

70506-9

8/5/2002

1/30



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

WASHINGTON, D.C. 20460

AUG 5 2002

OFFICE OF PREVENTION, PESTICIDES AND TOXIC SUBSTANCES

United Phosphorus, Inc.
c/o Ms. Elizabeth A. Brown
ChemReg International, LLC
2239-H Tacketts Mill Drive
Lake Ridge, VA 22192-3026

Subject: Amendment Adding Environmental Hazards Statement
and Non-Food Me-Too Uses
Perm-Up 3.2EC Insecticide
EPA Reg. No.: 70506-9
Your Submission Dated June 21, 2002, as Amended by FAX July 30, 2002

Dear Ms. Brown:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable subject to the comments listed below. Two (2) copies of the finished labeling must be submitted prior to releasing the product for shipment. A stamped copy of the label is enclosed for your records.

1. In the directions for use on alfalfa on page 18, you must make the following changes:
 - Delete "Clover". A tolerance for residues of permethrin in or on clover has not been established; nor has this use been approved for permethrin. It was approved in error on this product label at registration. [NOTE: The species that are listed in parentheses after "Clover" are not types of clover. They are species of the plant genera *Onobrychio* and *Lotus* which are covered by the existing tolerance for alfalfa (Refer to 40 CFR §180.1(h)). Accordingly, you may retain these species on the label under the crop site, alfalfa: lucerne, sainfoin, holy clover, esparcet, birdsfoot trefoil and varieties and/or hybrids of these.
 - Add the restriction "Apply only to fields planted to pure stands of alfalfa." This restriction is necessary to prevent the product's use on mixed stands of alfalfa and other crops (grasses, small grains and other legumes) for which there are no permethrin tolerances.

2. In the directions for Lawn and Ornamental Uses on pages 24-25, you must make the following changes:
 - Change "Tengard AG" to "Perm-Up 3.2EC Insecticide". The old product name appears in two locations within this section.

- Revise the "Ornamental Plants" listing in the left-hand column to include use in nurseries and greenhouses. The revised listing should read: 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 landscapes."
- Add an "s" to "ornamental" in the first line under the heading to this section ("... insect pests on ornamentals and lawns ..."

If you have any questions regarding this action, please contact Susan Stanton of my team at (703) 305-5218.

Sincerely,



George T. LaRocca
 Product Manager 13
 Insecticide Branch
 Registration Division (7505C)

Enclosure

3/30

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

PERM-UP 3.2EC Insecticide

EPA Reg. No. 70506-9

EPA Est. No. 53883-TX-002

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.

ACCEPTED
with COMMENTS
In EPA Letter Dated:
AUG 5 2002

**Under the Federal Insecticide,
 Fungicide, and Rodenticide Act,
 as amended, for the pesticide
 registered under EPA Reg. No.
70506-9**

KEEP OUT OF REACH OF CHILDREN

CAUTION

FIRST AID: Have the product container or label with you when calling a poison control center or doctor, or going for treatment.	
IF SWALLOWED	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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
FOR 24-HOUR EMERGENCY MEDICAL ASSISTANCE, CALL 1-800-F-A-S-T-M-E-D (327-8633)	
FOR CHEMICAL EMERGENCY: Spill, leak fire, exposure or accident call CHEMTREC 1-800-424-9300	
NOTE TO PHYSICIAN: Contains petroleum distillates – vomiting may cause aspiration pneumonia	

Net Contents:

United Phosphorus Inc.
 423 Riverview Plaza
 Trenton, NJ 08611

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.

Environmental Hazards

This product is highly toxic to bees exposed to treatment and for 3 days following treatment. Do not apply this pesticide to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period. The 3 day limitation does not apply if the applicator operates in a state with a formal, state-approved bee protection program, and the applicator follows all applicable requirements of the state-approved program designed to ensure that managed bees are not present in the treatment area during this time period.

This product is extremely toxic to fish and aquatic 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 contaminate water by cleaning of equipment or disposal of equipment washwaters. 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 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.

Personal Protection Equipment (PPE)

All pesticide handlers (mixers, loaders, and applicators) must wear long sleeved shirt and long pants, socks, shoes, and chemical-resistant gloves. After the product is diluted in accordance with label directions for use, and/or when mixing and loading using a closed spray tank transfer system such as U-Turn, or an in-line injector system, shirt, pants, socks, shoes, and waterproof gloves are sufficient.

Follow manufacturer's instruction for cleaning/maintaining PPE. If no such instructions are available for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

User Safety Recommendations:

Users should:

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

DIRECTIONS FOR USE

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.

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.

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 over long-sleeved shirt and long pants.
- Chemical-resistant gloves, such as barrier laminate or butyl rubber.
- Shoes plus socks.

6/30

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.

Do not apply when wind speed favors drift beyond the area intended for treatment.

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

The PERM-UP 3.2EC/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 3.2EC 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 3.2EC 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 3.2EC 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 3.2EC.

The amount of PERM-UP 3.2EC 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 3.2EC 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 3.2EC mixture.

GENERAL USE INFORMATION**Important:**

PERM-UP 3.2EC 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 3.2EC is formulated as an emulsifiable concentrate (EC) formulation and is to be diluted with water 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 3.2EC 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 3.2EC is a 3.2 pounds per gallon formulation of the insecticide permethrin. Apply PERM-UP 3.2EC 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
0.40	16.0

8/30

Index to Crops Listed on this Label

Vegetable Crops:

- Artichoke
- Asparagus
- Avocado
- Coie 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

- Alfaifa and Clover
- 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

9/30

VEGETABLE CROPS

ARTICHOKE			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Artichoke	Artichoke plume moth Leafminers	4 – 12 (0.1 – 0.3)	Do not apply more than 5 applications or 1.5 pounds of active ingredient per acre per season.
<ul style="list-style-type: none"> 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. Applications may be made up to harvest. 			

ASPARAGUS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Asparagus	Asparagus beetle Cutworms	2 – 4 (0.05 – 0.1)	Do not apply more than 0.4 pound of active ingredient 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
<ul style="list-style-type: none"> 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 within 1 day of harvest. 			

AVOCADO			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Avocado	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 1.2 pounds of active ingredient per acre per season. Apply when insects first appear and repeat at 7 to 10 day intervals as needed to provide control.
<ul style="list-style-type: none"> 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 within 7 days of harvest. 			

COLE CROPS – Brassica Leafy Vegetables			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Broccoli, Chinese Broccoli (gai lan, 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. Do not apply more than 0.8 pound of active ingredient per acre per season.
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 1.0 pound of active ingredient per acre per season.
	Armyworm spp. Cutworms Flea beetles	4 – 8 (0.1 – 0.2)	
<ul style="list-style-type: none"> • Apply by air or ground equipment, except for collards (ground application only). 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 within 1 day of harvest. 			
* Aids in the suppression only			

11/30

COLLARDS and TURNIPS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/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 - 4 (0.05 - 0.1)	Apply with ground equipment only. Apply as needed. Do not exceed 8 applications. AR, TX: Do not apply more than 0.8 pound of active ingredient 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 - 4 (0.05 - 0.1)	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 0.8 pound of active ingredient per acre per season. SC, GA, FL, WA: Do not apply more than 0.4 pound of active ingredient per acre per season.
<ul style="list-style-type: none"> Apply in a minimum of 10 gallons of water per acre. Use sufficient water to obtain full coverage of foliage. Do not apply within 1 day of harvest. <p>* Aids in the suppression only</p>			

12/30

CORN, SWEET			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Corn, Sweet	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 1.2 pounds of active ingredient per acre per season. Apply every 3 to 5 days or as needed. *Pest does not occur on this crop in California
<ul style="list-style-type: none"> • 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 within 1 day of harvest. 			

CORN, SWEET (FLORIDA ONLY)			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Corn, Sweet	Aster leafhopper Corn earworm Cutworm European corn borer Fall armyworm Southern armyworm	4 – 10 (0.1 – 0.25)	Do not apply more than 2.0 pounds of active ingredient per acre per season. Apply every 3 to 5 days or as needed.
<ul style="list-style-type: none"> • 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 within 1 day of harvest. 			

CUCURBIT VEGETABLES			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Cucurbit vegetables*	Aphids Leafminers Squash bugs	8 (0.2)	Do not apply more than 1.6 pounds of active ingredient per acre per season.
	Cabbage looper Cucumber beetle (adult) Cutworms Leafhoppers Melonworm Pickeworm Plant bugs (including Lygus and Stink bugs) Rindworms Squash vine borer	4 - 8 (0.1 - 0.2)	
<ul style="list-style-type: none"> 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. Applications may be made up to harvest. 			
<p>* 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 <i>Cucumia melo</i>, 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, <i>C. mixta</i>, <i>C. pepo</i>, acorn squash, spaghetti squash), Watermelon (includes hybrids and/or varieties of <i>Citrulius spp.</i>)</p>			

EGGPLANT			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Eggplant	Colorado potato beetle	8 (0.2)	Do not apply more than 2.0 pounds of active ingredient per acre per season.
	Cabbage looper Flea beetles Vegetable leafminer	4 - 8 (0.1 - 0.2)	Apply as needed, using sufficient water to obtain uniform coverage.
<ul style="list-style-type: none"> 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 within 3 days of harvest. 			

HORSERADISH			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Horseradish	Imported crucifer weevil (<i>Baris lepidii</i>)	0.1% active solution (2 pt, 1 oz per 100 gallons)	As a spring preplant dip, soak sets for 30 minutes and air-dry before planting.
		8 (0.2)	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.
<ul style="list-style-type: none"> Do not apply within 30 days of harvest. 			

LEAFY VEGETABLES (except Brassica)			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Leafy vegetables*	Aphids Beet armyworm Corn earworm Cutworms European corn borer Fall armyworm Green cloverworm Leafminers Southern armyworm Tobacco budworm	4 – 8 (0.1 – 0.2)	Apply every 3-5 days or as needed. Do not apply more than 2.0 pounds of active ingredient per acre per season. For Spinach, do not apply more than 1.0 pound of active ingredient per acre per season.
	Alfalfa looper Cabbage looper Leafhoppers	2 – 8 (0.05 – 0.2)	
<ul style="list-style-type: none"> 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 within 1 day of harvest. 			
<p>* 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).</p>			

ONIONS, BULB and GARLIC			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Onion, bulb Garlic	Amyworms Onion thrips	6 – 12 (0.15 – 0.3)	Begin applications when pest 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 2.0 pounds active ingredient per acre per season.
	Cutworms Leafminers Onion maggots (adults) Stink bugs	4 – 12 (0.1 – 0.3)	
<ul style="list-style-type: none"> 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 within 1 day of harvest. 			

PEPPERS, BELL			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Peppers, bell	Cabbage looper Corn earworm Cutworms Flea beetle Pepper weevil Vegetable leafminer	4 – 8 (0.1 – 0.2)	Do not apply more than 1.6 pounds of active ingredient per acre per season.
	European corn borer	8 (0.2)	
<ul style="list-style-type: none"> 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 within 3 days of harvest. 			

POTATOES			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Potatoes	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 1.6 pounds of active ingredient per acre per season.
<ul style="list-style-type: none"> 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 3.2EC also may be applied using refined non-volatile vegetable oil for control of listed pests. PERM-UP 3.2EC 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 within 14 days of harvest. 			

16/30

TOMATOES, TOMATILLOS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Tomatoes Tomatillos	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 1.2 pounds of active ingredient per acre per season. Do not apply to cherry tomatoes or other varieties which produce fruit less than one inch in diameter.
<ul style="list-style-type: none"> • 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. • May be applied up until harvest. 			

TREE FRUIT AND NUTS

ALMONDS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Almonds	Navel orangeworm Peach twig borer	8 – 16 (0.2 – 0.4)	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	16 (0.4)	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.
<ul style="list-style-type: none"> Do not apply more than 0.8 pound of active ingredient per acre during hull split. Do not apply more than 2.0 pounds of active ingredient per acre per season. Do not graze livestock in treated areas. Do not feed cover crops from treated areas to livestock. Do not apply within 7 days of harvest. 			

APPLES			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Apples	Green fruitworm Oblique banded leafroller Plum curculio Redbanded leafroller Rosy apple aphid Spotted tentiform leafminer Tarnished plant bug White apple leafhopper	4 – 16 (0.1 – 0.4)	Do not apply more than 0.6 pound of active ingredient 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.
<ul style="list-style-type: none"> Apply by ground equipment only. Apply in 25-400 gallons of finished spray per acre. Do not apply after petal fall. 			

CHERRIES			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Cherries (includes Sweet Cherries and Tart Cherries)	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.
<ul style="list-style-type: none"> 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 within 3 days of harvest. 			

18/30

FILBERTS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Filberts	Filbertworm Oblique banded leafroller	8 – 16 (0.2 – 0.4)	Do not apply more than 1.6 pounds of active ingredient 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.
<ul style="list-style-type: none"> 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 within 14 days of harvest. 			

PAPAYA (Florida Only)			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Papaya	Aphids Brown soft scale Mealybug Papaya fruit fly Papaya webworm Papaya whitefly Scale crawlers	8 (0.2)	Do not apply more than 1.2 pounds of active ingredient 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.
<ul style="list-style-type: none"> Apply by ground equipment only. Apply in 25-400 gallons of finished spray per acre. Do not apply within 7 days of harvest. 			

PEACHES and NECTARINES			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Peaches Nectarines	Green fruitworm Lesser peach tree borer Oriental fruit moth Peach twig borer Plum curculio Rose chafer Tarnished plant bug	4 – 12 (0.1 – 0.3)	Do not apply more than 1.5 pounds of active ingredient 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.
<ul style="list-style-type: none"> 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 within 14 days of harvest. 			

19/30

PISTACHIOS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Pistachios	Leaffooted bugs Naval orangeworm Peach twig borer Plant bugs Stink bugs	8 – 16 (0.2 – 0.4)	Use sufficient water to obtain full coverage of foliage.
	Ants	16 (0.4)	Application should follow mowing of weed growth to ensure maximum coverage of the soil surface. Overhead moisture following application will enhance activity.
<ul style="list-style-type: none"> • 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 1.6 pounds of active ingredient per acre per season. • Do not graze livestock in treated areas. • Do not feed cover crops from treated areas to livestock. • May be applied up until harvest. 			

PEARS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Pears (Dormant through Delayed Dormant)	Pear psylla	8 – 16 (0.2 – 0.4)	Do not apply more than 0.8 pound of active ingredient per acre per season. 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	8 – 16 (0.2 – 0.4)	Do not apply more than 0.8 pound of active ingredient per acre per season. Pre-bloom sprays can be applied from dormant through bud burst stages.
<ul style="list-style-type: none"> • 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 feed cover crops from treated areas to livestock. 			

WALNUTS			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Walnuts	Codling moth Navel orangeworm Walnut husk fly	8 – 16 (0.2 – 0.4)	Do not apply more than 1.6 pounds of active ingredient 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.
<ul style="list-style-type: none"> • 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 within 1 day of harvest. 			

OTHER CROPS

ALFALFA and CLOVER			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Alfalfa Alfalfa grown for seed Clover (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 0.2 pound of active ingredient 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 <i>Lygus</i> spp.) Potato leafhopper Stink bugs	4 – 8 (0.1 – 0.2)	
<ul style="list-style-type: none"> 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 0.1 pound active per acre are used, do not apply within 14 days of harvest. 			

21/30

CORN (FIELD), FIELD CORN GROWN FOR SEED, POPCORN			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Field Corn, Field corn grown for seed, Popcorn (Pre-emergent Use)	Armyworm Cutworm Stalk borers	4 – 8 (0.1 – 0.2) as a broadcast spray	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 3.2EC 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.
		OR 0.3 – 0.6 oz per 1000 linear feet row (based on a 4" band and 40" row spacing)	
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 – 8 (0.1 – 0.2)	Do not apply more than 0.6 pound of active ingredient per acre per season. Do not make treatments less than 6 days apart. When treating for stalk borers, PERM-UP 3.2EC 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.
	Western bean cutworm	2 – 4 (0.05 – 0.1)	
<ul style="list-style-type: none"> 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 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/A)	REMARKS
Field Corn, Field corn grown for seed, Popcorn (At Plant Use)	Armyworm Cutworm Seed corn maggot* Wireworm*	0.3 oz per 1000 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 3.2EC needs for each acre. * Not for use in California
Row Spacings (inches)		40 30 20	
PERM-UP 3.2EC (ounces per acre)		4.0 6.0 8.0	
PERM-UP 3.2EC (pounds ai per acre)		0.10 0.15 0.20	

MUSHROOMS (Mushroom Houses and Adjacent Premise Areas)			
CROP	TARGET PESTS	RATE OZ (LBS AI)	REMARKS
Mushrooms (Mushroom houses and adjacent premise areas)	Mushroom flies (Sciariid 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).
<ul style="list-style-type: none"> • Apply in 30 ounces of water or suitable diluent. Use 1 quart of solution per standard double house (35,000 cu. ft.: 8000 sq. ft.). • Apply as a fogging or aerosol treatment. • Do not apply within 3 days of harvest. 			

RANGE GRASS (New Mexico Only)			
CROP	TARGET PESTS	RATE FL OZ/A (LBS AI/A)	REMARKS
Range Grass (New Mexico only)	Range caterpillar	0.4 (0.1)	Apply as needed. Do not apply more than once per year. Cattle may be present during application.
<ul style="list-style-type: none"> • 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			
CROP	TARGET PESTS	RATE FL OZ/A (LBS A/A)	REMARKS
Soybeans	Bean leaf beetle Cabbage looper Corn rootworm beetle Cutworms Flea beetle Green cloverworm Japanese beetle Mexican bean beetle Potato leafhopper Saltmarsh caterpillar (Woollybear caterpillar) Thistle caterpillar Velvetbean caterpillar	2 – 4 (0.05 – 0.1)	Do not apply more than 0.4 pound of active ingredient 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)	
<ul style="list-style-type: none"> 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 3.2EC may also be applied using refined non-volatile vegetable oil for control of listed pests. PERM-UP 3.2EC 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 within 60 days of harvest. 			

ORNAMENTALS

CHRYSANTHEMUMS			
CROP	TARGET PESTS	RATE OZ (LBS AI)	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.
<ul style="list-style-type: none"> Caution: PERM-UP 3.2EC 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/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.
<ul style="list-style-type: none"> PERM-UP 3.2EC 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. 			

24/30

ORNAMENTAL NURSERY STOCK (Field Grown)			
CROP	TARGET PESTS	RATE OZ (LBS AI)	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 3.2EC may be used to control specified pests on non-edible ornamentals and non-bearing plants of fruiting species.
<ul style="list-style-type: none"> Caution: Marginal leaf burn may occur on Salvia, Dieffenbachia and Pteris Fern. Application to blooming plants may cause browning of petals. PERM-UP 3.2EC 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.
<p>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.</p> <ul style="list-style-type: none"> Do not graze livestock in treated areas. 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 AI/A)	REMARKS
Roses (field grown)	Heliothis spp.	4 – 8 (0.1 – 0.2)	
<ul style="list-style-type: none"> 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 AI)	REMARKS
Roses (greenhouse)	Beet armyworm Cabbage looper Omnivorous leafroller	8 (0.2) per 100 gallons of water	
<ul style="list-style-type: none"> • PERM-UP 3.2EC 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 3.2EC, and a small number of plants should be treated under local conditions to determine plant safety prior to commercial use. 			

26/30

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

TENGARD AG may be used to control insect pests on ornamental 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, 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 Leaf rollers 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
	Bark Beetles: Dendroctonus spp., Ips spp., Elm bark beetles, Mountain pine beetle, Pine engravers, Gurplentine 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.

PLANT	PEST	TREATMENT RATE	SPECIFIC APPLICATION INSTRUCTIONS
<p>Lawns (around residential, commercial, industrial, institutional, and public buildings, parks, recreational areas, and athletic fields) and grass nurseries</p>	<p>Chinchbugs Pillbugs Sod Webworm Ants Ant Mounds Armyworm Fire Ants Centipedes Crickets Mole Crickets Earwigs Firebrats Fleas¹ Ground beetles Millipedes Scorpions Silverfish Sowbugs Spiders</p>	<p>0.4 to 0.8 Fluid Ounces per 1000 Square Feet</p>	<p>Apply using 4 – 25 gallons of spray volume. Use higher rate for moderate to high infestations. Do not apply more than 2.0 lb ai/Acre/Year</p> <p>¹ Fleas: Mix 0.4 – 0.8 fl. oz. of Tengard AG in 4 to 25 gallons of water per 1000 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.</p>

OTHER USES

PREMISES SPRAY (For Agricultural Use Only)			
SITE	TARGET PESTS	RATE OZ	REMARKS
<p>For Application In: Dairies, Barns, Feedlots, Stables, Poultry houses, Swine and Livestock houses</p>	<p>House flies, Stable flies and other manure breeding flies Also aids in the reduction of Cockroaches, Mosquitoes and Spiders</p>	<p>4 to 12.5 gallons of water Apply by sprayer at 1 gallon per 750 sq. ft. of space</p>	<p>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.</p>
<ul style="list-style-type: none"> 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. 			

28/30

TREATMENT OF PRECONSTRUCTION LUMBER AND LOGS**General Information**

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

GALLONS OF SPRAY MIXTURE DESIRED	GALLONS OF PERM-UP 3.2EC FOR 0.5% SOLUTION	GALLONS OF PERM-UP 3.2EC FOR 0.75% SOLUTION	GALLONS OF PERM-UP 3.2EC FOR 1.0% SOLUTION
40	½	¾	1
80	1	1½	2
200	2½	3¾	5
400	5	7½	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 3.2EC. 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 3.2EC 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 3.2EC 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 3.2EC 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

Metal Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other approved State and Local procedures.

Plastic Containers: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or dispose of in a sanitary landfill, or incineration, or, if allowed by State and Local authorities, by burning. If burned, stay out of smoke.

Returnable/Refillable Sealed Container: Do not rinse container. Do not empty remaining formulated product. Do not break seals. Return intact to point of purchase.

ATTENTION

Dealers Should Sell in Original Packages Only.

30/30

**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 should be followed carefully. It is impossible to eliminate all risks inherently 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 or Seller. All such risks shall be assumed by Buyer and User, and Buyer and User agree to hold United Phosphorus and Seller harmless for any claims relating to such factors.

United Phosphorus warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or United Phosphorus, and Buyer and User assume the risk of any such use. **UNITED PHOSPHORUS MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE NOR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.**

In no event shall United Phosphorus or Seller be liable for any incidental, consequential or special damages resulting from the use or handling of this product. **THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE EXCLUSIVE LIABILITY OF UNITED PHOSPHORUS AND SELLER FOR ANY AND ALL CLAIMS, LOSSES, INJURIES OR DAMAGES (INCLUDING CLAIMS BASED ON BREACH OF WARRANTY, CONTRACT, NEGLIGENCE, TORT, STRICT LIABILITY OR OTHERWISE) RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT SHALL BE, AT THE ELECTION OF UNITED PHOSPHORUS OR SELLER, THE REPLACEMENT OF THE PRODUCT, OR COMPENSATION LIMITED TO DAMAGES NOT EXCEEDING THE FAIR MARKET PURCHASE PRICE, AND SHALL NOT INCLUDE INCIDENTAL OR CONSEQUENTIAL DAMAGES.**

United Phosphorus and Seller offer this product, and Buyer and User accept it, subject to the foregoing conditions of sale and limitations of warranty and of liability, which may not be modified except by written agreement signed by the duly authorized representative of United Phosphorus.

DRAFT not EPA Approved 6-21-2002