS and non-WPS uses on the label AND are labeled for use when people may be present (e.g. . wide-area mosquito adulticide applications, fabric treatments, and applications to livestock and pets)</p>	<p>“Except when” (insert application method or site that allows people to be present) “do not apply this product in a way that will contact workers or other persons, either directly or through drift.”</p> <p>“Except when” (insert application method or site that allows people to be present) “only protected handlers may be in the area during application.”</p> <p>“Do not breathe dusts, vapors, or spray mist.”</p> <p>For applications to food/feed handling and service areas:</p> <p>“Do not apply when food is present.”</p> <p>“Do not use in food areas of food handling establishments, restaurants, or other areas where food is commercially prepared or processed. Do not use in serving areas while food is exposed or facility is in operation. Serving areas are areas where prepared foods are served, such as dining rooms, but excluding areas where foods may be prepared or held. In the home, all food processing surfaces and utensils should be covered during treatment or thoroughly washed before use. Exposed food should be covered or removed.”</p>	Place in the Direction for Use.
<p>General Application Restrictions for products solely labeled for use when people may be present (e.g.</p>	<p>No general application restrictions are required. See below under “Use Restrictions” for further requirements.</p>	Place in the Direction for Use.

Description	Amended Labeling Language	Placement on Label																																																																																																				
wide-area mosquito adulticide applications, fabric treatments, and applications to livestock and pets)																																																																																																						
Other Application Restrictions (Risk Mitigation)	<p>Products labeled for use in mushroom houses:</p> <p>“Use of high pressure hand wand prohibited in mushroom houses.”</p> <p>Products formulated as dusts:</p> <p>“Use of handheld power duster equipment is prohibited.”</p>	Directions for Use																																																																																																				
Use-Specific Application Rate and Related Restrictions (Note: The maximum application rate and maximum seasonal rates specified in this table must be listed as pounds or gallons of formulated product per acre/square ft/ppm/cubic feet etc., not just as pounds active ingredient)	<p>Amend all agricultural use product labels with the following crops to reflect the following maximum application rate, retreatment intervals, and seasonal maximum application rates:</p> <table><tr><th>Crop</th><th>Maximum rate per application (lb ai/A)</th><th>Retreatment interval (Days)</th><th>Seasonal Maximum Application Rate (lb ai/A)</th></tr><tr><td>Alfalfa</td><td>0.2</td><td>30</td><td>0.2 per cutting</td></tr><tr><td>Almonds</td><td>0.25</td><td>10</td><td>0.75</td></tr><tr><td>Hazelnuts</td><td>0.25</td><td>10</td><td>0.75</td></tr><tr><td>Pistachios</td><td>0.3</td><td>10</td><td>0.9</td></tr><tr><td>Walnuts</td><td>0.25</td><td>10</td><td>0.75</td></tr><tr><td>Apples</td><td>0.25</td><td>10</td><td>0.5</td></tr><tr><td>Pears</td><td>0.25 (0.4 dormant only)</td><td>10</td><td>0.65</td></tr><tr><td>Cherries</td><td>0.2</td><td>10</td><td>0.6</td></tr><tr><td>Peaches/ Nectarines</td><td>0.25</td><td>10</td><td>0.75</td></tr><tr><td>Artichokes</td><td>0.3</td><td>10</td><td>0.9</td></tr><tr><td>Asparagus</td><td>0.1</td><td>7</td><td>0.4</td></tr><tr><td>Avocados</td><td>0.2</td><td>7</td><td>0.8</td></tr><tr><td>Broccoli</td><td>0.2</td><td>5</td><td>0.8</td></tr><tr><td>Brussels Sprouts</td><td>0.1</td><td>5</td><td>0.4</td></tr><tr><td>Cabbage</td><td>0.2</td><td>5</td><td>0.4 (0.8 in HI)</td></tr><tr><td>Cauliflower</td><td>0.1</td><td>5</td><td>0.4 (0.6 in HI)</td></tr><tr><td>Cantaloupes</td><td>0.2</td><td>7</td><td>0.8 (1.2 in HI)</td></tr><tr><td>Cucumbers</td><td>0.2</td><td>7</td><td>1.2</td></tr><tr><td>Pumpkins</td><td>0.2</td><td>7</td><td>1.2</td></tr><tr><td>Squash (summer, winter)</td><td>0.2</td><td>7</td><td>1.2</td></tr><tr><td>Watermelon</td><td>0.2</td><td>7</td><td>1.2</td></tr><tr><td>Eggplant</td><td>0.15</td><td>7</td><td>0.6 (1.0 in HI)</td></tr><tr><td>Peppers, bell</td><td>0.2</td><td>5</td><td>0.8</td></tr><tr><td>Tomatoes</td><td>0.2</td><td>7</td><td>0.6 (0.8 in HI)</td></tr></table>	Crop	Maximum rate per application (lb ai/A)	Retreatment interval (Days)	Seasonal Maximum Application Rate (lb ai/A)	Alfalfa	0.2	30	0.2 per cutting	Almonds	0.25	10	0.75	Hazelnuts	0.25	10	0.75	Pistachios	0.3	10	0.9	Walnuts	0.25	10	0.75	Apples	0.25	10	0.5	Pears	0.25 (0.4 dormant only)	10	0.65	Cherries	0.2	10	0.6	Peaches/ Nectarines	0.25	10	0.75	Artichokes	0.3	10	0.9	Asparagus	0.1	7	0.4	Avocados	0.2	7	0.8	Broccoli	0.2	5	0.8	Brussels Sprouts	0.1	5	0.4	Cabbage	0.2	5	0.4 (0.8 in HI)	Cauliflower	0.1	5	0.4 (0.6 in HI)	Cantaloupes	0.2	7	0.8 (1.2 in HI)	Cucumbers	0.2	7	1.2	Pumpkins	0.2	7	1.2	Squash (summer, winter)	0.2	7	1.2	Watermelon	0.2	7	1.2	Eggplant	0.15	7	0.6 (1.0 in HI)	Peppers, bell	0.2	5	0.8	Tomatoes	0.2	7	0.6 (0.8 in HI)	Directions for Use under Application Instructions
Crop	Maximum rate per application (lb ai/A)	Retreatment interval (Days)	Seasonal Maximum Application Rate (lb ai/A)																																																																																																			
Alfalfa	0.2	30	0.2 per cutting																																																																																																			
Almonds	0.25	10	0.75																																																																																																			
Hazelnuts	0.25	10	0.75																																																																																																			
Pistachios	0.3	10	0.9																																																																																																			
Walnuts	0.25	10	0.75																																																																																																			
Apples	0.25	10	0.5																																																																																																			
Pears	0.25 (0.4 dormant only)	10	0.65																																																																																																			
Cherries	0.2	10	0.6																																																																																																			
Peaches/ Nectarines	0.25	10	0.75																																																																																																			
Artichokes	0.3	10	0.9																																																																																																			
Asparagus	0.1	7	0.4																																																																																																			
Avocados	0.2	7	0.8																																																																																																			
Broccoli	0.2	5	0.8																																																																																																			
Brussels Sprouts	0.1	5	0.4																																																																																																			
Cabbage	0.2	5	0.4 (0.8 in HI)																																																																																																			
Cauliflower	0.1	5	0.4 (0.6 in HI)																																																																																																			
Cantaloupes	0.2	7	0.8 (1.2 in HI)																																																																																																			
Cucumbers	0.2	7	1.2																																																																																																			
Pumpkins	0.2	7	1.2																																																																																																			
Squash (summer, winter)	0.2	7	1.2																																																																																																			
Watermelon	0.2	7	1.2																																																																																																			
Eggplant	0.15	7	0.6 (1.0 in HI)																																																																																																			
Peppers, bell	0.2	5	0.8																																																																																																			
Tomatoes	0.2	7	0.6 (0.8 in HI)																																																																																																			

Description	Amended Labeling Language					Placement on Label
	Celery	0.2	7	1.0 (1.2 in HI)		
	Lettuce	0.2	7	0.8 (1.2 in HI)		
	Spinach	0.2	3	0.6		
	Collards	0.15	3	0.45		
	Greens, Turnip	0.15	3	0.45		
	Corn, Field	0.15	7	0.45		
	Sweet Corn	0.2	3	0.8		
	Garlic	0.2	10	0.8		
	Onions	0.3	7	1.0		
	Horseradish	0.15	10	0.45		
	Papaya	0.15	10	0.75		
	Potatoes	0.2	10	0.8		
	Soybeans	0.2	10	0.4		
Buffer Zone Requirements	<p>BUFFER ZONES</p> <p>Vegetative Buffer Strip</p> <p>“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).”</p> <p>“Only apply products containing (<i>name of pyrethroid</i>) onto fields where a maintained vegetative buffer strip of at least 10 feet exists between the field and down gradient aquatic habitat.”</p> <p>For guidance, refer to the following publication for information on constructing and maintaining effective buffers: <i>Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. USDA, NRCS. 2000. Fort Worth, Texas. 21 pp.</i> http://www.in.csusda/v/technical/agronom/newconbuf.pdf</p> <p>Buffer Zone for Ground Application (groundboom, overhead chemigation, or airblast)</p> <p>“Do not apply within 25 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).”</p> <p>Buffer Zone for ULV Aerial Application</p> <p>“Do not apply within 450 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).”</p> <p>Buffer Zone for Non-ULV Aerial Application</p> <p>“Do not apply within 150 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).”</p>					Directions for Use under General Precautions and Restrictions and/or Application Instructions

Description	Amended Labeling Language	Placement on Label
	<p>Spray Drift Requirements</p> <p>Wind Direction and Speed</p> <p>“Only apply this product if the wind direction favors on-target deposition.”</p> <p>“Do not apply when the wind velocity exceeds 15 mph.”</p> <p>Temperature Inversion</p> <p>“Do not make aerial or ground applications into temperature inversions.”</p> <p>“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.”</p> <p>Droplet Size</p> <p>“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.”</p> <p>Additional Requirements for Ground Applications</p> <p>“Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application.”</p> <p>“For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.”</p> <p>“For airblast applications, turn off outward pointing nozzles at row ends and when spraying the outer two rows. To minimize spray loss over the top in orchard applications, spray must be directed into the canopy.”</p> <p>Additional Requirements for Aerial Applications</p> <p>“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.”</p> <p>“Flight speed and nozzle orientation must be considered in determining droplet size.”</p> <p>“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.”</p> <p>“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.”</p>	<p>Directions for Use under Spray Drift Requirements.</p>

(2) Non-Agricultural Labeled Uses

Non-Agricultural Labeled Uses & Treatment Types	
I. Agriculture Sector (non-crop)	
(1) FARM PREMISES	
Indoor-Space Mist; Indoor-Space Fog; Indoor-Surface Spray; Indoor-Spot Spray; Outdoor-Perimeter Surface Spray; Outdoor-ULV-Truck (nonthermal); Outdoor-ULV-Mist; Outdoor-ULV-Hand held; Outdoor-ULV-Ground; Outdoor-ULV-Fog (thermal); Outdoor-ULV-Backpack; Outdoor-ULV-Air; Outdoor-ULV-Fog (nonthermal); Ant Mound Drench Treatment	
(2) Seed houses, storage areas and warehouses	
Indoor-Aerosol Surface Spray	
(3) Mushroom Farms (up to Pre-harvest with 25 applications and a maximum of 0.18 lb)	
Indoor-ULV-All possible types; Outdoor-ULV-All types	
(4) Mushroom Houses (empty premises & equipment)	
Indoor-Space Fog Or Fumigation; Indoor-Space Dust; Indoor-Aerosol; Surface Spray; Indoor-Surface Spray; Greenhouses (In Use); Indoor-Aerosol Surface Spray	
(5) Greenhouses (Empty)	
Indoor-Aerosol Crack & Crevice Spray; Indoor-Brush-on; Indoor-Surface Spray; Outdoor-Perimeter Surface Spray	
(6) Fencerows and Hedgerows	
Hole Treatment; Soil treatment; Barrier treatment	
(7) Dairy Farm Milk Storage Rooms, Houses and Sheds	
Indoor-Aerosol Crack & Crevice Spray	
(8) Cattle Feedlots	
Outdoor-ULV-Truck (nonthermal); Barrier treatment	
(9) Range Land	
Spray All types (Chemigation, aerial, and ground "surface & incorporated"); All ULV Types	
II. Animal Health (Farms)	
(1) Beef, Range, Feeder Cattle (Meat)	
Animal Dusting; Brush Spray; Ear Spray; whole Spray; and back rubber	
(2) Dairy Cattle	
Animal Dusting; Brush Spray; Ear Spray; whole Spray; and back rubber	
(3) Dairy Goats	
Animal Ear Spray; whole Spray; and back rubber	
(4) Goats (Meat) & Goat (Wool/Langora animals)	
Animal Brush Spray; Ear Spray; whole Spray; and back rubber	
Animal ear spray	
(5) Hog, Pig, and Swine (Meat)	
Indoor surface spray; Bedding/litter spray; and Animal Dusting; Dip; Whole spray, Ear spray, Sponge wash, and holding pen spray	
(6) Livestock	
Barrier ULV; ULV nonthermal Spray; and Whole Animal and Ear sprays	
(7) Poultry (Egg and meat)	
Indoor Surface Spray; Indoor Crack & Crevice and Spot Spray; Bedding/litter Spray and Whole Animal spray/dusting	
(8) Sheep	

Non-Agricultural Labeled Uses & Treatment Types	
Spot treatment; and Whole Animal spray, back rubber, and Ear spray	
II. Animal Health (Domestic)	
(1) Cats: Adults and Kittens	
Animal aerosol spray, and Dusting	
(2) Animal Kennels and Sleeping Quarters (Commercial)	
Indoor Aerosol/Fog-Mist Surface/Space Spray; Indoor Crack & Crevice Spray; and Outdoor Surface spray, ULV-Truck/Backpack (nonthermal), and Barrier ULV Truck/Backpack	
(3) Dogs and Canines (Adults and puppies)	
Bedding/litter Spray; Animal Whole aerosol/liquid spray; Animal Dip, Dusting and Sponge wash	
(4) Pet Living and Sleeping Quarters	
Bedding/litter Spray; Aerosol Bedding/litter Spray; Aerosol Surface Spray; and Indoor Surface Spray; Indoor Crack & Crevice and Spot Dusting/spray; Brush-on; and Outdoor Perimeter Spray	
(5) Horses (Show, race, special, ponies)	
Animal Brush Spray, Sponge wash, whole body spray, Dusting, back rubber, ear spray; Dip, and Aerosol Surface spray, Indoor Crack & Crevice Spray, and Indoor Spot Spray	
III. Urban Sector	
(1) Bathrooms & hard Surfaces	
Indoor Aerosol Crack and Crevice/Spot treatment; Indoor Aerosol Surface Spray; Indoor Space Spray; Indoor Crack & Crevice Spray; Indoor Surface Spray; Indoor-Brush-on ; Outdoor-Perimeter Surface Spray	
(2) Commercial Storage and Warehouses	
Barrier ULV treatment; Indoor Aerosol Crack and Crevice/Spot treatment; Indoor Aerosol Surface Spray; Indoor Crack & Crevice Spray; Indoor Space Spray; Indoor Surface Spray; Outdoor Surface Spray; Outdoor-Brush-on (spot Treatment); Outdoor-Perimeter Surface Spray; Outdoor-ULV all types	
(3) Drainage Systems (Indoors/Outdoors?)	
Indoor/outdoor Aerosol Surface Spray; Indoor/Outdoor Surface Spray; Indoor/Outdoor Crack & Crevice Spray	
(4) Eating Establishments (nonfood contact)	
Barrier ULV treatment; Indoor Aerosol Crack and Crevice/Spot treatment; Indoor Crack & Crevice Spray; Indoor Space Spray; Indoor Surface Spray; Indoor-Brush-on; Outdoor-Perimeter Surface Spray; Outdoor-ULV all types	
(5) Feed and Food Storage Areas (Full)	
Indoor Aerosol Crack and Crevice Spray; Indoor Aerosol Surface Spray	
(6) Grain, Cereal, Flour Elevators (Empty)	
Indoor Space Spray; Indoor Surface Spray	
(7) Hospitals, Medical institutions (Human and veterinary)	
Indoor Aerosol Surface Spray; Indoor Aerosol Crack and Crevice Spray; Indoor Space Spray; Indoor Space Fog; Indoor Surface Spray; Indoor Crack & Crevice Spray	
(8) Household and Domestic Dwellings (Contents)	
Outdoor Perimeter Surface Spray; Indoor Surface Spray; Indoor Crack & Crevice Spray; Indoor Brush-on; Indoor Aerosol Spot Spray; Indoor Aerosol Surface Spray	
(9) Household and Domestic Dwellings (Food handling areas)	
Indoor Crack and Crevice Spray; Indoor-Surface Spray	
(10) Household and Domestic Dwellings (Nonfood handling areas)	
Indoor Space Spray; Indoor Surface Spray; Indoor-Brush-on	
(11) Household and Domestic Dwellings (Indoors)	

Non-Agricultural Labeled Uses & Treatment Types	
Indoor-Brush-on; Indoor Surface Spray; Indoor Space Spray; Indoor Crack & Crevice Spray; Indoor Aerosol Surface Spray; Indoor Aerosol Crack and Crevice/ spot Spray	
(12) Household and Domestic Dwellings (Outdoors)	
Ant Mound Drench Treatment; Outdoor Aerosol Surface Spray; Outdoor Crack and Crevice Spray; Wood surface Brush/Spray; Outdoor Crack and crevice and/or spot treatment; outdoor Surface Spray; Barrier Mist/liquid spray treatment; Barrier ULV treatment; Indoor-ULV-Fog (thermal and nonthermal); Outdoor-ULV all types; Wood treatment Injection or spray; Outdoor Soil Incorporated Spray; Outdoor Surface Spray; Outdoor Soil Band Spray; Outdoor-Brush-on (void Treatment); Indoor Brush-on	
(13) Human Bedding and Mattresses	
Indoor Aerosol Spot Spray; Indoor Spot Spray; Indoor-Surface Spray	
(14) Non-agriculture Areas (Public health use)	
Indoor Brush-on; Outdoor-ULV all types; Outdoor-Brush-on; Outdoor Surface Spray; Outdoor Soil Band Spray; Outdoor Crack & Crevice Spray; Barrier ULV treatment; Ant Mound Drench Treatment	
(15) Non-agriculture Rights-Of-Way, Fencerows, and Hedgerows	
Indoor Brush-on; Soil Incorporated Spray; Outdoor-ULV all types; Outdoor-Spot Surface Spray; Outdoor-Brush-on (spot Treatment); Outdoor Surface Spray; Outdoor Crack & Crevice Spray; Barrier Spray treatment; Ant Mound Drench Treatment	
(16) Paths and Patios	
Indoor/Outdoor surface spray; Indoor/Outdoor Surface Spray; Indoor/Outdoor-Brush-on (void Treatment); Outdoor-Brush-on (spot Treatment)	
(17) Refuse Solid Waste (Garbage cans)	
Outdoor Surface Spray; Outdoor-Brush-on (spot Treatment)	
(18) Refuse Waste Sites (Indoor)	
Indoor Surface Spray; Indoor Crack & Crevice Spray; Indoor Aerosol Surface Spray; Indoor Space Spray; indoor/Outdoor-ULV all types; Indoor-Mist Spray; Outdoor-Brush-on (void Treatment); Outdoor-Brush-on (spot Treatment); Barrier ULV treatment	
(19) Sewage Systems	
Outdoor Surface Spray	
(20) Urban Areas	
Outdoor-ULV all types; Barrier ULV/liquid/mist treatments	
(21) Wide Area and General Outdoor (Public health)	
Outdoor Soil Band Spray; Outdoor-ULV all types; Barrier ULV/liquid/mist treatments	
VI. Transportation Sector	
(1) Automobiles, Taxis, Limousines, recreational vehicles and Tires	
Indoor Aerosol Surface Spray; Indoor Aerosol Crack and Crevice/ spot Spray	
(2) Commercial Transportation Facilities (non-food/non-feed)	
Indoor Crack and Crevice Spray; Indoor Space Spray	
(3) Ships and Boats	
Indoor Surface/Space Spray	
V. Industrial and Commercial Sectors	
(1) Commercial, Institutional, Industrial Premises and Equipment	
Indoor-ULV All possible; Indoor Surface/Space Spray; Indoor Crack & Crevice Spray; Indoor Aerosol Crack and Crevice/ spot Spray; Indoor Aerosol Surface Spray; Outdoor Aerosol Perimeter Spray; Outdoor Aerosol Surface Spray; Outdoor-ULV-All types; Outdoor-Brush-on; Outdoor Surface Spray; Outdoor Perimeter Surface Spray; outdoor Crack	

Non-Agricultural Labeled Uses & Treatment Types
& Crevice Spray; Barrier ULV/liquid sprays; Ant Mound Drench Treatment
(2) Dairies, Cheese Processing, Plant Premises (nonfood contact)
Indoor Aerosol Crack and Crevice/ spot Spray; Indoor Aerosol Surface Spray
(3) Feed Mills and Feed Processing Plants
Indoor Aerosol Crack and Crevice/ spot Spray; Indoor Aerosol Surface Spray; Indoor Space Spray
(4) Food Processing Plants (nonfood contact & nonfood handling areas)
Indoor Aerosol Crack and Crevice/ spot Spray; Indoor Aerosol Surface Spray; Indoor Crack & Crevice and/or spot Spray; Indoor Space Spray; Indoor-Brush-on; Outdoor Perimeter Surface Spray
(5) Food Stores, Markets, Supermarkets Premises
Indoor Aerosol Surface Spray; Indoor Space/Surface Spray; Indoor Crack & Crevice Spray; Indoor-Brush-on
(6) Food, Groceries, Marketing, Storage, and Distribution Facilities
Indoor-Brush-on; Indoor Surface Spray; Indoor Crack & Crevice Spray; Outdoor Perimeter Surface Spray
(7) Industrial Areas
Outdoor-ULV-All types; Barrier ULV/liquid Sprays
(8) Meat Processing Plants (nonfood contact)
Indoor-Space Mist; Indoor Surface Spray; Indoor Crack & Crevice Spray
(9) Meat Processing Plants (nonfood contact)
Indoor Surface Spray; Indoor-Brush-on
VI. Wood Treatment
(1) Forest Products: Wood Pressure Treatment
(2) Buildings: Indoor wood protection Treatment
Indoor Crack & Crevice Spray; Indoor Perimeter Spray; Indoor Surface Spray; Indoor Brush-on
(3) Buildings: Outdoor wood protection Treatment
Outdoor Brush-on; Outdoor Crack & Crevice Spray; Outdoor Dip/Foam; Outdoor Injection (rodding and sub-slab); Outdoor Perimeter Spray; Outdoor Soil Surface Foaming/liquid spray; Outdoor Soil surface/Trench Spray; Outdoor Void Spray; and Wood Surface Spray
(4) Forest Products (Unseasoned): Wood Protection Treatment
Wood Surface Spray; Indoor/Outdoor Brush-on; Outdoor Crack & Crevice Spray; Outdoor Dip; and Outdoor Surface Spray