



## OFFICE OF CHEMICAL SAFETY AND POLLUTION PREVENTION

WASHINGTON, D.C. 20460

July 7, 2025

Jeanette Covert  
Regional Regulatory Manager  
UPL NA Inc.  
PO Box 12219  
Research Triangle Park, NC 27709-2219

Subject: Label Amendment - Registration Review Mitigation for Permethrin  
Product Name: PERM-UP 25DF DRY FLOWABLE INSECTICIDE  
EPA Registration Number: 70506-66  
Application Date: February 9, 2021  
Decision Number: 570687  
Case Number: 00477266

Dear Jeanette Covert:

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

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) list examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance Assurance.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling and must be used at your next label printing. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 12 months from the date of this letter. After 12 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

If you have any questions about this letter, please contact Anna Senninger by phone at 202-566-2216, or via email at [Senninger.Anna@epa.gov](mailto:Senninger.Anna@epa.gov).

Sincerely,

A handwritten signature in blue ink that reads "Dana L. Friedman". The signature is written in a cursive style with a large, stylized 'D'.

Dana L. Friedman, Chief  
Risk Management and Implementation Branch 1  
Pesticide Re-Evaluation Division  
Office of Pesticide Programs  
U.S. Environmental Protection Agency

ENCLOSURE: Stamped label

**RESTRICTED USE PESTICIDE****DUE TO TOXICITY TO FISH AND AQUATIC ORGANISMS**

**For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.**

Permethrin	GROUP	3A	INSECTICIDE
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**PERM-UP® 25DF**  
**Dry Flowable Insecticide**

**ACTIVE INGREDIENT:**

Permethrin*	25.0%
OTHER INGREDIENTS	75.0%
	100.0 %

\* (3-Phenoxyphenyl)methyl(±)-cis, trans-3-(2,2-dichloroethenyl)-2,2-dimethylcyclopropanecarboxylate;  
cis/trans ratio Max. 55% (±) *cis* and min. 45% (±) *trans*

**[Optional reference statements:**

(outer box/carton:) See containers inside for [First Aid,] additional Precautionary Statements and complete Directions For Use.

(outer booklet:) See inside [First Aid,] for additional Precautionary Statements and complete Directions For Use.

**PEEL DOWN FOR DIRECTIONS**

(base of booklet:) See attached booklet for [First Aid,] additional Precautionary Statements and complete Directions For Use.]

**KEEP OUT OF REACH OF CHILDREN****CAUTION****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>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>IF ON SKIN:</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. 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>

**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. For emergency medical assistance, call the Rocky Mountain Poison & Drug Safety at 1-866-673-6671.

**FOR CHEMICAL EMERGENCY: Spill, leak, fire, exposure, or accident, call CHEMTREC at 1-800-424-9300.**

UPL NA Inc.  
PO Box 12219  
Research Triangle Park, NC 27709  
1-800-438-6071

EPA Reg. No. 70506-66  
EPA Establishment No.  
Net Contents: \_\_\_\_\_ lbs.

**ACCEPTED**

Jul 07, 2025

Under the Federal Insecticide, Fungicide  
and Rodenticide Act as amended, for the  
pesticide registered under  
EPA Reg. No. 70506-66

## PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

### CAUTION

Harmful if swallowed. Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Harmful if inhaled. Avoid breathing dust. Causes moderate eye irritation. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals.

### PERSONAL PROTECTION EQUIPMENT (PPE)

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

- Long-sleeved shirt and long pants
- Chemical resistant gloves made of waterproof material
- Chemical resistant apron for mixers/loaders, persons cleaning equipment, and persons exposed to the concentrate
- Shoes plus socks

See Engineering Controls for additional requirements.

Do not apply this product using ULV cold foggers and/or fog/mist generators.

Follow the manufacturer's instructions for cleaning and 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 (except as required by directions for use) or heavily contaminated with this product's concentrate. Do not re-use them.

### ENGINEERING CONTROLS

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

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.

### USER SAFETY RECOMMENDATIONS

User should:

- Wash hands 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 washwaters.

Under some conditions, it may also have the 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.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. **Protect pollinating insects by following label directions intended to minimize drift and to reduce risk to these organisms.**

## **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.

#### **AGRICULTURAL USE REQUIREMENTS**

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

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

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

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

## LIST OF CROPS

### Food and Feed Crops

Alfalfa, Alfalfa Grown for Seed  
 Apples  
 Artichoke  
 Asparagus  
 Avocado  
 Broccoli, Chinese Broccoli, Brussels Sprouts, Cauliflower,  
 Cabbage, Chinese Cabbage (napa) (tight-heading varieties only)  
 Cherries (Sweet, Tart)  
 Collards and Turnips  
 Corn (Field), Field Corn Grown for Seed, Popcorn  
 Corn (Field), Field Corn Grown for Seed, Popcorn (At Plant Use)  
 Corn, Sweet  
 Corn, Sweet (Florida Only)  
 Cucurbit Vegetables  
 Eggplants  
 Filberts  
 Horseradish  
 Leafy Vegetables (Except Brassica)  
 Mushrooms (Mushroom houses and adjacent premise areas)  
 Onions, Bulb and Garlic  
 Papaya (Florida Only)  
 Peaches and Nectarines  
 Pears (Dormant through Delayed Dormant)  
 Pears (Pre-Bloom)  
 Peppers, Bell  
 Pistachios  
 Potatoes  
 Range Grass (New Mexico Only)  
 Soybeans  
 Tomatoes, Tomatillos  
 Walnuts

### Ornamentals

Chrysanthemums (Florida only)  
 Conifers (Container and Field Grown)  
 Ornamental Nursery Stock (Field Grown)  
 Pine Seed Orchards  
 Roses (Field Grown and Greenhouse)

### Premise Sprays

Dairies, Barns, Feedlots, Stables, Poultry Houses, Swine and Livestock Houses

## PRODUCT INFORMATION

Apply PERM-UP 25DF as shown in DIRECTIONS FOR APPLICATION. Use sufficient water to obtain full coverage of foliage. Timing and frequency of applications should be based upon insect populations reaching economic thresholds. The higher specified rates may be required under conditions of heavy infestation. Crops in this label may be planted immediately after last treatment. Do not plant other crops within 60 days after last application.

### Resistance Management

For resistance management, Perm-UP 25DF contains a Group 3A insecticide. Any insect population may contain individuals naturally resistant to Perm-UP 25DF and other Group 3A insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Appropriate resistance-management strategies should be followed.

To delay insecticide resistance, take the following steps:

- Rotate the use of Perm-UP 25DF or other Group 3A insecticides within a growing season, or among growing seasons, with different groups that control the same pests.
- Use tank mixtures with insecticides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues (for the targeted pests) between the individual components of a mixture. In addition, consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC):
  - o Individual insecticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.
  - o Mixtures with components having the same IRAC mode of action classification are not recommended for insect resistance management.
  - o When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
  - o Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.
  - o The insect resistance management benefits of an insecticide mixture are greatest if the two components have similar periods of residual insecticidal activity. Mixtures of insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.
- Adopt an integrated pest management program for insecticide use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which considers cultural, biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact UPL at 1-800-438-6071.

## RESTRICTIONS

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.

Do not apply in a way that will contact workers or other persons either directly or through drift.

Only protected handlers may be in the treatment area during applications.

Do not breathe dusts, vapors, or spray mist

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.

Application is prohibited directly into sewers or drains, or to any area like a gutter where drainage to sewers, storm drains, water bodies or aquatic habitat can occur.

## VEGETATIVE FILTER STRIPS

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

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

- For Western irrigated agriculture, a maintained vegetative filter strip of at least 10 feet wide is required. Western irrigated agriculture is defined as irrigated farmland in the following states: WA, OR, CA, ID, NV, UT, AZ, MT, WY, CO, NM, and TX (west of I-35).

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

For further guidance on vegetated filter strips, refer to the following publication for information on constructing and maintaining effective buffers: Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation Services. <https://www.regulations.gov/document?D=EPA-HQ-OPP-2008-0331-0175>.

## **BUFFER ZONES TO WATER BODIES**

### Ground Application

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

### Ultra Low Volume (ULV) Aerial Application

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

### Non-ULV Aerial Application

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

## **MANDATORY SPRAY DRIFT REQUIREMENTS**

### Airblast Applications:

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

### Ground Boom Applications:

- User must only apply with the nozzle height recommended by the manufacturer, but no more than 4 feet above the ground or crop canopy.
- Applicators are required to select nozzle and pressure that deliver medium or coarser droplets (ASABE S572).
- Do not apply when wind speeds exceed 15 mph at the application site.
- Do not apply during temperature inversions.

### Aerial Applications:

- Do not release spray at a height greater than 10 feet above the vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to select nozzle and pressure that deliver medium or coarser droplets (ASABE S641).
- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.



- If the windspeed is 10 miles per hour or less, applicators must use ½ swath displacement upwind at the downwind edge of the field. When the windspeed is between 11-15 miles per hour, applicators must use ¾ swath displacement upwind at the downwind edge of the field.
- Do not apply during temperature inversions.

### **SPRAY DRIFT ADVISORIES**

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

#### **IMPORTANCE OF DROPLET SIZE**

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

##### **Controlling Droplet Size – Ground Boom**

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

##### **Controlling Droplet Size – Aircraft**

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

##### **BOOM HEIGHT – Ground Boom**

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

##### **RELEASE HEIGHT - Aircraft**

- Higher release heights increase the potential for spray drift.

#### **SHIELDED SPRAYERS**

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

#### **TEMPERATURE AND HUMIDITY**

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

#### **TEMPERATURE INVERSIONS**

- Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

#### **WIND**

- Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS.
- Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

#### **Handheld Technology Applications:**

- Take precautions to minimize spray drift.

**NON-TARGET ORGANISM ADVISORY STATEMENT (Environmental Hazards):**

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

Following best management practices can help reduce risk to terrestrial pollinators. Examples of best management practices include applying pesticides in the evening and at night when pollinators are not foraging and checking to confirm hive locations before spraying. For additional resources on pollinator best management practices, visit <https://www.epa.gov/pollinator-protection/find-best-management-practices-protect-pollinators>.

**Managed pollinator protection plans** are developed by states/tribes to promote communication between growers, landowners, farmers, beekeepers, pesticide users, and other pest management professionals to reduce exposure of bees to pesticides. If available, visit state plans for additional information on how to protect pollinators.

**How to Report Bee Kills**

It is recommended that users contact both the state lead agency and the U.S. Environmental Protection Agency to report bee kills due to pesticide application. Bee kills can be reported to EPA at [beekill@epa.gov](mailto:beekill@epa.gov). To contact your state lead agency, see the current listing of state pesticide regulatory agencies at the National Pesticide Information Center's website: [http://npic.orst.edu/reg/state\\_agencies.html](http://npic.orst.edu/reg/state_agencies.html).

**CHEMIGATION USE DIRECTIONS**

PERM-UP 25DF mixes readily with water to form a suspension. PERM-UP 25DF should be diluted in sufficient volume of water to ensure accurate application over the area to be treated. Mix the required amount of PERM-UP 25DF with a small quantity of water and add this premix to the supply tank with the required amount of water. Maintain sufficient agitation during both mixing and application to ensure uniformity of the supply tank. Hydraulic or mechanical agitation is recommended. PERM-UP 25DF should be applied continuously for the duration of the water application. When using chemigation, a minimum of 0.1 inch per acre of irrigation water is recommended.

Apply this product only through sprinkler including center pivot, lateral move, and 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 nonuniform 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.

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.

**DIRECTIONS FOR APPLICATION****ALFALFA, ALFALFA GROWN FOR SEED:****(Includes Lucerne, sainfoin, holy clover, esparcet, birdsfoot trefoil and varieties and/or hybrids of these.)**

<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Alfalfa Caterpillar Armyworm spp. Blue Alfalfa Aphid Cutworms Green Cloverworm Green Peach Aphid Loopers Pea Aphid Spotted Alfalfa Aphid Velvetbean Caterpillar Webworms	3.2-12.8 oz/A (0.05-0.2 lbs ai/A)	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft. Use higher gallonage, 5-10 gallons by air, or 20 by ground, finished spray per acre when foliage is dense and/or when pest populations are high.  Use higher specified rate for increased pest pressure or for increased residual pest control.	Do not apply to mixed stands with intentionally grown forage grasses and/or legumes.  Do not apply more than 12.8 oz product (0.2 lb. a.i.) per cutting.	When rates of 6.4 oz product (0.1 lb a.i.) per acre or less are used, application may be made on day of harvest.  When rates greater than 6.4 oz product (0.1 lb. a.i.) per acre are used, do not apply within 14 days of harvest.
Alfalfa Weevil Cucumber Beetle Egyptian Alfalfa Weevil Meadow Spittlebug Plant Bugs including Lygus spp. Potato Leafhopper Stink Bugs	6.4-12.8 oz/A (0.1-0.2 lbs ai/A)		Do not apply at intervals less than 30 days.	

APPLES			
Target Pests	Rate	Special Directions	Restrictions
Green Fruitworm Oblique banded Leafroller Plum Curculio Redbanded Leafroller Rosy Apple Aphid Spotted Tentiform Leafminer Tarnished Plant Bug White Apple Leafhopper	6.4-17.6 oz/A (0.1-0.25 lbs ai/A)	Apply by ground equipment only. Apply in a minimum of 25 gallons of finished spray per acre when insects appear and repeat as necessary to maintain control.	Do not apply more than 35.2 oz product (0.5 lb a.i.) per acre per season. Do not apply after petal fall. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock. Do not apply at intervals less than 10 days.

ARTICHOKES				
Target Pests	Rate	Special Directions	Restrictions	PHI
Artichoke Plume Moth Leafminers	6.4-19.2 oz/A (0.1-0.3 lbs ai/A)	Apply by ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft. Apply as needed. Buds may be harvested on the day of application.	Do not apply more than 57.6 oz product (0.9 lb. a.i.) per acre per season. Do not apply at intervals less than 10 days.	0 day

ASPARAGUS				
Target Pests	Rate	Special Directions	Restrictions	PHI
Asparagus Beetle Cutworms	3.2-6.4 oz/A (0.05-0.1 lbs ai/A)	Apply by ground equipment only. Apply in a minimum of 10 gallons of finished spray per acre. Use sufficient water to obtain uniform coverage. Apply as needed.	Do not apply more than 25.6 oz product (0.4 lb. a.i.) per acre per season. Do not apply at intervals less than 7 days.	1 day
Asparagus Beetle Japanese Beetle (Adult stage*) Lygus Bugs Tarnished Plant Bug	6.4 oz/A (0.1 lbs ai/A)	For <b>post harvest application</b> , apply to the fern stage of the asparagus plant after spear harvest when larval and adult states are present.	Do not apply more than 25.6 oz product (0.4 lbs. a.i.) per acre per season. Do not apply at intervals less than 7 days. *Not for control of this insect in California.	

AVOCADOS				
Target Pests	Rate	Special Directions	Restrictions	PHI
Avocado Caterpillar Avocado Lace Bug Avocado Leafhopper Avocado Leafroller Avocado Looper Avocado Tree Girdler Avocado Whitefly Brown Soft Scale Lepidopterous larvae Mirids Omnivorous Looper Orange Tortrix Scale Crawlers Spanworm	12.8 (0.2)	Apply with ground equipment in a minimum of 25 gallons of finished spray per acre. Apply when insects first appear and repeat at 7 to 10 day intervals as needed to provide control.	Do not apply more than 51.2 oz product (0.8 lb a.i.) per acre per season. Do not apply at intervals less than 7 days. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.	7 days

Thrips				
Twig Borers				

<b>Broccoli; Chinese Broccoli (gai lon, white flowering broccoli); Brussels Sprouts; Cauliflower</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Armyworm spp. Cabbage Aphid* Cabbage Looper Diamondback Moth Imported Cabbageworm Plant Bugs Thrips	3.2-6.4 oz/A (0.05-0.1 lbs ai/A)	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft.	Do not apply at intervals less than 5 days. Do not apply more than 25.6 oz product (0.8 lb. a.i.) per acre per season. Do not apply more than 12.8 oz product (0.4 lb a.i.) per acre per season. Broccoli only: maximum rate is 12.8 oz product (0.2 lb a.i.). Cauliflower: maximum rate per 12.8 oz product (0.4 lb ai) and 0.6 lb ai in Hawaii. All others: maximum rate is 6.4 oz product (0.1 lb. a.i.) * Aids in suppression.	1 day

<b>CABBAGE, CABBAGE, CHINESE (napa) (tight-heading varieties only)</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Cabbage Looper Diamondback Moth Imported Cabbageworm Southern White Butterfly	3.2-12.8 oz/A (0.05-0.2 lbs ai/A)	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft. Apply as needed.	Do not apply more than 25.6 oz product (0.4 lb a.i.) per acre per season (51.2 oz product/0.8 lb a.i. in Hawaii). Do not apply at intervals less than 5 days.	1 day
Armyworm spp. Cutworms Flea Beetles	6.4-12.8 oz/A (0.1-0.2 lbs ai/A)			

<b>CHERRIES (Includes Sweet Cherries and Tart Cherries)</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Green Fruitworm Lesser Peach Tree Borer Plum Curculio Redbanded Leafroller Rose Chafer Tarnished Plant Bug	6.4-12.8 oz/A (0.1-0.2 lbs ai/A)	Use PERM-UP 25DF as a dilute spray. Apply when insects appear. Apply with ground equipment in a minimum of 25 gallons of finished spray per acre.	Do not graze livestock in treated areas. Do not apply more than 38.4 oz product (0.6 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not feed cover crops from treated areas to livestock. <i>East of the Rockies</i> , do not exceed 6 applications per season, with no more than 4 applications after petal fall. <i>West of the Rockies</i> , do not make more than 4	3 days

			applications per season, with no more than 3 applications after petal fall.	
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<b>COLLARDS AND TURNIPS</b> For use on <b>Collards</b> in AR, AZ, GA, IL, NC, OK, SC, and TX <b>and on Turnips</b> in FL, GA, IL, IN, OK, SC, TX and WA				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Beet Armyworm 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 Aphids*	3.2-9.6 oz/ A (0.05-0.15 lbs ai/A)	Apply with ground equipment only. Apply in a minimum of spray volume of 10 gallons of finished spray per acre.  * Suppression only.	Do not apply more than 28.8 oz product (0.45 lb a.i.) per acre per season. Do not graze treated areas or feed crop refuse to livestock.  Do not apply more than 28.8 oz product (0.45 lb. a.i.) per acre per season. Do not apply at intervals less than 3 days.	1 day



CORN (FIELD), FIELD CORN GROWN FOR SEED, POPCORN				
Target Pests	Rate	Special Directions	Restrictions	PHI
<b>Preemergent Use:</b> Armyworms Cutworms Stalk Borers	6.4-9.6 oz/A  (0.1-0.15 lbs ai/A)  OR  0.5-1.0 oz per 1000 linear feet row (based on a 4" band and 40" row spacing)	<p>PERM-UP 25DF may be applied as a preplant incorporated, preemergence, or at planting time application. Apply as a broadcast spray by ground or air (minimum of 10 gallons finished spray per acre by ground and 2 gallons per acre by air) or 4-15 inch band using sufficient spray volume to achieve adequate coverage.</p> <p>Linear row calculations should be used proportional to the standard Band Width/Row formula to adjust rates for different band widths or spacings. Use the higher specified rates of PERM-UP 25DF when incorporating into the soil without exceeding the rate.</p> <p>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.</p> <p>Apply in the time period from 5 days prior to planting up to emergence of the crop.</p>	Do not apply more than 28.8 oz product (0.45 lb a.i.) per season. Do not apply at intervals less than 7 days.	0 day (forage)  30 days (grain or fodder – stover)
<b>Foliar Use:</b> Armyworm (including Fall Armyworm) Corn Borers European Southwestern Corn Earworm Corn Rootworm Beetles Cutworms Flea Beetle Hop Vine Borer Stalk Borers Tobacco Budworm Webworms	6.4 to 9.6 oz/A (0.1-0.15 lbs ai/A)	When treating for Stalk Borers, PERM-UP 25DF must be applied when or shortly before the Stalk Borer larvae are moving into the corn from surrounding weeds and grasses. Mowing or burn-down herbicides 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 gallons of finished spray per acre by air or 10 gallons per acre with ground equipment.		
<b>Foliar Use:</b> Western Bean Cutworm	3.2 to 6.4 oz/A (0.05-0.1 lbs ai/A)			

<b>CORN (FIELD), FIELD CORN GROWN FOR SEED, POPCORN (At Plant Use)</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>		
Armyworms Cutworms	0.5 oz per 1,000 linear feet of row	Apply as an in-furrow, band or T-band treatment using a minimum 4" band. Use table below to determine the PERM-UP 25DF needs for each acre.		
Row Spacings (inches)		40	30	20
PERM-UP 25DF (lbs a.i. per acre)		0.10	0.15	0.15
PERM-UP 25DF (formulated oz per acre)		6.4	9.6	9.6

<b>CORN, SWEET</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Corn Earworm Corn Rootworm Beetles* Cutworms European Corn Borer Fall Armyworm Flea Beetle Hop Vine Borer Leafhoppers Southern Armyworm Stalk Borers	6.4 to 12.8 oz/A (0.1-0.2 lb a.i./A)	Apply every 3 to 5 days as needed. Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft.  *Pest does not occur on this crop in California.	Do not apply more than 51.2 oz product (0.8 lb a.i.) per acre per season. Do not apply at intervals less than 3 days.	1 day

<b>CORN, SWEET (Florida Only)</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Aster Leafhopper Corn Earworm Cutworm European Corn Borer Fall Armyworm Southern Armyworm	6.4 to 12.8 oz/A (0.1-0.2 lbs ai/A)	Apply every 3 to 5 days as needed. Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft.	Do not apply more than 51.2 oz product (0.8 lb a.i.) per acre per season. Do not apply at intervals less than 3 days.	1 day

<b>CUCURBIT VEGETABLES (Including Cantaloupes and Pumpkins)</b> (Including <b>Chayote</b> (fruit) ( <i>Sechium edule</i> ); <b>Chinese waxgourd</b> (Chinese preserving melon) ( <i>Bernincasa hispida</i> ); <b>Citron melon</b> ( <i>Citrullus lanatus</i> var. <i>citroides</i> ); <b>Cucumber</b> ( <i>Cucumis sativus</i> ); <b>Gherkin</b> ( <i>Cucumis anguria</i> ); <b>Gourd, edible</b> ( <i>Lagenaria</i> spp.) (includes hyotan; cucuzza); ( <b>Luffa spp.</b> ) (includes hechima); <b>Momordica spp.</b> (includes balsam apple, balsam pear, bitter melon, Chinese cucumber); <b>Muskmelon</b> (hybrids and/or cultivars of <i>Cucumis melo</i> ) (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; <b>Pumpkin</b> ( <i>Cucurbita</i> spp.); <b>Squash, summer</b> ( <i>Cucurbita pepo</i> var. <i>melopepo</i> ) (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini); <b>Squash, winter</b> ( <i>Cucurbita maxima</i> ; <i>C. moshata</i> ) (includes butternut squash, calabaza, hubbard squash); <b>C. mixta</b> ; <b>C. pepo</b> (includes acorn squash, spaghetti squash); <b>Watermelon</b> (includes hybrids and/or varieties of <i>Citrullus</i> spp.))				
Target Pests	Rate	Special Directions	Restrictions	PHI
Aphids Leafminers Squash Bug	(12.8 oz/A) (0.2 lbs ai/A)	Apply with ground equipment in a minimum spray volume of 20 gallons of finished spray per acre or in a minimum of 4 gallons per acre by aircraft.	Do not apply more than 76.8 oz product (1.2 lb a.i.) per acre per season (51.2 oz product/0.8 lb. a.i. for cantaloupes; 1.2 lb ai in HI). Do not apply at intervals less than 7 days.	0 day
Cabbage Looper Cucumber Beetle (adults) Cutworms Leafhoppers Melonworm Pickleworm Plant Bugs (including Lygus and Stink Bugs) Rindworms Squash Vine Borer	6.4 to 12.8 oz/A (0.1-0.2 lbs ai/A)			

EGGPLANT				
Target Pests	Rate	Special Directions	Restrictions	PHI
Colorado Potato Beetle	9.6 oz/A (0.15 lbs ai/A)	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or a minimum of 2 gallons per acre by aircraft. Apply using sufficient water to obtain uniform coverage. Apply as needed.	Do not apply more than 38.4 oz product (0.6 lb a.i.) per acre per season (64 oz product/1.0 lb a.i. in Hawaii). Do not apply at intervals less than 7 days.	3 days
Cabbage Looper Flea Beetles Vegetable Leafminer				

FILBERTS/HAZELNUTS				
Target Pests	Rate	Special Directions	Restrictions	PHI
Filbertworm Oblique Banded Leafroller	17.6 oz/A (0.25 lbs ai/A)	For full coverage apply 3.2 – 17.6 oz product (0.05 to 0.25 lb a.i.) per 100 gallons (based on 400 gallons finished spray per acre) and spray to run-off, OR for low volume concentrate application apply 17.6 oz product (0.25 lb a.i.) per acre (50 to 200 gallons finished spray per acre). For aerial application apply in a minimum of 10 gallons finished spray per acre. Apply when insects appear.	Do not apply more than 48 oz product (0.75 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.	14 days

<b>HORSERADISH</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Imported Crucifer Weevil ( <i>Baris lepidii</i> )	9.6 oz/A (0.15 lbs ai/A)	For foliar application, apply with ground equipment in a minimum spray volume of 20 gallons finished spray per acre. Make up to 3 foliar applications as needed to control weevil adults during oviposition.	Do not apply more than 28.8 oz product (0.45 lb a.i.) per acre per season. Do not apply at intervals less than 10 days.	30 days

<b>LEAFY VEGETABLES (except Brassica)</b> (Including: 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); (sweet anise, sweet fennel, finocchio)(fresh leaves and leaf petioles only); Lettuce, head and leaf*; Orach; Parsley; Purslane, garden; Purslane, winter;; Rhubarb; Spinach ** (including New Zealand and vine, Malabar spinach, Indian spinach); Swiss chard).				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Aphids Beet Armyworm Corn Earworm Cutworms European Corn Borer Fall Armyworm Green Cloverworm Leafminers Southern Armyworm Tobacco Budworm	6.4 to 12.8 oz/A (0.1-0.2 lbs ai/A)	Apply every 7 days (3 days for spinach) as needed by air or ground. Use sufficient water to obtain full coverage of foliage. Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft.	Do not apply more than 64 oz product (1.0 lb a.i.) per acre per season (76.8 oz product/1.2 lb a.i. in Hawaii). * For Lettuce (head and leaf), do not apply more than 1.2 lbs ai for Hawaii product per acre per season. **For Spinach (including New Zealand and vine, Malabar spinach, Indian spinach), do not apply more than 38.4 oz product (0.6 lb a.i.) per acre per season.  Do not apply at intervals less than 7 days (3 days for Spinach).	1 day
Alfalfa Looper Cabbage Looper Leafhoppers	3.2 to 12.8 (0.05 to 0.2)			

<b>MUSHROOMS</b> (Mushroom houses and adjacent premises areas)				
<b>Target Pests</b>	<b>Rate</b> ( )	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Mushroom Flies (Sciarid and Phorid adults)	Apply 6 oz product (0.1 lb a.i.) in 11 gallons of water or 8 level tablespoons in 3 gallons of water.  As a guide, use 1 gallon spray per 750 sq. ft. (400- 1,400 sq. ft.)	Spray directly to walls and ceilings as residual surface treatment only. Spray to point of runoff. Use PERM-UP 25DF prior to filling house, during cooldown, during spawning, up to pinning and between breaks. Treat as needed when flies appear. Use of high pressure hand wand is prohibited in mushroom houses.	Do not use when mushrooms are present. Do not make more than 20 applications prior to pinning of first break; apply no more than two applications between each break. Do not apply more than 30 applications total per crop of 5 breaks.	3 days

<b>ONIONS, BULB AND GARLIC</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Armyworms Cutworms Leafminers Onion Maggots (Adults) Onion Thrips Stink Bugs	Onion: (9.6 to 19.2 oz/A) (0.15-0.3 lbs ai/A)  Garlic: 9.6-12.8 oz/A (0.15-0.2 lbs ai/A)	Apply with ground equipment in a minimum of 20 gallons of finished spray per acre or in a minimum of 5 gallons per acre by aircraft. Begin applications when pests appear and repeat as necessary to maintain control. Use the higher label rates as Onion Thrips population increases and avoid rescue situations.	Onions: do not apply more than 64 oz product (1.0 lb a.i.) per acre per season. Do not apply at intervals less than 7 days. Garlic: do not apply more than 51.2 oz product (0.8 lb a.i.) per acre per season. Do not apply at intervals less than 10 days.	1 day

<b>PAPAYA</b> <b>(Florida use only)</b>				
<b>Target Pests</b>	<b>Rate oz/A (lbs ai/A)</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Aphids Brown Soft Scale Mealybug Papaya Fruit Fly Papaya Webworm Papaya Whitefly Scale Crawlers	9.6 (0.15)	Apply with ground equipment in a minimum of 25 gallons of finished spray per acre. Apply when insects first appear and repeat at 10 day intervals as needed to provide control.	Do not apply more than 48 oz product (0.75 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.	7 days

<b>PEACHES, NECTARINES</b>				
<b>Target Pests</b>	<b>Rate oz/A (lbs ai/A)</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Green Fruitworm Lesser Peach Tree Borer Oriental Fruit Moth Peach Twig Borer Rose Chafer Plum Curculio Tarnished Plant Bug	0.1-0.25 lb a.i./A (6.4 to 17.6 oz/A)	Apply with ground equipment using a minimum of 25 gallons of finished spray per acre or a minimum of 10 gallons per acre by aircraft. Spray to wet all foliage.	Do not apply more than 48 oz product (0.75 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not apply within 14 days of harvest. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.	14 days

<b>PEARS (Dormant through Delayed Dormant)</b>			
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>
Pear Psylla	12.8 to 25.6 oz/A (0.2-0.40 lbs ai/A)	Apply during the dormant through delayed dormant growth periods only. Apply in a minimum of 10 gallons of finished spray per acre by aircraft or a minimum of 25 gallons per acre by ground equipment. Use sufficient water to obtain uniform coverage.	Do not apply more than 41.6 oz product (0.75 lb a.i.) per acre per season Max 0.4 lbs ai/A. Do not apply at intervals less than 10 days. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.

<b>PEARS (Pre-Bloom)</b>			
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>
Codling Moth Green Fruitworm Pear Psylla	12.8 - 17.6 oz/A (0.2 -0.25 lbs ai/A)	Apply with ground equipment using a minimum of 25 gallons of finished spray per acre or a minimum of 10 gallons per acre by aircraft. Pre-bloom sprays can be applied from dormant through bud burst stages. Use sufficient water to obtain uniform coverage. Apply two pre-bloom sprays.	Do not apply more than 41.6 oz product (0.65 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.

<b>PEPPERS, BELL</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Cabbage Looper Corn Earworm Cutworms Flea Beetles Pepper Weevil Vegetable Leafminer	6.4 to 12.8 oz/A (0.1-0.2 lbs ai/A)	Apply using sufficient water to obtain uniform coverage. Apply as needed. Apply with ground equipment using a minimum of 10 gallons of finished spray per acre or a minimum of 2 gallons per acre by aircraft.	Do not apply more than 51.2 oz product (0.8 lb a.i.) per acre per season. Do not apply at intervals less than 5 days.	3 days
European Corn Borer	12.8 oz/A (0.2 lbs ai/A)			



PISTACHIOS				
Target Pests	Rate	Special Directions	Restrictions	PHI
Chinch Bug Leaf-footed Bugs Navel Orangeworm Peach Twig Borer Plant Bugs Stink Bugs	12.8 to 19.2 oz/A (0.2-0.3 lbs ai/A)	Use sufficient water to obtain full coverage of foliage. Apply PERM-UP 25DF in a minimum of 10 gallons of finished spray per acre by aircraft or by ground equipment in a minimum of 25 gallons of finished spray per acre. Use sufficient water to obtain full coverage of foliage.		0 days
Ants	19.2 (0.3)	Application should be after mowing of weed growth to insure maximum coverage of the soil surface. Overhead moisture after application will enhance activity. Nuts may be harvested on the day of application.	Do not apply more than 57.6 oz product (0.9 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not apply after 10% hull split. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.	

POTATOES				
Target Pests	Rate oz/A (lbs ai/A)	Special Directions	Restrictions	PHI
Aster Leafhopper Beet Armyworm Cabbage Looper Colorado Potato Beetle Cutworms European Corn Borer Potato Aphid Potato Flea Beetle Potato Leafhopper Potato Psyllid Potato Tuberworm Tarnished Plant Bug	6.4 to 12.8 (0.1-0.2)	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft. Use sufficient spray volume to obtain full coverage. Apply as needed.	Do not apply more than 51.2 oz product (0.8 lb a.i.) per acre per season. Do not apply at intervals less than 10 days.	14 days

<b>RANGE GRASS (New Mexico Only)</b>			
<b>Target Pests</b>	<b>Rate oz/A (lbs ai/A)</b>	<b>Special Directions</b>	<b>Restrictions</b>
Range Caterpillar	0.64 (0.01)	Apply using sufficient water to obtain uniform coverage. Apply with ground equipment using a minimum of 10 gallons of finished spray per acre or a minimum of 2 gallons per acre by aircraft. Cattle may be present during application.	Do not apply more than once per year. Do not harvest or feed hay to livestock.

<b>SOYBEANS</b>				
<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>	<b>PHI</b>
Bean Leaf Beetle Cabbage Looper Corn Rootworm Beetles Cutworms Flea Beetles Green Cloverworm Japanese Beetle Mexican Bean Beetle Potato Leafhopper Saltmarsh Caterpillar (Woollybear Caterpillar) Thistle Caterpillar Velvetbean Caterpillar	3.2 to 6.4 oz/A (0.05-0.1 lbs ai/A)	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft.	Do not apply more than 25.6 oz product (0.4 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not graze treated areas or feed soybean forage or hay.	60 days
Beet Armyworm Corn Earworm Soybean Looper Webworms	6.4 to 12.8 oz/A (0.1-0.2 lbs ai/A)			

TOMATOES, TOMATILLOS				
Target Pests	Rate	Special Directions	Restrictions	PHI
Beet Armyworm Cabbage Looper Colorado Potato Beetle Granulate Cutworm Hornworms Southern Armyworm Tomato Fruitworm Tomato Pinworm Vegetable Leafminers	3.2 to 12.8 oz/A (0.05-0.2 lbs ai/A)	Apply with ground equipment in a minimum of 10 gallons finished spray per acre or in a minimum of 2 gallons per acre by aircraft. Use sufficient water to obtain uniform coverage. May be applied up to the day of harvest.	Do not apply more than 38.4 oz product (0.6 lb a.i.) per acre per season (51.2 oz product/0.8 lb a.i. in Hawaii). Do not apply at intervals less than 10 days. Do not apply to cherry tomatoes or other varieties which produce fruit less than one inch in diameter.	0 days

WALNUTS				
Target Pests	Rate	Special Directions	Restrictions	PHI
Codling Moth Navel Orangeworm Walnut Husk Fly	17.6 oz/A (0.25 lbs ai/A)	For full coverage apply 0.05 to 0.1 lb a.i. per 100 gallons (based on 400 gallons finished spray per acre), spray to run-off; OR, for low volume application apply 0.25 lb a.i. per acre (25-200 gallons finished spray per acre). For aerial application, apply 0.25 lb a.i. in a minimum of 10 gallons of finished spray per acre. Use sufficient water to obtain uniform coverage. Apply when insects appear.	Do not apply more than 48 oz product (0.75 lb a.i.) per acre per season. Do not apply at intervals less than 10 days. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.	1 day

**ORNAMENTALS****CHRYSANTHEMUMS (Florida Only)**

<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>
Liriomyza Leafminer Flies	32 oz per 100 gallons of water (0.5 lb a.i. per 100 gallons of water)	Avoid spraying the blooms. PERM-UP 25DF may be applied on a weekly schedule. Cultivars may vary in sensitivity and a small number of plants should be treated to determine plant safety prior to commercial use.

**CONIFERS (Container and Field Grown)**

<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>
Nantucket Pine Tip Moth	6.4-12.8 oz/A (0.1-0.2lbs ai/A)	Begin application when adults appear and repeat at 5 to 7 day intervals or as needed throughout the season, except for conifers grown for seed where the retreatment interval is 28 days. Use sufficient water to obtain full coverage of foliage.	Harvesting of conifer seed is prohibited within 30 days of application.

**ORNAMENTAL NURSERY STOCK (Field Grown)**

<b>Target Pests</b>	<b>Rate</b>	<b>Special Directions</b>
Bagworm Beet Armyworm Cabbage Looper Citrus Thrips <i>Heliothis</i> spp. Lace Bug Leafhoppers Leafminers Whiteflies	6.4 to 12.8 oz per 100 gallons of water (0.1-0.2 lb a.i. per 100 gallons) of water	PERM-UP 25DF may be used to control specified pests on non-edible ornamentals and non-bearing plants of fruiting species. PERM-UP 25DF has demonstrated excellent plant safety; however, not all species and varieties have been tested. Before treating large numbers of a particular variety, treat a few plants and observe prior to full scale application.

PINE SEED ORCHARDS			
Target Pests	Rate	Special Directions	Restrictions
Coneworms Seed Bugs	0.2-0.4 lb ai/A (8-16 fl. oz/A)	For ground applications (low and high volume applications), use a final carrier solution of 25-400 gallons per acre depending on the type of sprayer system being used. Make up to 3 applications per season at 4 week intervals.	Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.  Harvesting of conifer seed cones is prohibited within 30 days of application.
	0.6 lb a.i./A (24 fl oz/A)	For aerial application, apply in a minimum of 5 gallons of finished spray per acre. Apply once per 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.			

ROSES (Field Grown)		
Target Pests	Rate	Special Directions
<i>Heliothis</i> spp.	6.4 to 12.8 oz/A (0.1 to 0.2 lbs ai/A)	Apply with ground equipment in a minimum of 10 gallons of finished spray per acre or in a minimum of 2 gallons per acre by aircraft.

ROSES (Greenhouse)		
Target Pests	Rate	Special Directions
Beet Armyworm Cabbage Looper Omnivorous Leafroller	12.8 oz (0.2 lb a.i.) per 100 gallons of water using standard spray equipment	Varieties may vary in their sensitivity to PERM-UP 25DF, and a small number of plants should be treated under local conditions to determine plant safety prior to commercial use.

ORNAMENTALS			
Ornamental	Target Pests	Rate	Special Directions
Asparagus Fern	Japanese Beetle Asparagus Beetle Lygus Bugs	6.4 oz (0.1 lb a.i.)	Apply when larval and adult stage of the asparagus beetle, lygus bugs and the adult stage of the Japanese beetle are present.
Christmas Trees (container and field grown)	Nantucket Pine Tip Moth	6.4-12.8 oz (0.1-0.2 lb a.i.)	Apply first application when adults appear and repeat at 5-7 day intervals or as needed throughout the season. Use sufficient water to obtain full coverage of foliage.

<b>PREMISES SPRAY</b>					
For Application in: Dairies, Barns, Feedlots, Stables, Poultry Houses, Swine and Livestock Houses					
<b>Target Pests</b>	<b>Method of Application</b>	<b>Dilute</b>	<b>Application Rate</b>	<b>Special Directions</b>	<b>Restrictions</b>
House Flies Stable Flies and other Manure Breeding Flies  Also aids in the reduction of Cockroaches, Mosquitoes and Spiders	Sprayer	6 oz* per 11 gallons water or 8 level tablespoons per 3 gallons of water  (* 1 oz of this powder equals 5 level teaspoonfuls. Make up only as required)	1 gallon per 750 square feet of surface area	Spray directly to walls and ceiling as residual surface treatment only. Re-treat as necessary but not more often than once every 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 sites.  Spoons must not be used for food purposes after use in measuring pesticides.	Do not treat manure or litter. Do not contaminate feed and water. Do not apply directly to livestock or poultry.

<b>RATE CONVERSION CHART</b>		
<b>Pounds A.I. per Acre</b>	<b>Formulation Ounces per Acre</b>	<b>Formulation Pounds per Acre</b>
0.05	3.2	0.2
0.10	6.4	0.4
0.125	8.0	0.5
0.15	9.6	0.6
0.175	11.2	0.7
0.20	12.8	0.8
0.40	25.6	1.6

**STORAGE AND DISPOSAL**

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

**Pesticide Storage:** 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, fold and roll back bags, clamp and close tightly. Do not put concentrate or dilute material into food or drink containers.

**Pesticide Disposal:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

**Container Handling: Nonrefillable container. Do not reuse or refill this container.**

For Rigid Container: Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container  $\frac{1}{4}$  full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For Non-Rigid Container: Completely empty bag into application equipment. Then dispose of empty bag in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

For Fiber Drums with Liners: Completely empty liner by shaking and tapping sides and bottom to loosen clinging particles. Empty residue into application equipment. Then offer for recycling if available or dispose of in a sanitary landfill or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke. If drum is contaminated and cannot be reused, dispose of it in the manner required for its liner.

**Dealer Must Sell in Original Package Only.**

**IMPORTANT INFORMATION  
READ BEFORE USING PRODUCT**

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

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

The Directions for Use of this product reflect the opinion of experts based on field use and tests, and must be followed carefully. It is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as manner of use or application, weather or crop conditions, presence of other materials or other influencing factors in the use of the product, which are beyond the control of UPL NA Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of UPL NA Inc. and Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold UPL NA Inc. and Seller harmless for any claims relating to such factors.

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