RESTRICTED USE PESTICIDE

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

GROUP 3A INSECTICIDE

Perm-UP® 3.2 EC

Insecticide

Active Ingredient

Permethrin*	36.8%
Other Ingredients**	63.2%
TOTAL	100.0%

* *cis/trans* ratio: Max. 42% (±) *cis* and min. 58% (±) *trans*
** Contains petroleum distillates.
Contains 3.2 pounds permethrin per gallon as an emulsifiable concentrate.

KEEP OUT OF REACH OF CHILDREN
CAUTION

FIRST AID:

IF SWALLOWED	• Immediately call a poison control center or doctor. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give any liquid to the person. • Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
IF IN EYES	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
IF INHALED	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth to mouth if possible. • Call a poison control center or doctor for further treatment advice.

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 Control Center at 1-866-673-6671.

NOTE TO PHYSICIAN: Contains petroleum distillates – vomiting may cause aspiration pneumonia.

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

EPA Reg. No. 70506-9
EPA Est. No. is indicated by the first letter of the batch number printed on this container:
A = 61842-CA-001, B = 37429-GA-02, C = 53883-TX-002

Net Contents: 1 Gallon, 30 Gallons, 55 Gallons

UPI United Phosphorus, Inc.
630 Freedom Business Center, Suite 402
King of Prussia, PA 19406
1-800-438-6071 • www.upi-usa.com

Department of Agriculture
STATE OF HAWAII
LICENSED
PERIOD 2014-2016 LIC. NO. 8026.9

Department of Agriculture
STATE OF HAWAII
LICENSED
PERIOD 2011-2013 LIC. NO. 8026.9

RECEIVED
JUL 2 8 2010
Pesticides Branch

Department of Agriculture
STATE OF HAWAII
LICENSED
PERIOD 2008-2010 LIC. NO.

PRECAUTIONARY STATEMENTS.
Hazards to Humans & Domestic Animals.

CAUTION. Harmful if swallowed, inhaled or absorbed through the skin. Avoid contact with skin, eyes or clothing. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Do not allow people or pets on treated surfaces until the spray has dried. Do not touch treated surfaces until the spray has dried.

Personal Protection Equipment (PPE)

Some materials that are chemical-resistant to this product are barrier laminate and Viton. If you want more options, follow the instructions for category G on an EPA chemical-resistance category selection chart.

Applicators using ULV cold foggers or fog/mist generators in indoor spaces must wear:

- Coveralls over long-sleeved shirt and long pants
- Chemical-resistant gloves
- Chemical-resistant footwear plus socks, and
- Chemical-resistant headgear, if overhead exposure.

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

- 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

See engineering controls for additional requirements.

Engineering Controls

Pilots must use an enclosed cockpit that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(6)].

Follow manufacturer's instruction for cleaning/maintaining PPE. If no such instructions are available 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 reuse them.

User Safety Recommendations:
Users should:

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

Environmental Hazards

This product is extremely toxic to fish and 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 by cleaning of equipment or disposal 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 overlying tile drainage systems that drain to surface waters.

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

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

Physical/Chemical Hazards

Do not use or store near heat or open flame.

DIRECTIONS FOR USE

RESTRICTED USE PESTICIDE

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

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

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

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 on this product that are covered by Worker Protection Standard.

Do not enter or allow worker entry to 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 any waterproof material.
- Shoes plus socks.

PROHIBITION: harvesting of conifer seed cones is prohibited within 30 days of application.

BUFFER ZONES

Vegetative Buffer Strip

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

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

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

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

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

Buffer Zone for ULV Aerial Application

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

Buffer Zone for Non-ULV Aerial Application

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

SPRAY DRIFT REQUIREMENTS

Wind Direction and Speed

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

Do not apply when the wind velocity exceeds 15 mph.

Temperature Inversion

Do not make aerial or ground applications into temperature inversions.

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

Droplet Size

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

Additional Requirements for Ground Applications

Wind speed must be measured adjacent to the application site on the upwind side, immediately prior to application. For ground boom applications, apply using a nozzle height of no more than 4 feet above the ground or crop canopy.

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

Additional Requirements for Aerial Applications

The spray boom should be mounted on the aircraft so 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.

Chemigation

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

Crop injury, lack of effectiveness, or illegal residues in the crop can result from non-uniform distribution of treated water. For questions concerning calibration consult the equipment manufacturer or your local State Extension Service representative. A person knowledgeable of the chemigation system and responsible for its operation, or person under the supervision of the person responsible, 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 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.

PERM-UP 3.2 EC should be applied continuously for the duration of the water application. PERM-UP 3.2 EC should be diluted in sufficient volume to ensure accurate application of the area to be treated. When using chemigation, a minimum of 0.1 inch per acre of irrigation water is recommended. Agitation generally is not required when a suitable diluent is used. A diluent test should be conducted to ensure that phase separation will not occur during dilution and application. Failure to achieve a uniform dilution throughout the time of application may result in undesirable residues or less than desirable control.

Commercial Impregnation and Application on Dry Bulk Fertilizers

PERM-UP 3.2 EC may be impregnated on dry bulk fertilizers. When applied as directed, PERM-UP 3.2 EC/dry bulk fertilizer mixtures provide insect control equal to that provided by the same rates of PERM-UP 3.2 EC applied in water.

The PERM-UP 3.2 EC/fertilizer mixtures may be surface applied or shallow incorporated. The higher rate should be used if incorporation is used.

Impregnation: Apply using a minimum of 200 pounds of dry bulk fertilizer per acre and up to a maximum of 450 pounds per acre with the recommended amount of PERM-UP 3.2 EC per acre. Use a closed rotary-drum mixer or a similar type of closed blender equipped with suitable spray equipment. The spray nozzle(s) should be in a position to provide a uniform, fine spray pattern over the tumbling fertilizer for thorough coverage. The physical properties of fertilizers vary particularly in liquid absorption capacity. When absorptivity is sufficient, simply spray impregnation of the fertilizer with PERM-UP 3.2 EC provides a satisfactory, dry mixture. If the absorptive capacity is inadequate, the use of a highly absorptive powder is required to provide a dry, flowable mixture. Microcel E (Johnson Manville Product Corporation) is a recommended absorbent powder. Generally less than 2% by weight of Microcel E is required. DO NOT impregnate PERM-UP 3.2 EC onto straight coated ammonium nitrate or straight limestone because these materials will not absorb the insecticide. Dry fertilizer blends containing mixtures of ammonium nitrate or limestone may be impregnated with PERM-UP 3.2 EC.

The amount of PERM-UP 3.2 EC actually required in the preparation of individual fertilizer mixtures should be determined carefully for each production operation. This is necessary to ensure that the amount of pesticide actually contained in the mixture applied to the soil represents the correct rate of use. Bulk fertilizer impregnated with PERM-UP 3.2 EC should be applied immediately, not stored.

All individual state regulations relating to bulk dry fertilizer blending, registration, labeling and application of the mixtures are the responsibility of the individual and/or company selling the fertilizer and PERM-UP 3.2 EC mixture.

GENERAL USE INFORMATION

Important:

PERM-UP 3.2 EC is toxic to fish. Exercise care when making applications near ponds, lakes, streams, reservoirs and other aquatic environments where fish are present.

For advice concerning current control practices with relation to specific local conditions, consult your local State Cooperative Extension or regulatory agencies.

PERM-UP 3.2 EC is formulated as an emulsifiable concentrate (EC) formulation and is to be diluted and applied as an emulsion. When tank mixing as an emulsion with other products, observe all precautions and limitations on the labels of each product in the mixture.

PERM-UP 3.2 EC can be tank-mixed with natural pyrethrin-containing products or Insect Growth Regulators (IGRs). Do not tank mix with dichlorvos (DDVP) or other fumigant products.

DIRECTIONS FOR APPLICATION

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

PERM-UP 3.2 EC is a 3.2 pounds per gallon formulation of the insecticide permethrin. Apply PERM-UP 3.2 EC when insects appear or feeding is noticed. The higher rate should be used as pest populations increase. Repeat the application as necessary to maintain control. Use sufficient water to obtain full coverage. With the exception of crops listed below, rotational crops should not be planted within 60 days of last application.

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

RATE CONVERSION CHART

POUNDS ACTIVE PER ACRE	FORMULATION OUNCES PER ACRE
0.05	2.0
0.10	4.0
0.15	6.0
0.20	8.0
0.25	10.0
0.30	12.0

Index to Crops Listed on this Label

Vegetable Crops
- Artichoke
- Asparagus
- Avocado
- Cole Crops (Brassica Leafy Vegetables)
- Collards and Turnips
- Corn, Sweet
- Corn, Sweet (Florida Only)
- Cucurbit Vegetables
- Eggplant
- Horseradish
- Leafy Vegetables (except Brassica)
- Onions, Bulb and Garlic
- Peppers, Bell
- Potatoes
- Tomatoes, Tomatillos

Tree Fruit and Nuts
- Almonds
- Apples
- Cherries
- Filberts
- Papaya (Florida Only)
- Peaches and Nectarines
- Pistachios
- Pears
- Walnuts

Other Crops
- Alfalfa
- Corn (Field), Field Corn Grown for Seed, Popcorn
  - Pre-emergent Use
  - Foliar Use
- Corn (Field), Field Corn Grown for Seed, Popcorn
  - At Plant Use
- Mushrooms
- Range Grass (New Mexico Only)
- Soybeans

Ornamentals
- Chrysanthemum
- Conifers (Container and Field Grown)
- Ornamental Nursery Stock (Field Grown)
- Pine Seed Orchards
- Roses (Field Grown)
- Roses (Greenhouse)

Lawn and Ornamental Uses

Other Uses
- Premises Spray
- Treatment of Preconstruction Lumber and Logs

VEGETABLE CROPS

ARTICHOKE		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Artichoke plume moth Leafminers	4 – 12 (0.1 – 0.3)	Do not apply more than 5 applications or 36 oz. product (0.9 lb. a.i.) per acre per season.

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 10 days.
- Applications may be made up to harvest.

ASPARAGUS		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Asparagus beetle Cutworms	2 – 4 (0.05 – 0.1)	Do not apply more than 16 oz. product (0.4 lb. a.i.) per acre per season.
Asparagus beetle Japanese beetle (Adult stage)* Lygus bugs Tarnished plant bug	4 (0.1)	Post harvest application only. Apply to the fern stage of the asparagus plant after spear harvest when larval and adult stages are present. * Not for control of this insect in California

- Apply by ground in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 7 days.
- Do not apply within 1 day of harvest.

AVOCADO		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Avocado caterpillar Avocado lace bug Avocado leafhopper Avocado leafroller Avocado looper Avocado tree girdler Avocado whitefly Brown soft scale Mirids Omnivorous looper Orange tortrix Scale crawlers Spanworm Thrips Twig borers	8 (0.2)	Do not apply more than 32 oz. product (0.8 lb. a.i.) per acre per season. Apply when insects first appear and repeat at 7 to 10 day intervals as needed to provide control.

- Apply by ground equipment in 25-400 gallons of finished spray per acre.
- Do not graze livestock in treated areas.
- Do not feed cover crops from treated areas to livestock.
- Do not apply at intervals less than 7 days.
- Do not apply within 7 days of harvest.

COLE CROPS – Brassica Leafy Vegetables			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Broccoli, Chinese Broccoli (gai lon, white flowering broccoli), Brussels Sprouts; Cauliflower; Cavalo broccolo, Kohlrabi	Cabbage looper Armyworm spp. Imported cabbageworm Diamondback moth Plant bugs Thrips Cabbage aphid*	2 – 4 (0.05 – 0.1)	Apply every 5 days as needed. Maximum rate for broccoli is 8 oz. product (0.2 lb. a.i.)/A. Do not apply more than 0.8 lb. a.i. per acre per season for broccoli, or 0.4 lb. a.i. per acre per season for Brussels sprouts and cauliflower.
Cabbage, Chinese Cabbage (napa, tight-headed varieties only)	Cabbage looper Imported cabbageworm Diamondback moth Southern white butterfly Cabbage aphid*	2 – 8 (0.05 – 0.2)	Apply every 5 – 10 days or as needed. Do not apply more than 16 oz. product (0.4 lb. a.i.) per acre per season (32 oz. product/0.8 lb. a.i. in Hawaii).
	Armyworm spp. Cutworms Flea beetles	4 – 8 (0.1 – 0.2)	

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 5 days.
- Do not apply within 1 day of harvest.

* Aids in the suppression only

COLLARDS and TURNIPS			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Collards (AR, AZ, GA, IL, NC, OK, SC, and TX only)	Beet armyworm Cabbage looper Corn earworm Cutworms Diamond back moth European corn borer Fall armyworm Green cloverworm Imported cabbageworm Leafhoppers Leafminer Southern armyworm Southern white butterfly Tobacco budworm Vegetable leafminer Aphids*	2 – 6 (0.05 – 0.15)	Apply with ground equipment only. Apply as needed. Do not exceed 8 applications. AR, TX: Do not apply more than 18 oz. product (0.45 lb. a.i.) per acre per season.
Turnips (FL, GA, IL, IN, OK, SC, TX, and WA only)	Beet armyworm Cabbage looper Corn earworm Cutworms Diamond back moth European corn borer Fall armyworm Green cloverworm Imported cabbageworm Leafhoppers Leafminer Southern armyworm Southern white butterfly Tobacco budworm Vegetable leafminer Aphids*	2 – 6 (0.05 – 0.15)	Apply with ground equipment only. Apply as needed. Do not exceed 8 applications. Do not graze treated areas or feed crop refuse to livestock. TX, IN: Do not apply more than 18 oz. product (0.45 lb. a.i.) per acre per season. SC, GA, FL, WA: Do not apply more than 18 oz. product (0.45 lb. a.i.) per acre per season.

- Apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 3 days.
- Do not apply within 1 day of harvest.

* Aids in the suppression only

CORN, SWEET		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Aster leafhopper Corn earworm Corn rootworm beetles* Cutworms European corn borer Fall armyworm Flea beetle Hop vine borer Leafhoppers Southern armyworm Stalk borers	4 – 8 (0.1 – 0.2)	Do not apply more than 32 oz. product (0.8 lb. a.i.) per acre per season. Apply every 3 to 5 days or as needed. * Pest does not occur on this crop in California

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 3 days.
- Do not apply within 1 day of harvest.

CUCURBIT VEGETABLES*		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Aphids Leafminers Squash bugs	8 (0.2)	For Cantaloupe, do not apply more than 32 oz. product (0.8 lb. a.i.) per acre per season (48 oz. product/1.2 lbs. a.i. in Hawaii). For all others, do not apply more than 48 oz. product (1.2 lbs. a.i.) per acre per season.
Cabbage looper Cucumber beetle (Adult) Cutworms Leafhoppers Melonworm Pickleworm Plant bugs (including Lygus and stink bugs) Rindworms Squash vine borer	4 – 8 (0.1 – 0.2)	
• Apply by air or ground equipment. By air, apply in a minimum of 4 gallons of water per acre. By ground, apply in a minimum of 20 gallons of water per acre. Use sufficient water to obtain full coverage of foliage. • Do not apply at intervals less than 7 days. • Applications may be made up to harvest.		
* Cucurbit vegetables include: **Chayote** (fruit), **Chinese waxgourd** (Chinese preserving melon), **Citron melon**, **Cucumber**, **Gherkin**, **Gourd (edible)** (includes hyotan, cucuzza), **Luffa spp.** (includes hechima, Chinese okra), **Momordica spp.** (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), **Muskmelon** (hybrids and/or cultivars of Cucumia melo, including true cantaloupe, cantaloupe, casaba, crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon), **Pumpkin**; **Summer Squash** (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), **Winter Squash** (includes butternut squash, calabaza, hubbard squash, C. mixta, C. pepo, acorn squash, spaghetti squash), **Watermelon** (includes hybrids and/or varieties of Citrulius spp.)		

EGGPLANT		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Cabbage looper Colorado potato beetle Flea beetles Vegetable leafminer	6 (0.15)	Do not apply more than 24 oz. product (0.6 lb. a.i.) per acre per season (1.0 in Hawaii). Apply as needed, using sufficient water to obtain uniform coverage.
• Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage. • Do not apply at intervals less than 7 days. • Do not apply within 3 days of harvest.		

HORSERADISH		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Imported crucifer weevil (Baris lepidii)	0.1% active solution (2 pts., 1 oz. per 100 gallons)	As a spring preplant dip, soak sets for 30 minutes and air-dry before planting.
	6 (0.15)	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 18 oz. product (0.45 lb. a.i.) per acre per season.
• Do not apply within 30 days of harvest. • Do not apply at intervals less than 10 days.		

LEAFY VEGETABLES (except Brassica)*		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Aphids Beet armyworm Corn earworm Cutworms European corn borer Fall armyworm Green cloverworm Leafminers Southern armyworm Tobacco budworm	4 – 8 (0.1 – 0.2)	For Celery, do not apply more than 40 oz. product (1.0 lb. a.i.) per acre per season (1.2 in Hawaii). For Spinach (including New Zealand and vine, Malabar and Indian spinach), do not apply more than 24 oz. product (0.6 lb. a.i.) per acre per season. For Lettuce (head and leaf), do not apply more than 32 oz. product (0.8 lb. a.i.) per acre per season (48 oz. product/ 1.2 lbs. a.i. in Hawaii).
Alfalfa looper Cabbage looper Leafhoppers	2 – 8 (0.05 – 0.2)	

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- For Spinach, do not apply at intervals less than 3 days. For all others, do not apply at intervals less than 7 days.
- Do not apply within 1 day of harvest.

* Leafy vegetables: **Amaranth** (leafy amaranth, Chinese spinach, tampala), **Arugula** (Roquette), **Cardoon**, **Celery**, **Chinese celery**, **Celtuce**, **Chervil**, **Chrysanthemum** (edible-leaved and garland), **Corn salad**, **Garden Cress**, **Upland Cress** (yellow rocket, winter cress), **Dandelion**, **Dock** (sorrel), **Endive** (escarole), **Florence fennel** (finochio), **Head and Leaf Lettuce**, **Orach**, **Parsley**, **Garden Purslane**, **Winter Purslane**, **Radicchio** (red chicory), **Rhubarb**, **Swiss chard**, **Spinach** (including New Zealand and vine, Malabar spinach, Indian spinach).

ONIONS, BULB		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Armyworms Onion thrips	6 – 12 (0.15 – 0.3)	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. Do not apply more than 40 oz. product (1.0 lb. a.i.) per acre per season.
Cutworms Leafminers Onion maggots (Adults) Stink bugs	4 – 12 (0.1 – 0.3)	

- Apply by air or ground equipment. By air, apply in a minimum of 5 gallons of water per acre. By ground, apply in a minimum of 20 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 7 days.
- Do not apply within 1 day of harvest.

GARLIC		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Armyworms Onion thrips	6 – 8 (0.15 – 0.2)	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. Do not apply more than 32 oz. product (0.8 lb. a.i.) active ingredient per acre per season.
Cutworms Leafminers Onion maggots (Adults) Stink bugs	4 – 8 (0.1 – 0.2)	

- Apply by air or ground equipment. By air, apply in a minimum of 5 gallons of water per acre. By ground, apply in a minimum of 20 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 10 days.
- Do not apply within 1 day of harvest.

PEPPERS, BELL		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Cabbage looper Corn earworm Cutworms Flea beetle Pepper weevil Vegetable leafminer	4 – 8 (0.1 – 0.2)	Do not apply more than 32 oz. product (0.8 lb. a.i.) per acre per season.
European corn borer	8 (0.2)	

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 5 days.
- Do not apply within 3 days of harvest.

POTATOES		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
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	4 – 8 (0.1 – 0.2)	Do not apply more than 32 oz. product (0.8 lb. a.i.) per acre per season.

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- PERM-UP 3.2 EC also may be applied using refined non-volatile vegetable oil for control of listed pests. PERM-UP 3.2 EC should be diluted with oil and applied in a minimum of one quart total volume per acre using equipment calibrated to give adequate coverage. Use sufficient spray volume to obtain full coverage.
- Do not apply at intervals less than 10 days.
- Do not apply within 14 days of harvest.

TOMATOES, TOMATILLOS		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Beet armyworm Cabbage looper Colorado potato beetle Granulate cutworm Hornworms Southern armyworm Tomato fruitworm Tomato pinworm Vegetable leafminers	2 – 8 (0.05 – 0.2)	Do not apply more than 24 oz. product (0.6 lb. a.i.) per acre per season (0.8 in Hawaii). Do not apply to cherry tomatoes or other varieties which produce fruit less than one inch in diameter.

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage.
- Do not apply at intervals less than 7 days.
- May be applied up until harvest.

TREE FRUIT AND NUTS

ALMONDS		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Navel orangeworm Peach twig borer	10 (0.25)	Apply when insects appear and repeat as required to maintain control. Apply by air or ground equipment. By air, apply in a minimum of 15 gallons of water per acre. By ground, apply in 25-400 gallons of finished spray per acre.
Ants	10 (0.25)	Apply by ground equipment only in a minimum of 15 gallons of water per acre. Application should follow mowing of weed growth to ensure maximum coverage of the soil surface. Overhead moisture following application will enhance activity.

- Do not apply more than 32 oz. product (0.8 lb. a.i.) per acre during hull split.
- Do not apply more than 30 oz. product (0.75 lb. a.i.) per acre per season.
- 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.
- Do not apply within 7 days of harvest.

APPLES		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Green fruitworm Oblique banded leafroller Plum curculio Redbanded leafroller Rosy apple aphid Spotted tentiform leafminer Tarnished plant bug White apple leafhopper	10 (0.25)	Do not apply more than 20 oz. product (0.5 lb. a.i.) per acre per season. Apply when insects appear and repeat as required to maintain control. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.

- Apply by ground equipment only. Apply in 25-400 gallons of finished spray per acre.
- Do not apply at less than 10 day intervals.
- Do not apply after petal fall.

CHERRIES (including sweet and tart cherries)		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Green fruitworm Lesser peach tree borer Plum curculio Redbanded leafroller Rose chafer Tarnished plant bug	4 – 8 (0.1 – 0.2)	Apply when insects first appear. East of the Rockies: Do not exceed 6 applications per season, with no more than 4 applications after petal fall. West of the Rockies: Do not apply more than 4 applications per season, with no more than 3 applications after petal fall. Do not apply more than 24 oz. product (0.6 lb. a.i.) per acre per season.

- Apply by ground equipment only. Apply in 25-400 gallons of finished spray per acre.
- Do not graze livestock in treated areas.
- Do not feed cover crops from treated areas to livestock.
- Do not apply at less than 10 day intervals.
- Do not apply within 3 days of harvest.

FILBERTS/HAZELNUTS		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Filbertworm Oblique banded leafroller	10 (0.25)	Do not apply more than 30 oz. product (0.75 lb. a.i.) per acre per season. Apply when insects appear. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.
• Apply by air or ground equipment. By air, apply in a minimum of 10 gallons of water per acre. By ground, apply in 25-400 gallons of finished spray per acre. • Do not apply at intervals less than 10 days. • Do not apply within 14 days of harvest.		

PAPAYA (Florida Only)		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Aphids Brown soft scale Mealybug Papaya fruit fly Papaya webworm Papaya whitefly Scale crawlers	6 (0.15)	Do not apply more than 30 oz. product (0.75 lb. a.i.) per acre per season. Spray to wet all foliage. Apply when insects first appear and repeat at 7-10 day intervals as needed to provide control. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.
• Apply by ground equipment only. Apply in 25-400 gallons of finished spray per acre. • Do not apply at intervals less than 10 days. • Do not apply within 7 days of harvest.		

PEACHES and NECTARINES		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Green fruitworm Lesser peach tree borer Oriental fruit moth Peach twig borer Plum curculio Rose chafer Tarnished plant bug	4 – 10 (0.1 – 0.25)	Do not apply more than 30 oz. product (0.75 lb. a.i.) per acre per season. Spray to wet all foliage. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.
• Apply by air or ground equipment. By air, apply in a minimum of 10 gallons of water per acre. By ground, apply in 25-400 gallons of finished spray per acre. • Do not apply at interval less than 10 days. • Do not apply within 14 days of harvest.		

PISTACHIOS		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Leaffooted bugs Naval orangeworm Peach twig borer Plant bugs Stink bugs	8 – 12 (0.2 – 0.3)	Use sufficient water to obtain full coverage of foliage.
Ants	12 (0.3)	Application should follow mowing of weed growth to ensure maximum coverage of the soil surface. Overhead moisture following application will enhance activity.

- Apply by air or ground equipment. By air, apply in a minimum of 10 gallons of water per acre. By ground, apply in 25-400 gallons of finished spray per acre.
- Do not apply after 10 percent hull split.
- Do not apply more than 36 oz. product (0.9 lb. a.i.) per acre per season.
- 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.
- May be applied up until harvest.

PEARS			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Pears (Dormant through Delayed Dormant)	Pear psylla	8 – 16 (0.2 – 0.4)	May be combined with 2 to 8 gallons of spray oil per acre. Apply during the dormant through delayed dormant growth periods only.
Pears (Pre-Bloom)	Codling moth Green fruitworm Pear psylla	10 (0.25)	Pre-bloom sprays can be applied from dormant through bud burst stages.

- Apply by air or ground equipment. By air, apply in a minimum of 10 gallons of water per acre. By ground, apply in 25-400 gallons of finished spray per acre. Use sufficient water to obtain uniform coverage.
- Do not graze livestock in treated areas.
- Do not apply more than 26 oz. product (0.65 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.

WALNUTS		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Codling moth Navel orangeworm Walnut husk fly	10 (0.25)	Do not apply more than 30 oz. product (0.75 lb. a.i.) per acre per season. Apply when insects appear. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock.

- Apply by air or ground equipment. By air, apply in a minimum of 10 gallons of water per acre. By ground, apply in 25-400 gallons of finished spray per acre. Use sufficient water to obtain uniform coverage.
- Do not apply at intervals less than 10 days.
- Do not apply within 1 day of harvest.

OTHER CROPS

ALFALFA			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Alfalfa Alfalfa Grown for Seed (Includes lucerne, sainfoin, holy clover, esparcet, birdsfoot trefoil and varieties and/or hybrids of these)	Alfalfa caterpillar Armyworms Blue alfalfa aphid Cutworms Green cloverworm Green peach aphid Loopers Pea aphid Spotted alfalfa aphid Velvetbean caterpillar Webworms	2 – 8 (0.05 – 0.2)	Do not apply more than 8 oz. product (0.2 lb. a.i.) per cutting. Use higher recommended dosage for increased pest pressure or for increased residual pest control. Avoid application when bees are actively foraging by applying during the early morning or during the evening hours.
	Alfalfa weevil Cucumber beetle Egyptian alfalfa weevil Meadow spittlebug Plant bugs (including *Lygus* spp.) Potato leafhopper Stink bugs	4 – 8 (0.1 – 0.2)	

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use higher gallonage, 5-10 gallons by air or 20 by ground, of finished spray per acre when foliage is dense and/or when pest populations are high.
- May be applied up until harvest when rates of 0.1 pound per active per acre or less are used. When rates greater than 4 oz. product (0.1 lb. a.i.) are used, do not apply within 14 days of harvest.
- Do not apply at intervals less than 30 days.
- Apply only to fields planted to pure stands of alfalfa.

CORN (FIELD), FIELD CORN GROWN FOR SEED, POPCORN			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Field Corn, Field Corn Grown for Seed, Popcorn (Pre-emergent Use)	Armyworm Cutworm Stalk borers	4 – 6 (0.1 – 0.15) as a broadcast spray OR 0.3 – 0.6 oz. per 1,000 linear feet row (based on a 4" band and 40" row spacing)	May be applied as a preplant incorporated, pre-emergence, or at planting time application. Apply in the time period from 5 days prior to planting up to emergence of the crop. Apply as a broadcast spray by ground or air or 4-15 inch band using sufficient spray volume to achieve adequate coverage. Linear row calculations should be used proportional to the standard Band Width/Row Width formula to adjust rates for different band widths or row spacings. Use higher rates of PERM-UP 3.2 EC when incorporating into the soil without exceeding the recommended dosage. When using tank mixes, observe all restrictions and precautions which appear on the labels of these products. Provide constant agitation during mixing and application to keep the mixture in solution. Do not apply more than 18 oz. product (0.45 lb. a.i.) per acre per season. When treating for stalk borers, PERM-UP 3.2 EC must be applied when or shortly before the stalk borer larvae are moving into the corn from surrounding weeds and grasses. Mowing or burndown herbicide is suggested to initiate movement. For control of corn earworm, apply just before silking and continue as necessary to maintain control.
Field Corn, Field Corn Grown for Seed, Popcorn (Foliar Use)	Armyworm (including Fall armyworm) Corn borer European, Southwestern Corn earworm Corn rootworm beetles Cutworm Flea beetle Hop vine borer Stalk borers Webworms	4 – 6 (0.1 – 0.15)	
	Western bean cutworm	2 – 4 (0.05 – 0.1)	

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage. Maximum rate is 6 oz. product (0.15 lb. a.i.) per acre.
- Do not apply at intervals less than 7 days.
- Do not apply within 30 days of harvest of grain or fodder (stover).
- Forage may be harvested on the day of application.

CORN (FIELD), FIELD CORN GROWN FOR SEED, POPCORN			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Field Corn, Field Corn Grown for Seed, Popcorn (At Plant Use)	Armyworm Cutworm Seed corn maggot* Wireworm*	0.3 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 3.2 EC needs for each acre. * Not for use in California

Row Spacings (inches)	40	30	20
PERM-UP 3.2 EC (ounces per acre)	4.0	6.0	8.0
PERM-UP 3.2 EC (pounds a.i. per acre)	0.10	0.15	0.20

MUSHROOMS (Mushroom Houses and Adjacent Premise Areas)		
TARGET PESTS	**RATE OZ. (LBS. A.I.)**	**REMARKS**
Mushroom flies (Sciarid and Phorid Adults)	2 – 2.5 (0.05 – 0.0625)	Preparation of the building prior to fogging: (1) Close all doors, windows, and ventilators, (2) Lock or barricade all entrances, turn off pilot lights, post warning signs, and take precautions to prevent persons and animals from entering the area. Use prior to filling the house, during cool-down, during spawning, up to pinning, and between breaks. Do not use when mushrooms are present. Treat once daily as needed when flies appear. Do not make more than 20 applications prior to pinning of first break; apply no more than two applications between each break. Do not apply more than 30 applications total per crop of 5 breaks. Length of exposure time should be limited to 1 hour; then ventilate the house. Use fans to ventilate in houses that do not have forced air circulation. Wear a respirator with either an organic vapor-removing cartridge with a pre-filter approved for pesticides (MSHA/NIOSH approval number prefix TC-23C), or a canister approved for pesticides (MSHA/NIOSH approval number prefix TC-14G).

- Apply in 30 ounces of water or suitable diluent. Use 1 quart of solution per standard double house (35,000 cu. ft.: 8,000 sq. ft.).
- Apply as a fogging or aerosol treatment.
- Do not apply within 3 days of harvest.
- Use of high pressure hand wand is prohibited in mushroom houses.

RANGE GRASS (New Mexico Only)		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Range caterpillar	0.4 (0.1)	Apply as needed. Do not apply more than once per year. Cattle may be present during application.

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of finished spray per acre. Use sufficient volume to obtain uniform coverage.
- Do not harvest or feed hay to livestock.

SOYBEANS		
TARGET PESTS	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Bean leaf beetle Cabbage looper Corn rootworm beetle Cutworms Flea beetle Green cloverworm Japanese beetle Mexican bean beetle Potato leafhopper Saltmarsh caterpillar (Woolybear caterpillar) Thistle caterpillar Velvetbean caterpillar	2 – 4 (0.05 – 0.1)	Do not apply more than 16 oz. product (0.4 lb. a.i.) per acre per season. Do not graze treated areas or feed soybean forage or hay.
Beet armyworm Corn earworm Soybean looper Webworms	4 – 8 (0.1 – 0.2)	

- Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of water per acre.
- PERM-UP 3.2 EC may also be applied using refined non-volatile vegetable oil for control of listed pests. PERM-UP 3.2 EC should be diluted with oil and applied in a minimum of 1 quart total volume per acre using equipment calibrated to give adequate coverage. When applying in water by aircraft, 1 quart of oil may be substituted for 1 quart of water per gallon of finished spray.
- Do not apply at intervals less than 10 days.
- Do not apply within 60 days of harvest.

ORNAMENTALS

CHRYSANTHEMUMS			
CROP	**TARGET PESTS**	**RATE OZ. (LBS. A.I.)**	**REMARKS**
Chrysanthemums	Liriomyza leafminer flies	20 (0.5) per 100 gallons of water (1 teaspoon per gallon)	Avoid spraying the blooms. May be applied on a weekly schedule.

- Caution: PERM-UP 3.2 EC has demonstrated excellent plant safety; however, not all cultivars have been tested. Before treating large numbers of plants of a particular cultivar, treat a few plants and observe prior to full scale application.

CONIFERS (Container and Field Grown)			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Conifers (container and field grown)	Nantucket pine tip moth	4 – 8 (0.1 – 0.2)	Begin application when the adults appear and repeat at 5 to 7 day intervals or as needed throughout the season.

- PERM-UP 3.2 EC may be diluted in a non-volatile vegetable oil or water in a minimum of 1 gallon of finished spray per acre using equipment calibrated to give adequate coverage.

ORNAMENTAL NURSERY STOCK (Field Grown)			
CROP	**TARGET PESTS**	**RATE OZ. (LBS. A.I.)**	**REMARKS**
Ornamental nursery stock (field grown)	Bagworm Beet armyworm Cabbage looper Citrus thrips Lace bug Leafhoppers Leafminers Whiteflies	4 – 8 (0.1 – 0.2) per 100 gallons of water	PERM-UP 3.2 EC may be used to control specified pests on non-edible ornamentals and non-bearing plants of fruiting species.
• Caution: Marginal leaf burn may occur on Salvia, Dieffenbachia and Pteris Fern. Application to blooming plants may cause browning of petals. • PERM-UP 3.2 EC has demonstrated excellent plant safety; however, not all species and cultivars have been tested. Before treating large numbers of plants of a particular variety, treat a few plants and observe prior to full scale application.			

PINE SEED ORCHARDS			
CROP	**TARGET PESTS**	**RATE OZ.**	**REMARKS**
Pine seed orchards	Coneworms Seed bugs	8 in 100 gallons of water (0.025% dilution by weight)	For high volume sprayers, apply 5 to 10 gallons of finished spray per tree.
		42 in 100 gallons of water (0.125% dilution by weight)	For low volume sprayers, apply 100 gallons per tree.
		30 per acre	For aerial application, use in not less than 10 gallons of water.
To control webbing coneworm – make first application within 1 week of female flower closure or peak pollen flight. To control other coneworms and seed bugs – make first application within 30 days following female flower closure. Repeat applications at 4 week intervals, but do not apply more than 6 applications.			
• Do not graze livestock in treated areas. • Harvesting of conifer seed cones is prohibited within 30 days of application. • Do not feed cover crops from treated areas to livestock. • Avoid contact with open water.			

ROSES (Field Grown)			
CROP	**TARGET PESTS**	**RATE FL. OZ./A (LBS. A.I./A)**	**REMARKS**
Roses (field grown)	Heliothis spp.	4 – 8 (0.1 – 0.2)	
• Apply by air or ground equipment. By air, apply in a minimum of 2 gallons of water per acre. By ground, apply in a minimum of 10 gallons of finished spray per acre.			

ROSES (Greenhouse)			
CROP	**TARGET PESTS**	**RATE OZ. (LBS. A.I.)**	**REMARKS**
Roses (greenhouse)	Beet armyworm Cabbage looper Omnivorous leafroller	8 (0.2) per 100 gallons of water	Spray plant foliage thoroughly using standard spraying equipment including but not limited to hand-held, backpack, or power sprayers.
• PERM-UP 3.2 EC is not phytotoxic to the following varieties of greenhouse roses: Ballena, Bettina, Cara Mia, Coquette, Excitement, Forever Yours, G. Wave, Jack Frost, Jr. Bridesmaid, Matador, Paul's Pink, Samantha, Seventeen, Sonia, Town Crier, Tropicana and Visa. Other varieties may vary in their sensitivity to PERM-UP 3.2 EC, and a small number of plants should be treated under local conditions to determine plant safety prior to commercial use.			

LAWN AND ORNAMENTAL USES
(Including Field and Container Grown Nursery Stock, Greenhouses, Interiorscapes and Plantscapes, Lawns, Trees, and Shrubs)

PERM-UP 3.2 EC may be used to control insect pests on ornamentals and lawns in landscaped areas around residential, institutional, public, commercial and industrial buildings, parks, recreational areas and athletic fields.

PLANT	PEST	TREATMENT RATE	SPECIFIC APPLICATION INSTRUCTIONS
Ornamental Plants, foliage and flowering plants, evergreens, woody and herbaceous non-edible ornamentals and non-bearing plants of fruiting species in landscaped areas around industrial, residential and commercial buildings, non-crop areas, nurseries and greenhouses; and, for treatment of plants intended for aesthetic purposes in interior gardens and plantscapes.	Ants Aphids Bagworm Beet armyworm Birch leafminer Cabbage looper Cankerworms Citrus thrips Coneworms* Fungus gnat Gypsy moth caterpillars Heliothis spp. Japanese beetles Lace bug Leaf feeding caterpillars Leafhoppers Leafminers Leafrollers Lygus bugs Mealybugs Nantucket pine tip moth* Pine sawflies Plant bugs Root weevils (Adult) Seed bugs* Tent caterpillars Webworms Whiteflies Zimmerman pine moth	4 to 8 fluid ounces per 100 gallons – or – broadcast 4 to 8 fluid ounces per acre	Apply sufficient volume of water to adequately cover foliage. Use higher rate for moderate to high infestations. Direct application to blooms may cause browning of petals. Marginal leaf burn may occur on Salvia, Dieffenbachia and Pteris Fern. * For control of coneworms, Nantucket pine tip moth and seed bugs in evergreens: Begin application when adults appear. Repeat applications may be made on 5-7 day intervals as needed. To control webbing coneworms make first application just prior to peak pollen flight. To control other coneworms and seed bugs, make application 30 days following flower closure. Mix 8 oz. in 100 gals. of water and apply 5 to 10 gals. of spray per tree.
Ornamental Trees	Clearwing moth borers: Ash borer, Banded ash clearwing, Dogwood borer, Lesser peachtree borer, Lilac borer, Oak borer, Peachtree borer, Rhododendron borer	1 to 2 quarts per 100 gallons	Treat thoroughly lower branches and trunk area but not to the point of runoff prior to adult emergence. Emergence varies according to host tree, environmental conditions and geography of the country.
	Bark Beetles: Dendroctonus spp., Ips spp., Elm bark beetles, Mountain pine beetle, Pine engravers, Turpentine beetles, Western pine beetle Coleopteran borers: Bronze birch borer, Flatheaded appletree borer	2 to 5 quarts per 100 gallons	Thorough coverage of bark on scaffold limbs to the ground level of the trunk is recommended for best control.
Lawns (around residential, commercial, industrial, institutional, and public buildings, parks, recreational areas, and athletic fields) and grass nurseries	Ant mounds Ants Armyworm Centipedes Chinchbugs Crickets Earwigs Fire ants Firebrats Fleas[1] Ground beetles Millipedes Mole crickets Pillbugs Scorpions Silverfish Sod webworm Sowbugs Spiders	0.4 to 0.8 fluid ounces per 1,000 square feet	Apply using 4 – 25 gallons of spray volume. Use higher rate for moderate to high infestations. Do not apply more than 40 oz. product (2.0 lbs. a.i.) per acre per year. [1] Fleas: Mix 0.4 – 0.8 fl. oz. product (0.01 to 0.02 lb. a.i.) in 4 to 25 gallons of water per 1,000 square feet. Use the higher rate for fast knockdown and increased residual control. Dense or excessive (greater than 3 inches) lawn height and arid conditions may require higher volume application rates. Repeat application if necessary. Application in combination with compatible surfactants or wetting agents may enhance penetration.

OTHER USES

PREMISES SPRAY (For Agricultural Use Only)			
SITE	**TARGET PESTS**	**DILUTE**	**REMARKS**
For Application In: Dairies, Barns, Feedlots, Stables, Poultry houses, Swine and Livestock houses	House flies, Stable flies and other manure breeding flies Also aids in the reduction of Cockroaches, Mosquitoes and Spiders	4 oz. product (0.1 lb. a.i.) to 12.5 gallons of water Apply by sprayer at 1 gallon per 750 sq. ft. of space	Spray directly to walls and ceiling as residual surface treatment only. Re-treat as necessary, but not more often than once every 2 weeks. Do not treat manure or litter.
• The use of any residual fly spray should be supplemental with proper manure management and general sanitation to reduce or eliminate fly breeding sites. • Do not apply directly to livestock or poultry. • Avoid contamination of feed and water.			

TREATMENT OF PRECONSTRUCTION LUMBER AND LOGS

General Information

PERM-UP 3.2 EC should be diluted. To prepare the spray, dilute PERM-UP 3.2 EC as shown in the following spray dilution chart:

GALLONS OF SPRAY MIXTURE DESIRED	GALLONS OF PERM-UP 3.2 EC FOR 0.5% SOLUTION	GALLONS OF PERM-UP 3.2 EC FOR 0.75% SOLUTION	GALLONS OF PERM-UP 3.2 EC FOR 1.0% SOLUTION
40	1/2	3/4	1
80	1	1 1/2	2
200	2 1/2	3 3/4	5
400	5	7 1/2	10
800	10	15	20

Directions for Application

To protect unseasoned lumber and logs from wood destroying insects, such as Termites, Carpenter Ants and Beetles (Ambrosia, Powder-post, Old house borers and others), totally treat wood with a 0.5% to 1.0% solution of PERM-UP 3.2 EC. This solution can be applied by various methods including spraying, brushing, dipping, and pressure treatment. Frequent monitoring of dip and pressure systems are necessary to insure that the desired level of PERM-UP 3.2 EC is maintained. Wood can be handled after treatment when dry.

1. For dip treatments, the wood should be totally submersed in the solution until thoroughly wet and then allowed to dry in a suitable location. Dipping solutions to which PERM-UP 3.2 EC has been added should be agitated before use if left unused for long periods of time. Sediment, debris and other deposits should be periodically cleaned from the tank.
2. For pressure treatments the wood should be placed in the treatment chamber, the PERM-UP 3.2 EC solution added and the system pressurized up to 250 psi for up to one hour depending on the density and type of wood treated. After the pressure is released and the system drained, the wood should be placed in a suitable location for drying.
3. For spray treatments, the wood should be sprayed thoroughly including back and ends.
4. For brush treatments, all parts of wood surfaces should be thoroughly treated.

STORAGE AND DISPOSAL

Pesticide Storage: Store at temperatures above 40°F (5°C).

If feasible, shake container well before using. If crystals form, warm to room temperature by placing container in a room at ambient temperature 70°F (21°C) until crystals dissolve.

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

Keep out of reach of children and animals.

Store in a dry place and avoid excess heat in storage. Store in original containers only.

Carefully open containers. After partial use, replace lids and close tightly. Do not put concentrate or dilute material into food or drink containers. Do not contaminate other pesticides, fertilizers, water, food, or feed by storage or disposal.

In case of spill, avoid contact, isolate area and keep out animals and unprotected persons. To confine spill, dike surrounding area or absorb with sand, cat litter, commercial clay or gel absorbents. If dry material, cover to prevent dispersal. Place damaged package in a holding container. Identify contents.

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

Container Disposal: Nonrefillable container. Do not reuse or refill this container. Clean container promptly after emptying.

[Containers less than 5 gallons] Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. 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.

[Containers greater than 5 gallons] Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. Then offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

ATTENTION

Dealers Must Sell in Original Packages 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 United Phosphorus, Inc. or Seller. Handling, storage, and use of the product by Buyer or User are beyond the control of United Phosphorus, Inc. and Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus, Inc. and Seller harmless for any claims relating to such factors.

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