QUALI-PRO™

RESTRICTED USE PESTICIDE

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.

Chlorpyrifos 4E

Specimen Label

ACTIVE INGREDIENT
% BY WT.

Chlorpyrifos: 0,0-diethyl-0-(3,5,6-trichloro-2-pyridinyl) phosphorothioate 42.5%
INERT INGREDIENTS*: 57.5%
TOTAL 100.0%
Contains 4 pounds of chlorpyrifos per gallon
* Contains aromatic petroleum distillates

EPA REG. NO. 66222-19-73220 EPA EST. NO. 34704-MS-2

KEEP OUT OF REACH OF CHILDREN

WARNING-AVISO

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

FIRST AID Organophosphate	
IF SWALLOWED:	• Call a poison control center or doctor immediately for treatment advice. • Do not give any liquid to a person. • Do not induce vomiting unless told to do so by a poison control center or doctor. • Do not give anything by mouth to an unconscious person.
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 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 INHALED:	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably 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. Have the product container or label with you when calling a poison control center or doctor or going for treatment. **For medical emergencies involving this product call 1-800-308-5391.**	
Note to Physician: This product contains an organophosphate that inhibits cholinesterase. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration. Contains petroleum distillate. Vomiting may induce aspiration pneumonia.	

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
WARNING

May be fatal if swallowed. Harmful if absorbed through skin or inhaled. Causes eye irritation. Avoid contact with eyes, skin, or clothing. Avoid breathing vapors. Wash thoroughly with soap and water after handling and before eating, drinking, or using tobacco.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Some materials that are chemical-resistant to this product are listed below. If you want more options, follow the instructions for category *H* on an EPA chemical resistance category selection chart.

All mixers, loaders, other applicators and other handlers must wear:
• Coveralls over long-sleeved shirt and long pants
• Chemical-resistant gloves
• Chemical-resistant apron when mixing or loading or exposed to the • concentrate
• Chemical-resistant footwear plus socks
• Chemical-resistant headgear for overhead exposure
• A NIOSH approved respirator with any R, P, or HE filter

Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them. Follow manufacturer's instructions for cleaning and maintaining PPE. If no such instructions for washables, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS

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

USER SAFETY RECOMMENDATIONS

Users should:
• Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.
• Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
• Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

ENVIRONMENTAL HAZARDS

This pesticide is toxic to fish, aquatic invertebrates, small mammals, and birds. Do not apply directly to water, or to areas where surface water is present, or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwater or rinsate.

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area. Protective information may be obtained from your cooperative agricultural extension service.

PHYSICAL OR CHEMICAL HAZARDS

Combustible. Do not use or store near heat or open flame.

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. Read all Directions for Use carefully before applying.

AGRICULTURAL USE REQUIREMENTS

Use this product 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 intervals. The requirements in this box only apply to uses of this product that are covered by the Worker Protection Standard.

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of:
• 4 days for fruit trees
• 5 days for citrus
• 3 days for cauliflower
• 24 hours for all other crops not listed above

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 short sleeved shirt and short pants
• Chemical resistant gloves made out of any waterproof material
• Chemical resistant footwear plus socks
• Chemical resistant headgear for over head exposure

Certified crop advisors or persons entering under their direct supervision under certain circumstances may be exempt from the early reentry requirement pursuant to 40 CFR Part 170.

Notify workers of the application by warning them orally and by posting warning signs at entrances to treated areas.

NON AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides [40CFR Part 170]. The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. Keep children, pets and other unprotected persons out of treated area until sprays have dried.

GENERAL INFORMATION

Chlorpyrifos 4E insecticide forms an emulsion when diluted with water and is suitable for use in all conventional spray equipment. Consult your state experiment station or state extension service for proper timing of applications.

GENERAL USE PRECAUTIONS

Do not formulate this product into other end use products. **Attention:** Do not cut or weld container.

SPRAY DRIFT

Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, nontarget crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.
• For ground boom applications, do not apply within 25 feet of rivers, natural ponds,

lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds. Apply with nozzle height no more than 4 feet above the ground or crop canopy and when wind speed is 10 mph or less at the application site as measured by an anemometer. Use fine or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles.

- For orchard/vineyard airblast applications, do not apply within 50 feet of rivers, natural ponds, lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds. Direct spray above trees/vines and turn off outward pointing nozzles at row ends and outer rows. Apply only when wind speed is 3-10 mph at the application site as measured by an anemometer outside of the orchard/vineyard on the upwind side.
- For aerial applications, do not apply within 150 feet of rivers, natural ponds, lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds. The boom width must not exceed 75% of the wingspan or 90% of the rotary blade. Use upwind swath displacement and apply only when wind speed is 3-10 mph as measured by an anemometer. Use fine or coarser spray according to ASAE 572 definition for standard nozzles or VMD for spinning atomizer nozzles. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or the crop canopy.
- For overhead chemigation, do not apply within 25 feet of rivers, natural ponds, lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds. Apply only when wind speed is 10 mph or less.

The applicator also must use all other measures necessary to control drift.

MIXING DIRECTIONS

To prepare the spray, add a portion of the required amount of water to the spray tank and with agitation, add the Chlorpyrifos 4E. Complete filling the tank with the balance of water needed. Maintain sufficient agitation during both mixing and application to ensure uniformity of the spray mixture.

Chlorpyrifos 4E may also be used in tank mixtures with certain herbicides and/or with non-pressure fertilizer solutions as recommended under specific crop use directions. Prepare tank mixtures in the same manner as recommended above for use of Chlorpyrifos 4E alone. When tank mixtures of Chlorpyrifos 4E and herbicides are involved, add wettable powders first, flowables second, and emulsifiable concentrates last. Where a fertilizer solution is involved, it is strongly recommended that a fertilizer pesticide compatibility agent such as Unite or Compex be used. Maintain constant agitation during both mixing and application to ensure uniformity of the spray mixture. Do not allow spray mixtures to stand overnight.

Note: Test compatibility of the intended tank mixture before adding Chlorpyrifos 4E to the spray or tank mix. Add proportionate amounts of each ingredient to a pint or quart jar, cap, shake, and let set 15 minutes. Formation of precipitates that do not readily redisperse indicates an incompatible mixture that should not be used.

SPRINKLER IRRIGATION

Chlorpyrifos 4E may be applied by sprinkler irrigation for the following crop uses: alfalfa, citrus orchard floors, field corn, mint, sweet corn, cotton, cranberries, sorghum, and soybeans.

See the use sections for the individual crops for further application information. Do not apply this product to the above listed crops through any other type of irrigation system. Do not apply this product by chemigation to any other crop.

SPECIAL USE DIRECTIONS

The following use directions are to be followed when Chlorpyrifos 4E is applied through sprinkler irrigation systems. Thoroughly clean the injection system and tank of any fertilizer or chemical residues, and dispose of the residues according to state and federal laws. Flush the injector with soap and water. Determine the amount of insecticide needed to cover the desired acreage. Pump the required Chlorpyrifos 4E into a steel tank, start mechanical or hydraulic agitation, and add in order the non-emulsifiable oil and/or water. Continually agitate the mixture containing Chlorpyrifos 4E. Set the sprinkler system to deliver the desired inches of water per acre. Start the water pump and sprinkler, and let the system achieve the desired pressure and speed before starting the injector. Start the injector and calibrate the injector system according to number 14 in **SPECIAL USE PRECAUTIONS** section. The mixture containing Chlorpyrifos 4E must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. This procedure is necessary to deliver the desired rate per acre in a uniform manner. When the application is finished, allow the entire irrigation and injector system to be thoroughly flushed clean before stopping the system.

SPECIAL USE PRECAUTIONS

The following use precautions will result in a safe and successful application of mixture containing Chlorpyrifos 4E.

1. Apply this product only through sprinkler irrigation systems including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, micro sprinkler, or hand move. Do not apply this product through any other type of irrigation system.

2. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

3. If you have questions about calibration, you should contact state extension service specialist, equipment manufacturers, or other experts.

4. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.

5. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

6. The system must contain a functional check valve, vacuum relief valve, and a low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. Refer to the American Society of Agricultural Engineer's Engineering Practice 409 for more information.

7. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

8. 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.

9. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.

10. 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.

11. 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. The metering pump must provide a greater pressure than that of the irrigation system at the point of injection. The pump must meet Section 675 for "Electrically Driven or Controlled Irrigation Machines" NEC 70 and must contain Viton or Teflon seals.

12. To insure uniform mixing of the insecticide into the water line, inject the mixture through a nozzle place in the fertilizer injection port or just ahead of an elbow or tee in the irrigation line so that the turbulence created at those points will assist in mixing. It is suggested that the injection point be higher than the insecticide tank to prevent siphoning.

13. The steel tank holding the insecticide mixture should be large enough to allow the system to complete a revolution with one filling. It should be free of rust, fertilizer sediment, and foreign material, and equipped with an in-line strainer situated between the tank and the injector pump.

14. In order to calibrate the irrigation system and injector to apply the mixture containing Chlorpyrifos 4E, determine the following: 1) Calculate the number of acres irrigated by the system; 2) Set the irrigation rate and determine the number of minutes for the system to cover the intended treatment area; 3) Calculate the total gallons of insecticide mixture needed to cover the desired acreage. Divide the total gallons of insecticide mixture needed by the number of minutes to cover the treatment area. This value equals the gallons per minute output that the injector must deliver. Convert the gallons per minute to milliliters or ounces per minute. Calibrate the injector pump with the system in operation at the desired irrigation rate. It is suggested that the injector pump be calibrated at least twice before operation, and the system should be monitored during the operation.

15. Do not apply when wind speed favors drift beyond the area intended for treatment. End guns must be turned off during the application if they irrigate nontarget areas.
16. Do not allow irrigation water to collect or runoff and pose a hazard to livestock, wells, or adjoining crops.

17. Allow foliage to dry before reentering the field.

18. Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.

APPROVED CROPS
ALFALFA

Use Chlorpyrifos 4E to control the following pests at the dosages indicated by application as a broadcast foliar spray:

PEST	CHLORPYRIFOS 4E
Aphids (suppression)	1/2 pint/acre
Corn rootworm adults (spotted cucumber beetle), Grasshoppers	1/2 - 1 pint/acre
Alfalfa blotch leafminer, Alfalfa looper, Alfalfa weevil larvae and adults, Armyworms, Cutworms, Egyptian alfalfa weevil larvae and adults, Plant bugs, Leafhoppers, Spittlebugs	1-2 pints/acre

NOTE: Use higher rates to control spotted alfalfa aphid in California and Nevada. Stubble spray may be applied to control leafhopper in the Northeast.

Mix the required dosage with enough water to ensure thorough coverage of crop foliage and apply using aerial (fixed-wing or helicopter) or power-operated ground spray equipment. For aerial application, use 2 to 5 gallons of water per acre. For best coverage when using ground application, a minimum of 20 gallons of water per acre with hollow cone nozzles is recommended. Control may be reduced at low spray volumes under high temperature and wind conditions. Treat when field counts or crop injury indicates that damaging pest populations are developing or present; however, do not apply more than once per crop cutting. Some reduction in insect control may be evident under excessively cool conditions. For Egyptian alfalfa weevil control in California, apply the specified dosage in a minimum of 5 gallons of water per acre when larvae are actively feeding and populations reach 15 to 20 larvae per 180° sweep with a 15-inch diameter net.

Chlorpyrifos 4E may also be applied through sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of Chlorpyrifos 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See **SPRINKLER IRRIGATION** section for further information.

Chlorpyrifos 4E should not be tank mixed with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination noninjurious under your current conditions of use. Some phytotoxic symptoms may be observed on young, tender, rapidly growing alfalfa when treated with Chlorpyrifos 4E. Alfalfa will outgrow the symptoms and no yield loss should be expected.

This product is highly toxic to bees exposed to direct treatment on alfalfa. Do not apply if nearby bees are clustered outside of hives and bees are foraging. Protective information may be obtained from your agricultural extension service.

RESTRICTIONS: *Do not cut or graze treated alfalfa within 7 days after application of 1/2 pint of Chlorpyrifos 4E per acre, within 14 days after application of 1 pint per acre, or within 21 days after application of rates above 1 pint per acre. Do not make more than 4 applications per year or apply more than once per crop cutting. To avoid contamination of irrigation floodwaters, do not flood irrigate within 24 hours following an application of Chlorpyrifos 4E.*

ASPARAGUS

Use Chlorpyrifos 4E to control cutworms, asparagus aphids, and asparagus beetles by application at the rate of 2 pints per acre. Mix the specified dosage in sufficient water to ensure thorough coverage of treated plants and apply a broadcast foliar spray. For cutworms, it is preferable to apply Chlorpyrifos 4E when the soil is moist and worms are active on or near the soil surface. Applications may be made during the fern stage for control of asparagus beetles and asparagus aphids when field counts or crop injury indicates that damaging pest populations are developing or present.

RESTRICTIONS: *Do not make more than one preharvest application per season or apply within one day of harvest. Do not make more than two postharvest applications during the fern stage. Based on available residue data, the use of Chlorpyrifos 4E on asparagus is limited to the Midwest and Pacific Northwest.*

CHERRIES

Worker Restricted Entry Interval: Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days unless PPE required for early entry is worn.

Use Chlorpyrifos 4E for the control of lesser peach tree borer, greater peach tree borer, and American plum borer by application as a trunk spray. Mix 1-1/2 to 3 quarts of Chlorpyrifos 4E with 100 gallons of water and apply as a coarse, low-pressure spray to give uniform coverage of tree trunks and lower limbs. Make a second application two weeks after the first one and a third application after harvest. Avoid contact with foliage in sweet cherries as premature leaf drop may result. Consult your state agricultural experiment station or extension service specialist for proper time to treat in your area.

In addition, one of the three allowable applications per year may be applied as a dormant spray for control of San Jose scale, peach twig borer, and climbing cutworm. For control of these pests, tank mix 1/2 to 1 pint of Chlorpyrifos 4E with 1 to 2 gallons of a petroleum oil recommended for dormant use in 100 gallons of water and spray the entire tree by application to runoff using ground spray equipment. For low volume (concentrate) sprays (40 to 100 gallons of spray mixture per acre), use the same amounts of Chlorpyrifos 4E and spray oil per acre required for application as a dilute spray and apply in a manner that will ensure thorough coverage of the trees. Use the higher dosage of Chlorpyrifos 4E for severe infestations. Use oil as recommended by your state agricultural experiment station or extension service specialist.

RESTRICTIONS: *Make only three applications per year. Do not apply within 6 days before harvest. Do not allow meat or dairy animals to graze in treated orchards.*

CHRISTMAS TREES
(NURSERIES AND PLANTATIONS)

Use Chlorpyrifos 4E at the rate indicated to control the following insects on the tree varieties listed.

RESTRICTIONS: *Use Chlorpyrifos 4E on tree plantations only in Connecticut, Maine, Maryland, Massachusetts, Michigan, New Hampshire, New Jersey, New York, North Carolina, Ohio, Oregon, Pennsylvania, South Carolina, Tennessee, Vermont, Virginia, Washington, and Wisconsin. Do not allow livestock to graze in treated areas.*

TREE VARIETY	PEST	DOSAGE CHLORPYRIFOS 4E	REMARKS
Balsam fir Blue spruce Concolor fir Douglas fir Eastern white pine Fraser fir Grand fir Noble fir Scotch pine White spruce	Ants, Aphids, Adelgids (Cooley, Eastern spruce gall), European pine shoot moth, European pine sawfly, Grasshopper, Gypsy moth, Mites (European red spider, Two spotted spider) [except in WA & OR], Pales weevil (adult), Pine needle midge, Pine spittlebug, Plant bugs, Spittlebugs, Spruce budworm, Spruce needleminer, Scale (Pine needle, Pine tortoise, Spruce bud, Black pine, Striped pine)	1 quart/acre	Do not treat plants under extreme heat and drought stress. Apply to foliage in sufficient water to ensure adequate coverage. For effective control of adult spider mites if large numbers of eggs are present, apply a second spray 7 -10 days after initial treatment to control newly hatched nymphs. For scale control, apply when scale crawlers are active.
	Pales weevil	3 quart/100 gal.	Apply as a cut stump drench.

CITRUS FRUITS

Worker Restricted Entry Interval: Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 5 days unless PPE required for early entry is worn.

Use Chlorpyrifos 4E at the rates indicated according to the designated geographic area to control the following pests. Use the lower rates for light infestations and increase the dosage for heavier infestations. A petroleum spray oil recommended for use on citrus trees may be added to dilute spray mixtures only at a rate of up to 1.8 gallons per 100 gallons of water to improve control of aphids, mealybugs, scale insects, and thrips. Treat when insects become a problem or in accordance with the local spray schedule recommended by your state extension service specialist.

Chlorpyrifos 4E may be applied in tank mixtures with ethion, dicofol, Agri-Mek, or Vendex. See **MIXING DIRECTIONS** for further instructions. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for the other products used in combination with Chlorpyrifos 4E.

PRECAUTIONS: Observe local use directions for tank-mix combinations especially in regard to applications of Chlorpyrifos 4E plus spray oil. Consult with a county farm advisor, county agency, extension service personnel, agricultural commissioner, or pest control advisor for such information regarding a given locality.

Do not apply when trees are stressed by drought or high temperatures.
Chlorpyrifos 4E should not be tank mixed with Difolatan 80 Sprills as crop injury may occur.

Chlorpyrifos 4E is highly toxic to bees exposed to direct treatment and should not be applied when bees are actively visiting the area. During the bloom period in California, apply from one hour after sunset until two hours before sunrise.

RESTRICTIONS*: Do not apply more than 2 applications or more than 16 pints of Chlorpyrifos 4E per acre per year. Do not make second foliar application within 30 days of the first application. Do not treat within 21 days of harvest for applications up to 7 pints of Chlorpyrifos 4E per acre nor within 35 days for application of rates above 7 pints per acre. Do not allow livestock to graze in treated areas. Do not apply more than 8 pints (4 lbs. a.i.) per acre in a single application; 12 pints (6 lbs. a.i.) per acre for red scale only in California).*

CITRUS FRUITS

CROP	GEOGRAPHIC LOCATION	PEST	DOSAGE PT./ACRE	SPRAY VOLUME GAL./ACRE	REMARKS
Grapefruit, Lemons, Oranges, and Other Citrus Fruit	California-Fresno, Tulare, Kern, Kings, and Madera Counties Only	Red scale	12	Ground: 100-2400	Do not use a spray concentration of Chlorpyri-fos 4E of less than 1/2 pt./100 gal. of total volume. **Additional Precautions for California and Arizona:** Chlorpyrifos 4E should not be used in combination with spray oil when temperatures are expected to exceed 95°F the day of application or for several consecutive days thereafter. Do not apply during the months of December, January, or February.
Grapefruit, Lemons, Oranges, and Other Citrus Fruit	California, Arizona	Aphids, Katydids, Lepidopterous larvae, Avocado leafroller, Cutworms, Fruit-tree leafroller, Orange tortrix, Western tussock moth	2-7	Ground: 100-750 Aerial: min. 15	Do not use a spray concentration of Chlorpyri-fos 4E of less than 1/2 pt./100 gal. of total volume. **Additional Precautions for California and Arizona:** Chlorpyrifos 4E should not be used in combination with spray oil when temperatures are expected to exceed 95°F the day of application or for several consecutive days thereafter. Do not apply during the months of December, January, or February.
		*Scale insects (Black scale, Brown soft scale, California red scale)	8	100-2400	
		Thrips (suppression) Mealybugs	6-8	100-750	
Grapefruit, Lemons, Oranges, and Other Citrus Fruit	Florida	Aphids, Grasshoppers, Orangedogs, Mealybugs, Scale insects (Snow scale, Florida red scale, Purple scale, Long scale, Chaff scale, Black scale, Brown soft scale)	2-4	Ground: 100-1400 Aerial: min. 20	Do not use a spray concentrate of Chlorpyrifos 4E of less than 1/2 pt./100 gal. of water per acre. Lubber grasshoppers must be controlled when they are small (less than 1 inch in length) by direct contact with spray.
		Citrus rust mites	4-7	100-700	Do not use a spray concentration of Chlorpyri-fos 4E of less than 1 pt./100 gal. of water per acre.
	Texas	Aphids, Cutworms, Katydids, Mealybugs, Scale insects (Brown soft scale, California red scale, Chaff scale)	4-7	200-700	Do not use less than 1/2 pt. of Chlorpyrifos 4E per 100 gallons of water in dilute applications.
Grapefruit, Lemons, Oranges, and Other Citrus Fruit	Texas	Citrus rust mites (suppression)	4-7	200-700	Do not use less than 1/2 pt. of Chlorpyrifos 4E per 100 gallons of water in dilute applications.
Small Transplanted Grapefruit, Orange, and other Citrus Trees	Texas	Aphids, Cutworms, Katydids, Mealybugs, Scale insects (Brown soft scale, California red scale, Chaff scale)	Max of 7		Apply Chlorpyrifos 4E at a rate of 1 fl. oz/1 gal. of water with a backpack sprayer. Apply to runoff.

CITRUS ORCHARD FLOORS

Use Chlorpyrifos 4E to control red imported fire ants and other ant species by applying the specified dose in 25 or more gallons of water with ground application equipment that will uniformly apply the spray to the orchard floor. To control foraging ants and suppress mounds, apply Chlorpyrifos 4E to the orchard floor at the rate of 3/4 to 1 quart per acre. Repeat as needed. For best insect control, uniform coverage of the orchard floor is necessary. Do not apply where weed growth or other obstructions would impede uniform coverage of the orchard floor. Do not apply in tank mixtures with Evik herbicide. Foliar applications of Chlorpyrifos 4E may be made in addition to the orchard floor.

Chlorpyrifos 4E may also be applied to citrus orchard floors through sprinkler irrigation systems only if the system uniformly covers the soil surface at the base of the tree. For best results, use the recommended amount of Chlorpyrifos 4E per acre. See **SPRINKLER IRRIGATION** section for further information.

RESTRICTIONS: *Do not apply more than 10 quarts of Chlorpyrifos 4E per acre per season. Do not apply last treatment within 28 days before harvest. Do not allow livestock to graze in treated areas. In Florida, do not apply more than 3 quarts per season.*

CRANBERRIES

Use Chlorpyrifos 4E by application as a broadcast, foliar spray to control brown spanworm, cranberry fruitworm, cranberry weevil, cutworms, fireworms, and *Sparganothis* fruitworm at the rate of 3 pints per acre. Mix the specified dosage in enough water to ensure thorough coverage and apply no less than 5 gallons of spray per acre when using aerial equipment or no less than 15 gallons of spray per acre when using ground equipment. For weevil control, apply once at flower bud development (late May, early June) and, if weevils are present, once after 100% bloom (early to mid-July). For other insects, treat when field counts indicate damaging insect populations are developing or present. Apply only after the winter flood has been removed. To avoid pesticide contamination of flood water, make no applications while bogs are flooded.

Chlorpyrifos 4E may also be applied through sprinkler irrigation systems to control the above listed pests. For best results, use the recommended rate of Chlorpyrifos 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See **SPRINKLER IRRIGATION** section for further information.
RESTRICTIONS: *Do not make more than two applications per year or apply within 60 days before harvest.*

FIELD CORN, SWEET CORN (INCLUDING CORN GROWN FOR SEED)

For use to control cutworms, armyworms, corn earworm, corn rootworm adults, chinch bugs, grasshoppers, wireworms, flea beetle larvae and adults, aphids, billbugs, grubs, western bean cutworm, corn borers, symphylans, common stalk borer, and lesser cornstalk borer.

Preplant Incorporation Treatment
Use Chlorpyrifos 4E at the following rates by application in sufficient water to the soil surface and incorporate into the soil:

PEST	CHLORPYRIFOS 4E
Cutworms, Symphylans	2-4 pints/acre
Wireworms, Billbugs, Flea beetle larvae, Grubs, Seedcorn maggots, Seedcorn beetle	4 pints/acre
Lesser cornstalk borer, Corn rootworm larvae	6 pints/acre

Use recommended rate in not less than 10 gallons of water per acre and apply as a broadcast spray to the soil surface using suitable power-operated ground spray equipment. On the same day of treatment, incorporate the insecticide into the top 2 to 4 inches of soil using a disc, field cultivator, or equivalent equipment.

Chlorpyrifos 4E may also be applied in tank mixtures with non-pressure fertilizer solutions and/or with Bladex, Eradicane, Sutan, Lasso, Dual, and atrazine herbicides. See **MIXING DIRECTIONS** section for further information. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for the other products used in combination with Chlorpyrifos 4E.

Preplant, At-Plant, or Pre-emergence Treatment in Conservation Tillage
Use Chlorpyrifos 4E at the following rates by application in sufficient water to surface trash and exposed soil:

PEST	CHLORPYRIFOS 4E
Cutworms, Armyworms	1-2 pints/acre

Use recommended rate in not less than 20 gallons of water per acre and apply as a broadcast spray using suitable power-operated ground spray equipment. Use higher rates for residual control.

Chlorpyrifos 4E may also be applied in tank mixtures with non-pressure fertilizer solutions and/or with paraquat and Roundup. See **MIXING DIRECTIONS** section for further information. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for the other products used in combination with Chlorpyrifos 4E.

Cultivation Time Treatment
Use Chlorpyrifos 4E at the rate of 2 pints per acre to control corn rootworm larvae. Apply Chlorpyrifos 4E as a water emulsion on both sides of the row at the base of the plants just ahead of the cultivator shovels. Cover the insecticide with soil around the brace roots. The best time to apply a basal treatment of a soil insecticide with cultivation is near the beginning of egg hatch. A cultivation application of Chlorpyrifos 4E may be made in addition to an at-planting application of Chlorpyrifos 15G granular insecticide.

Postemergence Treatment
Use Chlorpyrifos 4E at the following rate by application in sufficient water to ensure thor-

ough coverage of treated plants:

PEST	CHLORPYRIFOS 4E
Grasshoppers	1/2 - 1 pint/acre
Armyworms, Chinch bugs, Aphids, Corn rootworm adults, Webworms, Western bean cutworm, European corn borer (see note)	1 - 2 pints/acre
Southwestern corn borer, Corn earworm	1 1/2 - 2 pints/acre
Cutworms, Billbugs, Lesser cornstalk borer, Flea beetle adults, Common stalk borer	2 pints/acre

Note: The recommended dosage will control silk clipping by corn rootworm adults. For European corn borer control, use 1-1/2 to 2 pints per acre when application is made with power-operated ground and aerial equipment and 1 to 2 pints per acre when application is made through a sprinkler irrigation system. See text below for generation-specific treatment.

Treat when field counts indicate that pests are or may become a problem. For best billbug, chinch bug, and flea beetle control, apply with sufficient water to ensure a minimum spray volume of 20 to 40 gallons per acre and 40 psi using ground spray equipment. On corn less than 6 inches tall, apply the insecticide spray in a 9- to 12-inch wide band over the row. On corn greater than 6 inches tall, apply the insecticide spray using drop nozzles directed to the base of the plant. Do not reduce the dosage for banded or directed applications. Concentrate the full-labeled dosage rate in the treated zone. When chinch bugs continue to immigrate to corn over a prolonged period or under extreme pressure, a second application of Chlorpyrifos 4E may be needed.

For cutworm, webworm, western bean cutworm, armyworm, aphid, European and southwestern corn borer, grasshopper, lesser cornstalk borer, corn rootworm adult, corn earworm, and common stalk borer control, apply as a broadcast spray using either aerial (fixed-wing or helicopter) or power-operated ground spray equipment.

For aerial application, use 2 to 5 gallons of spray per acre. Control may be reduced at low spray volumes under high temperature and wind conditions. For cutworms, it is preferable to apply Chlorpyrifos 4E when soil is moist and worms are active on or near the soil surface.

If ground is dry, cloddy, or crusty at the time of treatment, worms may be protected from the spray and effectiveness will be reduced. If such conditions exist, shallow incorporation using a rotary hoe may improve control. Consult your agricultural experiment station or extension service specialist for additional information concerning control practices in your area. For webworm control, shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment is necessary.

For first-generation European corn borer control, treat when 25 to 50 percent of the corn plants show pinhole feeding or leaf-feeding scars. For maximum control potential, ground applications of Chlorpyrifos 4E should be directed into the corn leaf whorls. Scout fields within 5 days after application to determine if a second application is needed. University research indicates that achieving greater than 50% control of first-generation

European borer with a single liquid insecticide treatment is highly dependent on timing, insecticide placement, and weather conditions.

Treatment for control of second-generation European corn borer should be applied when field counts of egg masses indicate an infestation is present or about to develop. For Southwestern corn borer control, treat when field counts of egg masses indicate pests are or may become a problem. A second application may be applied 10 to 14 days later if needed due to reinfestation. For common stalk borer control, treat approximately 11 days after application of Roundup herbicide or after complete burn down with paraquat herbicide (3 to 5 days). Do not use Chlorpyrifos 4E in combination with the burn down herbicide for control of common stalk borer.

Chlorpyrifos 4E may also be applied through sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar insects. For best results, use the recommended rate of Chlorpyrifos 4E in a tank mix with 2 pints per acre of non-emulsifiable oil. Maintain vigorous tank agitation to assure uniformity of the Chlorpyrifos 4E plus oil mixture throughout the injection period. Chlorpyrifos 4E may also be applied through sprinkler irrigation systems at the rate of 2 pints per acre to control corn rootworm larvae. Time application to coincide with the appearance of the second instar larvae. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. Apply with enough water to wet the root zone to the depth control is needed. Under saturated soil conditions, allow enough soil drying to occur so that an application using a minimum water rate will not produce runoff. Consult university extension personnel or other experienced consultants to determine the need to treat and to aid in application timing. See **SPRINKLER IRRIGATION** section for further information.

RESTRICTIONS: *Do not apply within 35 days before harvest of grain. Do not allow livestock to graze in treated areas nor harvest treated corn silage as feed for meat and dairy animals within 14 days after last treatment. Do not feed treated corn fodder to meat or dairy animals within 35 days after last treatment. Do not make more than 3 applications per season. Do not apply more than 6 pints (3 lbs. a.i.) per acre per season. Do not make a second application of Chlorpyrifos 4E or other product containing chlorpyrifos within 10 days of the first application.*

SWEET CORN (GROWN ONLY IN FLORIDA AND GEORGIA)

Use Chlorpyrifos 4E to control infestations of beet armyworm, fall armyworm, and corn earworm by application as a broadcast, foliar spray at the rate of 1 to 2 pints per acre. Mix the specified dosage in enough water to ensure thorough coverage and apply using suitable aerial or ground spray equipment. For aerial application, use at least 2 gallons of spray per acre. Treat when field counts indicate damaging pest populations are developing or present. Retreat as necessary to maintain control.

Chlorpyrifos 4E may also be applied through sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar insects. For best results, use the recommended rate of Chlorpyrifos 4E in a tank mix with 2 pints per acre of non-emulsifiable oil. Maintain vigorous tank agitation to assure uniformity of the Chlorpyrifos 4E plus oil mixture throughout the injection period. See **SPRINKLER IRRIGATION** section for further information.

RESTRICTIONS: *Do not harvest corn ears, allow livestock to graze in treated areas, nor feed treated silage, fodder, or grain to meat or dairy animals within 21 days after treatment. Do not use in conjunction with postplant broadcast, foliar applications of Chlorpyrifos 15G. Do not apply more than 2 pints (1 lb. a.i.) per application. Do not make more than 3 applications per season. Do not apply more than 6 pints (3 lbs. a.i.) per acre per season.*

COTTON

Chlorpyrifos 4E for control of the following pests in all states except Arizona and California at the dosages indicated:

PEST	CHLORPYRIFOS 4E
Cotton fleahopper, Plant bugs (Lygus, Mirids)	3/8 - 1 pint/acre
Fall armyworm, Grasshopper, Thrips, Yellowstriped armyworm	1/2 - 1 pint/acre
Cotton aphid	1/2 - 2 pints/acre
Spider mites	1 pint/acre
Beet armyworm, Cotton budworm, Tobacco budworm, Cutworms, Pink bollworm, Salt marsh caterpillar	1 1/2 - 2 pints/acre

NOTE: The recommended dosage rate of 3/8 pint per acre will not achieve the high degree of control of the highest label rate but will minimize the damage done by plant bugs and cotton fleahopper and allow the beneficial insects to survive, build up, and be available to aid in the control of bollworms infesting cotton. For infestations of cotton aphids that are difficult to control, use a higher dosage within the indicated rate range.

Use Chlorpyrifos 4E for control of the following pests in Arizona and California at the dosages indicated:

PEST	CHLORPYRIFOS 4E
Armyworms, Cotton Aphid, Cotton fleahopper, Lygus, Salt marsh caterpillar, Thrips	1 - 2 pints/acre
Cotton bollworm, Tobacco budworm, Boll weevil, Cutworms, Pink bollworm	2 pints/acre

Note: The 2-pint rate will aid in the suppression of cotton leafperforator and spider mites.

Mix the required dosage with sufficient water to ensure thorough coverage of plants and apply using aerial or power-operated ground spray equipment. For aerial application, use at least 1 gallon of spray per acre. Treat when field counts indicate damaging insect populations are developing or present. Retreat as necessary to maintain control.

Chlorpyrifos 4E may also be applied through sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of Chlorpyrifos 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See **SPRINKLER IRRIGATION** section for further information. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days after initial treatment to control newly hatched nymphs.

For best results on bollworms and budworms, it is suggested that fields be scouted twice per week and treatments made when worms are 1/4 inch or less in length. The following table illustrates the size of worms in relation to age and stage of development (instar) as a guide to timing of treatments for best control.

From the table it can be seen that a scouting schedule of only once per week will not be satisfactory since the worms may be too big to control effectively by the seventh or eighth day.

TIMING FOR THE BEST WORM CONTROL

	Age (Days)	Size	Instar
Get the worms at this stage	Hatch 3 5 6 8	1/16 “ 3/32” 9/32” 7/16” 11/16”	Hatch I II III IV
1/16” 3/32” 9/32” 7/16” 11/16”			

Proper application techniques help to ensure thorough spray coverage and correct dosage and are thus important in obtaining good control of pests. Consider these suggestions when applying Chlorpyrifos 4E on cotton.

Aerial Application
Shorten boom length to avoid spray entering the vortices at the wing tips. Swath width should be reduced when wind direction is the same as direction of spraying. The proper nozzle arrangement and swath width to avoid skips and vortices effect can be checked out by flying over a paper tape (adding machine paper) using water with or without soluble dye. (The dye gives a permanent record.)

Flying at a height of 5 to 15 feet above the target results is the best coverage.

Nozzle orientation of the boom is important. More break-up occurs when nozzles are pointed straight down versus the straight back position. Desired droplet size (100 to 200 microns) can be obtained by angling the nozzles somewhere in this range.

Marking of swath by flagging or permanent markers is essential.

Ground Application
Orient the boom and nozzles so that uniform coverage is obtained. The swath width should not be wider than the boom; drift spray is wasted spray so do not depend on it. Use flat fan or disc-core hollow cone nozzles with maximum spacing of 20 inches and a spray pressure of 40-60 psi with a droplet size of 100-200 microns.

RESTRICTIONS: *Do not apply within 14 days before harvest or make more than 3 applications per season. Do not apply more than 6 pints (3 lbs. a.i.) per acre per season. Do not allow livestock to graze in treated areas. Do not feed gin trash or treated forage to livestock.*

FIGS

Worker Restricted Entry Interval: Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days unless PPE required for early entry is worn.

Use Chlorpyrifos 4E at the rate of 2 quarts per acre for control of dried fruit beetle by application in sufficient water to the soil surface followed by incorporation into the top 3 inches of soil. Apply to fig orchard soil as a dormant application in late winter prior to beetle emergence and prior to leaf formation.

RESTRICTIONS: *Make only one application per year. Do not apply within 7 months of harvest. Based on available residue data, use of Chlorpyrifos 4E on figs is restricted to California.*

GRAPES

Use Chlorpyrifos 4E for control of grape root borer by application just before the pest emerges from the soil. Mix 4-1/2 pints of Chlorpyrifos 4E with 100 gallons of water and apply 2 quarts of the diluted spray mixture to the soil surface on a 15 square foot area around the base of each vine. Do not allow spray to contact fruit or foliage.

RESTRICTIONS: *Do not make more than one application per season or apply within 35 days before harvest. Based upon available residue data, the use of Chlorpyrifos 4E in grapes is restricted to states east of the Rocky Mountains.*

MINT

Use Chlorpyrifos 4E by application as a broadcast, foliar spray to control cutworms at the rate of 2 to 4 pints per acre and mint root borer at the rate of 4 pints per acre. Mix the specified dosage in water to give no less than 10 gallons of spray per acre and apply using ground spray equipment. For cutworm control, treat during May and June when field counts indicate damaging insect populations are developing or present. When larvae are less than 3/4 inch in length, use the 2 pint rate. When larvae are 3/4 inch or more in length, use the higher rate. Make only one application during the growing season. Do not apply within 90 days before harvest. For mint root borer control, apply post-harvest when field counts indicate damaging insect populations are developing or present.

Follow treatment with approximately 1-acre inch of sprinkler irrigation immediately after application to incorporate the insecticide into the soil. Make only one post-harvest application per season.

Chlorpyrifos 4E may also be applied through sprinkler irrigation systems as a postemergence broadcast application to control the above listed pests. For best results, use the recommended rate of Chlorpyrifos 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See **SPRINKLER IRRIGATION** for further information.

NECTARINES, PEACHES

Worker Restricted Entry Interval: Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days unless PPE required for early entry is worn.

Use Chlorpyrifos 4E for the control of peach tree borer by application as a trunk spray before newly hatched borers enter the trees. Mix 3 quarts of Chlorpyrifos 4E with 100 gallons of water and apply as a coarse, low-pressure spray to give uniform coverage of tree trunks. Thoroughly wet all bark areas from ground level to scaffold limbs. Do not allow spray to contact fruit. Consult your state agricultural experiment station or extension service specialist's written recommendations for proper time to treat in your area.

Chlorpyrifos 4E may also be used as a preplant dip application for non-bearing peach trees at the equivalent application rate of 3 quarts per 100 gallons of water for control of peach tree borer. Dip trees several inches above the grafting bud scar and plant immediately or allow to dry before returning to storage. Do not allow peach trees to remain in contact with the dip solution.

RESTRICTIONS: *Make only one application per season. Do not apply within 14 days before harvest. Do not allow meat or dairy animals to graze in treated orchards.*

ONIONS (DRY BULB)

Use Chlorpyrifos 4E to control onion maggot by application as an in-furrow drench. Apply Chlorpyrifos 4E at the rate of 1.1 fluid ounce per 1000 linear feet of row at an 18-inch row spacing. Use a minimum of 40 gallons of total drench per acre. Incorporate to a depth of 1 to 2 inches.

RESTRICTIONS: *Do not make more than one application per year.*

PEANUTS

For suppression of wireworms, apply Chlorpyrifos 4E at a rate of 4 pints per acre as a preplant broadcast spray to the soil surface followed by immediate soil incorporation to a depth of 3 to 4 inches. Use a minimum of 10 gallons of total spray per acre.

RESTRICTIONS: *Do not make more than one application per season. Do not harvest within 21 days after treatment. Do not feed treated peanut forage or hay to meat or dairy animals. Aerial application to peanuts is prohibited.*

TURF GRASS GROWN FOR SOD

Use Chlorpyrifos 4E to control the pests listed in the following table by application at the recommended dosages. Dilute Chlorpyrifos 4E in water and apply using suitable application equipment. For best results, turf should be moist at time of treatment.

PESTS	AMOUNT OF CHLORPYRIFOS 4E	
	1000 sq ft	Acre
Ants, armyworms (such as: beet, fall, yellowstriped), centipedes, chiggers, chinch bugs, crickets, cutworms, deer ticks, earwigs, European crane fly larvae, fiery skipper, fire ants (foraging workers), fire ants (mounds)(1), fleas, gnats, grasshoppers, greenbug aphids, green June beetle grubs, leafhoppers, Lucerne moth, millipedes, mites (such as: clover, Bermudagrass stunt, winter grain), pillbugs, springtails, sod webworms (lawn moths) (2), sowbugs, ticks	3/4 fl oz	1 qt
Billbug adults (such as: bluegrass, Denver, hunting) (3)	3/4 - 1 1/2 fl oz	1 - 2 qt
Annual bluegrass weevil (Hyperodes) (4), black turfgrass ataenius adults (5), mole crickets (6)	1 1/2 fl oz	2 qt
White grubs (such as: black turfgrass ataenius, European chafer, Japanese beetle larvae, and northern and southern masked chafers)(7)	1 1/2 - 3 fl oz	2 - 4 qt

Numbers in parentheses (-) refer to Specific Use Directions below.

SPECIFIC USE DIRECTIONS:
1. For individual fire ant mounds apply Chlorpyrifos 4E as a drench. Dilute 1 fl oz per 4 gallons of water. Gently sprinkle 1 to 2 gallons of the diluted insecticide over the surface of each mound and surrounding areas to a diameter of 2 feet. For best results, apply in cool weather, 65-80° F, or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays may disturb the nats and cause migration, reducing product effectiveness.
2. For sod webworms, watering or mowing of the treated area should be delayed for 12 to 24 hours after treatment.
3. For billbugs, spray early in the season just prior to or coinciding with first appearance of adults as recommended by your local Agricultural Extension Service Specialist.
4. To control annual bluegrass weevil, spray suspected problem areas in mid-April and again in mid May, or as recommended by our local Agricultural Extension Service Specialist.
5. For black turfgrass ataenius adults, spray early in the season as recommended by your local Agricultural Extension Service Specialist. A repeat application may be needed 1 to 2 weeks later.
6. To control mole crickets in turfgrass, apply Chlorpyrifos 4E through high-pressure injection or other suitable subsurface placement application equipment. Depending on the application equipment used, follow the manufacturers recommendation for calibration and the volume of spray per acre needed to provide control or as recommended by your local Agricultural Extension Service Specialist. For best results, apply when young nymphs are active.
7. For white grubs, spray when grubs are young and actively feeding near the soil surface, usually during late July and August or as recommended by your local Agricultural Extension Service Specialist, for best results, soil should be moist prior to treatment. For best results, immediately after spraying, irrigate the treated area with 1/2 to 1 inch or water to wash the insecticide into the thatch and underlying soil.

TURF AND OTHER NONRESIDENTIAL OUTDOOR USES

Chlorpyrifos 4E is an emulsifiable concentrate for control of pests located around industrial buildings (turf and ornamental), road medians (turf and ornamentals), and golf course turf only. Pests controlled by Chlorpyrifos 4E are listed in the following tables. Chlorpyrifos 4E is compatible with fungicides, insecticides, and miticides commonly recommended except for alkaline materials such has Bordeaux mixtures and lime. A small jar compatibility test should always be conducted using proper proportions of chemicals and water to check for physical compatibility prior to tank mixing.

Precautions and Restrictions: Keep out of fish pools and other bodies of water. Do not treat vegetable gardens. Do not allow livestock to graze in treated areas. Do not feed treated grass cuttings (hay) or seed screenings to livestock or use hay for livestock bedding. Do not use Chlorpyrifos 4E in poultry houses.

ORNAMENTALS IN NURSERIES, AROUND INDUSTRIAL BUILDINGS AND ROAD MEDIANS

Chlorpyrifos 4E may be used to treat evergreens, vines, flowers, shrubs, shade and flowering trees, non-bearing fruit, nut and citrus trees found in nurseries, around industrials buildings and road medians infested with pests listed in the following table. Dilute Chlorpyrifos 4E with water according to the directions given in the table and apply using suitable hand- or power-operated spray equipment. Ensure complete and uniform coverage. Uniform coverage is critical for effective insect and mite control. Apply a coarse spray to thoroughly wet both upper and lower leaf surfaces and infested limb and trunk areas. Attempt to penetrate dense foliage but avoid over-spraying to the point of excessive runoff. Treat when pests appear and repeat at 7 to 10 day intervals, if needed. For application timing and other specific use information, consult your State Agricultural Experiment Station or Extension Service Specialist.

For nurseries, when using spray equipment delivering less than 200 gallons of finished spray, use the rate recommended in the "per acre" column.

Note: Environmental factors have significant effects on phytotoxic expression. Chlorpyrifos 4E has been tested on numerous ornamental plants without causing serious phytotoxicity at recommended use rates. Some varieties of azaleas, camellias, poinsettias, rose bushes, or variegated ivy have shown varying degrees of phytotoxicity following treatment with Chlorpyrifos 4E. Before treating large numbers of plants (especially those previously listed), treat a small block of plants and observe for 7 to 10 days to determine phytotoxic potential.

Note: The user assumes responsibility for determining if Chlorpyrifos 4E is safe to treated plants under commercial growing conditions.

PEST*	Amount of Chlorpyrifos 4E in Water to Make		Specific Directions
	Per Acre	100 Gallons	
Adelgids: (Cooley, Eastern spruce galls, Pine bark), Ants: (including foraging fire ants), Aphids: (Apple, Chrysanthemum, Cottonwood, Elm leaf, Peach, Rose, Spirea, Woolly), Armyworms: (Fall, Yellowstriped), Bagworms[1], Boxelder bugs, Cankerworms, Carpenter ants[2], Catalpa sphinx, Chiggers, Citrus mealy bugs, Cockroaches: (American, Brownbanded, German, Oriental, Smokey brown), Elm spanworms, Fall webworms[3], Grasshoppers, Green fruitworms, Hornworms, Jackpine budworms, Juniper webworms, Katydids, Lace bugs, Leafhoppers, Leafrollers[4], Maple leafcutters[5], Mites[6]: (Clover, Red spider, Southern red, Spruce spider, Twospotted spider), Oleander caterpillars, Orange tortrix, Periodical cicada, Plant bugs, Poplar tentmaker, Psyllids, Puss caterpillars, Rose chafers, Sawflies, exposed: (Pin oak, Pine, Redheaded), Sowbugs, Spittlebugs, Spring elm caterpillars, Springtails, Spruce budworms:(Eastern, Western), Tent caterpillars: (Eastern, Western, Forest), Thornbug, Walnut caterpillars, Whiteflies, Yellownecked caterpillars	1 pt. – 1 qt.	8-16 fl. oz.	[1] Treat when bagworm larvae are small and actively feeding. [2] Locate carpenter ant nest if possible and drench thoroughly. [3] Direct spray into web and immediately adjacent foliage for control of fall webworms. [4] For effective control of leafrollers, spray before leaves are tightly rolled. [5] Apply spray to maple leafcutter larvae as cases are being formed for effective control. Do not treat sugar maple trees intended for maple syrup production. [6] For effective control of spider mites when large numbers of eggs are present, apply a 2nd spray 3-5 days in the South or 7-10 days in the North after initial treatment to control newly hatched nymphs.
Armyworms: (Beet), Beetles: (Fuller rose, Native elm bark[1]), Browntail moth, Cutworms, Leafhoppers, Mahogany webworms, Mealbugs, Mimosa webworms, Moths: (Browntail, Cypress tip, Douglas fir tussock, European pine shoot, Gypsy[2], Holly bud, Nantucket pine tip, Pandora, Pitch pine tip, Subtropical pine tip, Tussock, Oakworms: (California, Orangestriped, Redhumped), Redhumped caterpillars, Thrips: (Exposed), Weevils: (Blackvine[3], Pine production, Yellow poplar)	1 qt.	1 pt.	[1] Make applications in the spring or early summer to reduce twig and branch feeding by bark beetles. [2] To kill migrating and invading gypsy moth larvae, treat trunks and foliage. [3] Blackvine weevils are night feeders. Late afternoon spraying will maximize control.
Foliar feeding beetles: (Blister leaf, Cottonwood leaf[1], Elm leaf, Flea, Fuller rose, Japanese, June, Willow leaf)	1 qt.	1 pt.	[1] Use Chlorpyrifos 4E in water to control cottonwood leaf beetle larvae and adults infesting cottonwoods. Make the treatment when field counts indicate damaging beetle populations are developing or present.
Borers[1], Clearwing moths: (Ash, Dogwood, Lesser peachtree, Lilac, Oak, Rhododendron), Metallic wood: (Bronze birch, Flathead appletree, Twolined chestnut), Longhomed beetles: (Locust, Red oak), Cranberry girdler larvae[2], Leafminers, Needleminers: (Jeffrey pine, Lodgepole pine, Spruce), Scale insects[3]: (Cottonycushion, Cottony maple, Euonymus, Fletcher, Florida wax, Golden oak, Hemispherical, Lecanium, Magnolia, Oak kermes, Oak lacanium, Oystershell, Pine needle, San Jose, Tea, White birch, White peach)	1 qt.	1 qt.	[1] For borers, apply Chlorpyrifos 4E to the trunks and lower limbs of trees and shrubs when the adults begin to emerge. Consult your State Agricultural Experiment Station or Extension Service specialist for proper time to treat. Apply uniformly a coarse low-pressure spray. Pheromone traps may aid in detection of adult clearwing moths. [2] Apply 1 qt. of Chlorpyrifos 4E for cranberry girdler larvae. Direct spray at the base of tree using 50 gallons of water per acre. Irrigate immediately after applications for soil penetration of 1-2 inches. Treat after egg laying during the summer. [3] Time applications for control of scale insects when crawlers or first two stages of settled nymphs are present.
Borers: (Cottonwood, Peachtree[1])	1 qt.	3 qts. **	[1] For peachtree borers, apply Chlorpyrifos 4E in water to flowering trees and shrubs of the genus *Prunus* as a trunk spray before newly-hatched larvae enter the trees. Apply as a coarse, low-pressure spray. Thoroughly wet all bark areas from ground level to scaffold limbs. ** When using the 3 qt. per 100 gallon dilution, do not exceed 1qt. of Chlorpyrifos 4E per acre.
Beetles[1]:(Includes wood infesting, Ambrosia, Anobiidae, Black turpentine, Cottonwood leaf, Elm leaf, European elm bark, Flea, Fuller rose, Japanese, June, Native elm bark[2], Southern pine, Willow leaf)	1 qt.	2 gals. ***	[1] For preventative treatment, apply the spray to the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, apply the spray to the main trunk of infested trees when damage occurs but before adult beetles begin to emerge. [2] To prevent native elm bark beetles from overwintering in uninfested trees, apply Chlorpyrifos 4E in water to the bottom 9 ft. of the trunk. Wet the trunk thoroughly but do not spray to runoff. Care should be taken to apply the spray right to the base of the root flare. Application can be made with either a backpack mistblower or a hydraulic pressure sprayer from spring through early fall. *** When using the 2-gallon per 100-gallon dilution, do not exceed 1 qt. of Chlorpyrifos 4E per acre.

ORNAMENTALS IN NURSERIES AND GREENHOUSES (SOIL TREATMENT)

Chlorpyrifos 4E may be used to treat containerized, potted, or balled and burlapped nursery stock to control the insects in the soil attached to the roots of these plants. Completely submerge the container with drain holes or root ball stabilized by burlap in a tank containing diluted Chlorpyrifos 4E. Do not remove burlap wrap or plastic containers with drain holes prior to submerging. Keep the container or root ball submerged until complete soil saturation has occurred, normally about 30 seconds.

Precautions: During all operations (submerging, drenching, injecting), wear a chemical-resistant apron in addition to other PPE listed for applicators and other handlers. Make applications in a well-ventilated area.

Note: Environmental factors have significant effects on phytotoxic expression. Chlorpyrifos 4E has been tested on numerous ornamental plants without causing serious phytotoxicity at recommended use rates. However, because of the numerous varieties grown, treat a small group of plants at the recommended rate under the anticipated growing conditions and observe for at least 7 days to determine phytotoxic potential before treating a larger number of plants.

Note: The professional user assumes responsibility for determining if Chlorpyrifos 4E is safe to treated plants under commercial growing conditions.

PEST*	Amount of Chlorpyrifos 4E in Water to Make		Specific Directions
	1 Gallon	100 Gallons	
Fire Ants[1]	1/25 fl. oz.	4 fl. oz.	[1] As an alternative to submerging potted plants, dilute 4 oz. of Chlorpyrifos 4E in 100 gallons of water. Apply this dilution to the point of runoff twice daily for 3 consecutive days. Do not remove burlap wrap or container from plants prior to treatment.
White Grubs[2] Weevils[3] (such as Blackvine)	2/3 fl. oz.	2 qts. **	[2] An alternative treatment to submerging containerized plants is to drench the container with the diluted insecticide solution applying approximately 10 to 12 fl. oz. of diluted insecticide solution per gallon of container size (4-5 fl. oz./100 cubic inches of container). The container media should be pre-moistened by irrigation or rainfall before drenching. Do not remove container from plants prior to treatment. [3] An alternate treatment to submerging balled and burlapped plants is to inject Chlorpyrifos 4E into the root ball. Equally distribute 1 to 3 quarts of the dilute Chlorpyrifos 4E solution per cubic foot of soil volume through an injection rod inserted into the soil ball surrounding the plant roots. Uniform distribution of the insecticide throughout the soil of the root ball is critical for effective control. It is recommended that the injection rod be inserted in at least 4 equally spaced locations around the stem of the plant at a 30-45 degree angle from the plant between the stem and the upper, outer perimeter of the ball. This technique has been shown to be most effective with small root balls (up to 1.5 ft in diameter). Larger root balls may require more injection points to ensure thorough soil distribution of the insecticide. The injection rod should be coupled to a flow meter to monitor the correct volume applied per root ball using an injection pressure of at least 30 psi. The application should be made such that splash-back and runoff are minimized. **Do not exceed more than 1 quart of Chlorpyrifos 4E per acre.
Coffee root mealybug[2]	1/6 fl. oz.	1 pt.	

*Superscripts refer to specific directions.

ORNAMENTALS IN NURSERIES, GREENHOUSES, INDUSTRIAL PLANT SITES AND ROAD MEDIANS
(DORMANT SPRAY OF TREE PESTS)

Chlorpyrifos 4E may be used as a dormant or delayed dormant spray at the rates indicated to control the listed insects. Chlorpyrifos 4E may be used without oil; however, oil is recommended to control additional pests such as the European red mite.

For high volume (dilute) sprays (200 to 600 gallons of spray mixture per acre), tank mix the specified dosage with 1 to 2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water. Spray the entire tree to runoff using suitable ground spray equipment.

For low volume (concentrate) sprays (less than 200 gallons of spray mixture per acre), use the same amount of Chlorpyrifos 4E as for a dilute spray and apply in a manner that will ensure thorough coverage of the trees. Use oil as recommended by your State Agricultural Experiment Station or Extension Service specialist.

Precautions: Do not apply until rain or irrigation have replenished soil moisture such that bark and twigs are not desiccated since cold dry conditions may cause Chlorpyrifos 4E plus oil to infuse trees resulting in bud damage or drop.

For nurseries: Do not use more than 2 pints of Chlorpyrifos 4E per acre.

Restrictions: Make only one application during the dormant season except for the control of the apple ermine moth. Do not allow meat or dairy animals to graze in treated areas.

PEST*	Amount of Chlorpyrifos 4E in Water to Make			Specific Directions
	1 Gallon	3 Gallons	100 Gallons	
Aphids: (Mealy plum, Rosy Apple, Woolly apple), Borers: (Peach twig), Cutworms: (Climbing), Leafrollers: (Pandemis), Pear psylla adults, Plant bugs, Scale: (San Jose)	1/12 – 1/6 fl. oz.	1/4 - 1/2 fl. oz.	1/2 - 1 pt.	Tank mix with 1-2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water.
Apple ermine moth	1/12 fl. oz.	1/4 fl. oz.	1/2 pt.	For control on *Malus* species make 2 applications at a 7-14 day interval in combination with a petroleum spray oil at the rate of 2-4% (v/v) in a spray to wet application to ensure thorough coverage of all stems and branches. When using tank mixtures, follow all label directions for the mixing partner (oil). Use appropriate application equipment and spray volumes to ensure complete coverage of the plant(s) or control will be compromised.

ORNAMENTALS IN NURSERIES AND GREENHOUSES
(PREPLANT INCORPORATION TREATMENT OF FIELD GROWN NURSERY STOCK)

White Grubs and White Fringed Beetles: To control white grubs and white fringed beetles during transplant or seedling establishment, apply Chlorpyrifos 4E to soil and incorporate before transplanting or planting. Apply to the soil surface as a broadcast spray at a rate of 1 quart per acre using sufficient water to obtain adequate coverage. Do not make aerial applications. On the same day of treatment, incorporate the insecticide into the top 2 to 4 inches of the soil using a tandem disc, field cultivator, or equivalent incorporation equipment capable of thorough soil mixing.

Precaution: Environmental factors and varietal variation can significantly affect the potential for phytotoxicity from pesticide use. Chlorpyrifos 4E has been evaluated at the above indicated rate on loblolly pine without phytotoxic effects. Prior to making large-scale applications, growers should prepare and observe a small test plot as above in order to determine the potential phytotoxicity in species or varieties other than loblolly pine . Use the following procedure: (1) Treat a small test block as above; (2) Seed or transplant the test species or variety and observe for symptoms of phytotoxicity for a minimum of 14 days following emergence or transplanting.

Note: The professional user assumes responsibility for determining if Chlorpyrifos 4E is safe to treated plants under commercial growing conditions.

Garden Symphylans: Apply Chlorpyrifos 4E as a preplant incorporated treatment to suppress garden symphylans on land to be planted to field grown ornamentals. Apply as a broadcast application to the soil surface at the maximum rate of 1 quart per acre in at least 10 gallons of water per acre. On the same day of treatment, incorporate the insecticide to a depth of up to 8 inches using a disc, rotovator or other suitable equipment. Use the higher rate range for longer residual control or where deeper incorporation is necessary.

Precaution: Environmental factors significantly affect phytotoxicity. Chlorpyrifos 4E has been tested on numerous ornamental plants without causing serious phytotoxicity. However, because of the numerous varieties grown, treat a small group of plants at the recommended rate under the anticipated growing conditions and observe for phytotoxic symptoms for at least 7 days, before a large number of plants are treated. Do not blend Chlorpyrifos 4E with dry bulk fertilizer materials.

Note: The professional user assumes responsibility for determining if Chlorpyrifos 4E is safe to treated plants under commercial growing conditions.

TREE PESTS IN NURSERIES AND GREENHOUSES

Chlorpyrifos 4E may be used to treat shade and flowering trees, and evergreens infested with pests listed in the following table. Dilute Chlorpyrifos 4E with water according to the directions given in the table and apply using suitable hand-or power operated spray equipment in a manner to provide complete and uniform coverage. Apply a coarse spray to thoroughly wet both the upper and lower leaf surfaces and to infested limb and trunk areas. Attempt to penetrate dense foliage, but avoid overspraying to the point of excessive runoff. Treat when pests appear and repeat application at 7- to 10-day intervals, if needed. Consult your State Agricultural Experiment Station or Extension Service specialist for application timing and other specific use information applicable to your area.

PEST*	Amount of Chlorpyrifos 4E in Water to Make			Specific Directions
	1 Gallon	3 Gallons	100 Gallons	
Adelgids: (Cooley, Eastern spruce gall, Pine bark), Aphids: (Apple, Chrysanthemum, Cottonwood, Elm leaf, Peach, Rose, Spirea, Woolly), Bagworms[1], Boxelder bugs, Cankerworms, Catalpa sphinx, Citrus mealybugs, Elm spanworms, Fall webworms[2], Greenstriped mapleworms, Jackpine budworms, Juniper webworms, Katydids, Lace bugs, Leafhoppers, Leafrollers[3], Maple leafcutters[4], Mites[5]: (Clover, Red spider, Southern red), Oak skeletonizers, Poplar Tentmakers, Puss caterpillars, Sawflies, exposed: (Pin oak, Pine), Spring elm caterpillars, Spruce budworms, Tent caterpillars: (Eastern, Forest, Western), Walnut caterpillars, Western spruce budworms, Yellownecked caterpillars	1/12 oz.	1/4 fl. oz.	8 fl. oz.	[1] Treat when bagworm larvae are small and actively feeding. [2] For effective control of fall webworms, direct spray into web and immediately surrounding foliage. [3] For control of leafrollers, apply spray before leaves are tightly rolled. [4] Apply spray to maple leafcutter larvae as cases are being formed. Do not treat sugar maple trees intended for maple syrup production.
Beetles: (Fuller rose, Native elm bark[1]), Leafhoppers, Mahogony webworms, Mealybugs, Mimosa webworms, Moths: (Browntail, Cypress tip, Douglar fir tussock, European pine shoot, Gypsy[2], Holly bud, Nantucket pine tip, Pandora, Pitch pine tip, Subtropical pine tip, Tussock), Oakworms: (California, Orangestriped, Redhumped), Redhumped caterpillars, Thrips-exposed, Weevils: (Blackvine[3], Pine reproduction, Yellow poplar)	1/6 fl. oz.	1/2 fl.oz.	1 pt.	[1] To reduce foliar feeding on twigs and branches by beetles, apply in the spring or early summer. [2] To kill migrating and invading gypsy moth larvae, treat trunk and foliage. [3] Blackvine weevils are night feeders. Late afternoon spraying will maximize control.
Beetles: (Cottonwood leaf[1], Elm leaf, Flea, Willow leaf)	1/6 - 1/3 fl. oz.	1/2 - 1 fl. oz.	1 pt. – 1 qt.	[1] For cottonwood leaf beetles, use Chlorpyrifos 4E in water to control larvae and adults infesting cottonwoods. Apply when field counts indicate damaging beetle populations are developing or are present. For seedlings, use 8-20 gallons of spray volume per acre.
Borers[1], Clearwing moths: (Ash, Dogwood, Lesser peachtree, Lilac, Oak, Rhododendron), Metallic wood: (Bronze birch, Flatheaded appletree, Twolined chestnut,), Longhorned beetles: (Locust, Red oak), Cranberry girdler larvae[2], Leafminers, Needleminers: (Jeffery pine, Lodgepole pine, Spruce), Scale insects[3]: (Cottonycushion, Cottony maple, Euonymus, Fletcher, Florida wax, Golden oak, Hemispherical, Lecanium, Magnolia, Oak kermes, Oystershell, Pine needle, San Jose, Tea, White birch)	1/3 fl. oz.	1 fl. oz.	1 qt.	[1] For borers, apply Chlorpyrifos 4E to the trunks and lower limbs of trees and shrubs when the adults begin to emerge. Consult your State Agricultural Experiment Station or Extension Service specialist for proper time to treat in your area. Apply uniformly as a coarse low-pressure spray. Pheromone traps may aid in detection of adult clearwing moths. [2] Apply 1 quart of Chlorpyrifos 4E per acre to cranberry girdler larvae infesting Douglas fir seedlings. Direct spray at the lower crown and stems using 50 gals. of water per acre. Irrigate immediately after application for soil penetration of 1-2 inches. Treat after egg laying during the summer. [3] Time applications for control of scale insects when crawlers or first two stages of settled nymphs are present.
Northern pine weevil, Pales weevil	1 fl. oz.	3 fl. oz.	3 qts. **	Apply as a cut stump spray or drench in winter or early spring. ** Do not exceed 1 quart of Chlorpyrifos 4E per acre.
Borers: (Cottonwood, Peachtree)[1]	1 fl. oz.	3 fl. oz.	3 qts. **	[1] For peachtree borers, apply Chlorpyrifos 4E in water to flowering trees and shrubs of the genus *Prunus* as a trunk spray before newly hatched larvae enter the trees. Apply as a coarse low-pressure spray. Thoroughly wet all bark areas from ground level to scaffold limbs. ** Do not exceed more than 1 quart of Chlorpyrifos 4E per acre.
Beetles[1]: (Cottonwood leaf, Elm leaf, Flea, Fuller rose, Native elm bark[2], Willow leaf)	1 1/3 fl. oz.	4 fl. oz.	1 gal. **	[1] For preventative treatment, apply spray to the main trunk of trees in the early spring or when threat of attack exists from nearby infested trees. For remedial treatment, apply the spray to the main trunk of infested trees or logs when damage occurs but before adult beetles begin to emerge. [2] To prevent native elm bark beetles from overwintering in uninfested trees, apply a dilution of 1 gallon per 100 gals. of water (1 1/3 fl. oz. per gallon) as a spray to the bottom 9 ft. of the trunk. Wet the trunk thoroughly but do not spray to runoff. Care should be taken to apply the spray to the base of the root flare. Applications can be made from spring to early fall. To reduce twig and branch feeding on trees deemed to be of high value, apply as spray to the tree crown using a dilution of 1 gallon per 100 gals. of water (1 1/3 fl. oz. per gallon). Applications should be made in the spring or early summer using a sprayer that will give thorough coverage to the tree crown. ** Do not exceed more than 1 quart of Chlorpyrifos 4E per acre.
Weevils: (such as Northern pine, Pitch eating, Twig)	5 1/3 fl. oz.	16 fl. oz.	-	Treat pine seedlings immediately after transplanting. Treat each seedling with enough spray to thoroughly wet the foliage and stem to the point of runoff. For nurseries, do not use more than 6 gals. of spray dilution per acre.

*Superscripts refer to specific directions.

TURF, INDUSTRIAL PLANT, AND ROAD MEDIAN OUTDOOR USES

Apply Chlorpyrifos 4E to control the pests listed in the following table at the recommended dosages and in accordance with the directions given below or as recommended by your local Agricultural Extension Service specialist. Dilute Chlorpyrifos 4E in water and apply as a coarse, low-pressure spray using suitable application equipment. Except as noted, thoroughly water immediately after treatment to wash the insecticide into the turf. The area to be treated should be moist at the time of treatment. Spray when pests first appear, retreat when needed.

PEST*	Amount of Chlorpyrifos 4E per		Specific Directions
	1,000 sq. feet	Acre	
Ticks[1]: (American dog, Cattle fever, Gulf coast, Lone star)	1/4 fl. oz.	1 1/2 pts.	[1] For control of ticks, treat soil and other areas likely to serve as harborage sites for ticks that have removed themselves from their host. Spray surfaces to be treated until wet but do not create excessive runoff. Note: This application is intended as a premise spray only. Do not use as a direct spray on livestock or any sites that may come in contact with livestock.
Ants: (including foraging fire ants), Armyworms: (Beet, Fall, Yellowstriped), Centipedes, Chiggers[1], Chinch bugs, Clover mites, Cutworms, Crickets, Deer ticks[2], Earwigs, Fiery skipper, Fire ants (mounds)[3], Fleas, Gnats, Grasshoppers, Greenbug aphids, June beetles, Leafhoppers, Lucerne moths, Millipedes, Mites: (Clover, Bermudagrass stunt, Formula grass, Winter grain), Pillbugs, Sod webworms[4]: (Lawn moths), Sowbugs, Ticks[1]	3/4 fl. oz.	1 qt.	[1] Apply Chlorpyrifos 4E for area control of ticks and chiggers infesting golf course turf, turf in road medians, and industrial plant sites where these pests are present and create a nuisance or a possible public health problem. Do not allow public use of treated areas during application or until spray has dried. Apply Chlorpyrifos 4E in water at the rate of 1/2 pint/acre (equivalent to 1/6 fl. oz. per 1,000 sq. ft) using a hydraulic sprayer, mist applicator, knap sack sprayer, or other suitable hand or power-operated spray equipment. Treat low underbrush, grassy areas, weeds, and ground surface and debris using enough spray volume to obtain thorough coverage, usually 40-100 gals./acre. [2] Apply Chlorpyrifos 4E in water at the rate of 1 quart per acre or 3/4 fl. oz. per 1,000 sq. ft. for control of deer ticks. Treat low underbrush, turf, grassy areas, weeds, and ground surface and debris, using enough spray volume to obtain thorough coverage. [3] For individual fire ants mounds, apply Chlorpyrifos 4E as a drench, diluted at the rate of 1 fl. oz. per 4 gals. of water. Gently sprinkle a total of 1 gallon of the diluted emulsion over the surface of each mound using a gentle spray (such as a sprinkler can). Thoroughly wet mound and surrounding areas to a 4 ft. diameter (12 sq. ft). Apply in cool weather (65˚F-80˚F), or in early morning or later evening hours. Treat new mounds as they appear. Pressurized spray may disturb the ants and cause migration, reducing product effectiveness. [4] For sod webworms, watering or mowing of the treated area should be delayed for 24 hours after treatment.
European crane fly	1 fl. oz.	1 qt.	
Turfgrass weevil (*Hyperodes*)[1]	1 1/2 fl. oz.	1 qt.	[1] Make application to problem areas in mid-April and again in mid-May or as recommended by your local Agricultural Extension Service specialist.
White grubs[1]: (Black turfgrass ataenius, European chafer, Japanese beetle larvae, Southern and Northernmasked chafer)	1 1/2 - 3 fl. oz.	1 qt.	[1] Spray when white grubs are young and actively feeding near the soil surface, usually during late July and August or as recommended by your local Agricultural Extension Service specialist. Immediately after spraying, irrigate the treated area with 1/2 to 1 inch of water to wash the insecticide deep into the thatch or into the underlying soil.
Billbug adults, such as: (Bluegrass, Denver, Hunting)	3/4 - 3 fl. oz.	1 qt.	Spray early in the season when adult billbugs first appear.
Mole Crickets	1 1/2 fl. oz.	1 qt.	For mole crickets in golf course turf, turf in road medians, and industrial plant site turfgrass, apply through high-pressure injection or other suitable subsurface placement application equipment. Depending on the application equipment used, follow the manufacturer's recommendation for calibration and the volume of spray per acre needed to provide control or as recommended by your local Agricultural Extension Service specialist. Apply when young nymphs are active.
Imported Fire Ants in commercial sod		1 qt.	Apply Chlorpyrifos 4E as a spray to the area of sod to be cut. Immediately after application, irrigate treated area with at least 1/2 acre-inch of water or a sufficient volume to thoroughly soak below the cut line. Do not apply a volume or rate of water to caused runoff. Sod can be cut when vegetation has dried and when soil is moist, but not wet.

*Superscripts refer to Specific Directions.

OUTSIDE SURFACES AND AROUND INDUSTRIAL PLANT SITES (SUCH AS AROUND WAREHOUSES, FOOD PROCESSING AND FOOD MANUFACTURING SITES)

Chlorpyrifos 4E may be applied as a residual spray to and around outside surfaces of non-residential buildings and structures. Permitted areas of use include, but are not limited to: fences, pre-construction foundations, refuse dumps, outside of walls, and other areas where pests congregate or have been seen. Do not allow adults, children, or pets to contact treated surfaces until sprays have dried. Keep out of fish pools and other bodies of water. Do not feed treated grass cuttings (hay) or seed screenings to livestock, or use treated hay for livestock bedding. Do not treat vegetable gardens. Repeat treatment as needed to maintain effectiveness. Unless prohibited by a products' label, users, at their own discretion, can tank mix pesticides currently labeled for similar use patterns. Always perform a small jar compatibility test using proper proportions to check for physical compatibility prior to tank mixing. Do not tank mix this product with products containing dichlorvos (DDVP).

PEST*	Amount of Chlorpyrifos 4E in Water to Make			Specific Directions
	1 Gallon	10 Gallons	50 Gallons	
	For Band Treatment[1]			
Ants, Bees, Beetles, Boxelder bugs (for other true bugs), Carpenter ants, Centipedes, Clover mites, Cockroaches: (American, Asian, Brownbanded, German, Oriental, Smokey brown), Crickets, Earwigs, Elf leaf beetles (adults), Firebrats, Fleas, Flies, Hornets, Millipedes, Pillbugs, Scorpions[2], Silverfish, Sowbugs, Spiders, Springtails, Ticks, Wasps, Yellowjackets	1/4 tsp.	3/4 fl. oz.	4 fl. oz.	[1] To help prevent infestation of non-residential buildings, treat a band of soil 6-10 ft. wide around and adjacent to buildings including the building foundation to a height of 2-3 ft. where pests are active and may find entrance. Use 4 fl. oz. of Chlorpyrifos 4E per 50 gals. of water and apply as a coarse spray at the rate of about 10 gals. of spray mixture per 1,000 sq. ft. to thoroughly and uniformly wet the band area. [2] For scorpions, treat or remove accumulations of lumber, firewood, and other materials that serve as insect harborage sites. Make a thorough perimeter treatment around the structure using directions for band treatment above.
	For Outside Surfaces			
	1 1/3 fl. oz.	13 1/3 fl. oz.	2 qts.**	**Do not exceed 1 qt. of Chlorpyrifos 4E per acre.

*Superscripts refer to Specific Directions.

ANTS, TERMITES AND MISCELLANEOUS PESTS

PEST*	Amount of Chlorpyrifos 4E in Water to Make			Specific Directions
	1 Gallon	3 Gallons	100 Gallons	
Ants, Cockroaches: (American, Asian, Brownbanded, German, Oriental, Smokey brown, Wood), Fire ants (foraging workers), Fire ants (mounds)[1], Sowbugs, Springtails	1/6 fl. oz.	1/2 fl. oz.	1 pt.	[1] For fire ant mound treatment, apply as a drench. Dilute 1 fl. oz. per 4 gallons or water. Gently sprinkle 1-2 gallons of the diluted insecticide over the surface of each mound and surrounding areas to a 2-foot diameter. Apply in cool weather (65˚F-80˚F), or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays may disturb the ants and cause migration, reducing product effectiveness.
Carpenter ants[2], Termites	2 2/3 fl. oz.	8 fl. oz.	2 gals. **	[2] Locate carpenter ant nests and drench thoroughly. **Do not exceed 1 quart of Chlorpyrifos 4E per acre.

*Superscripts refer to specific directions.

GENERAL CONTROL OF WOOD-INFESTING INSECTS

Mix Chlorpyrifos 4E with water and apply as a general surface or localized injection treatment with pressurized sprayers or other equipment suitable for applying insecticides to localized areas. Avoid contact with treated surfaces until spray has dried. Cover or remove exposed foods before treatment. Do not apply where electrical short circuits could occur. Permitted areas of use include, but are not limited to: wood surfaces, voids, and channels in damaged woods, junctions between wood and foundation, gaps between wooden members. Not for use in wood treatment in residential areas.

Mixing Directions: To make a 0.5% water based spray, mix 1 1/3 fl. oz. of Chlorpyrifos 4E per each gallon of spray mixture. A stable emulsion can be formed by first adding approximately one-half of the required amount of water to a spray tank followed by adding the proper amount of Chlorpyrifos 4E, then the remaining water. Close the tank and shake vigorously for 5 to 10 minutes.

Tank Mixing: Unless prohibited by a product's label, users, at their own discretion can tank mix pesticides currently labeled for similar use patterns. Always perform a jar compatibility test using proper proportions to check for physical compatibility prior to tank mixing. Do not tank mix this product with products containing dichlorvos (DDVP).

Application Methods: This product may be applied either by brushing onto targeted surfaces or as a coarse spray. Equipment capable of delivering a coarse, low-pressure (about 25 psi) spray is recommended for treatment of large or overhead areas. Use sufficient amount of spray dilution to cover the area to the point of wetness but avoid spraying to the point of runoff.

PEST*	Specific Directions
Beetles[1]: (Anobiidae, Bostrichidae, Cerambycidae, Lyctidae), Carpenter ants[2] (and other wood infesting ants), Carpenter bees, Termites[3,4]	[1] Beetles may be controlled by applying spray mixture to infested areas, or areas where infestations are likely to occur. These areas include, but are not limited to wood surfaces, voids, and channels in damaged wood, in spaces between wooden members of a structure, and junctions between wood and foundations. Use the following guidelines to determine the appropriate rates of application: New wood (typically less than 10 years of age), apply at about 1 gallon of dilution per 150 sq. ft. Old wood (typically greater than 10 years of age), apply at about 1 gallon of dilution per 100 sq. ft. [2] Control wood infesting ants by applying spray mixture around doors and windows, cracks or crevices, or other areas where ants may enter, crawl, or hide. Primary colonies are typically found outside through an exterior inspection. Correction of sanitation and structural deficiencies or landscape modifications may be necessary for effective control. [3] Termites can be treated by applying spray mixture to infested areas, or areas where infestations are likely to occur. This includes, but is not limited to wood surfaces, voids and channels in damaged wood, in spaces between wooden members of a structure, and junctions between wood and foundations. This treatment is intended to kill localized infestations of workers and winged reproductive forms of termites and to prevent infestations for a temporary period. This application is not intended as a substitute for soil treatment. [4] Chlorpyrifos 4E treatment will kill workers and/or winged reproductive forms of termites present at the time of application only. Applications of Chlorpyrifos 4E will not provide structural protection nor substitute for mechanical alteration, soil or foundation treatment with termiticide. This product is not to be used as sole protection against termites, as it is not intended for use for elimination of termite infestations nor for protection against future infestations. A professional inspection is recommended.

*Superscripts refer to specific directions.

SORGHUM

Use Chlorpyrifos 4E Insecticide for control of the following pests at the dosage indicated:

PEST	CHLORPYRIFOS 4E	SPECIFIC DIRECTIONS
Sorghum midge	1/2 pint/acre	Apply when 30 to 50% of the seed heads are in bloom. Repeat at 3-day intervals if necessary.
Grasshoppers, Yellow sugar cane aphid and other aphids	1/2 - 1 pint/acre	
Greenbug	1/2 - 2 pints/acre	For infestations of greenbug that are difficult to control, use a higher dosage within the indicated rate range.
Chinch bugs, Lesser cornstalk borer	1 - 2 pints/acre	Apply as a directed spray toward the base of the plant using power-operated ground spray equipment with sufficient water to ensure coverage of an 8-12 inch band centered on the row. On plants less than 6 inches high, apply an 8- to 12-inch band over the row. Do not reduce the dosage for banded or directed applications. Concentrate the full labeled dosage rate in the treated zone.
Webworms	1 pint/acre	
Armyworms, Corn earworm, Cutworms	1 - 2 pints/acre	
European and Southwestern corn borer	1 1/2 - 2 pints/acre	

Mix the specified dosage in enough water to ensure thorough coverage and apply using suitable aerial or ground spray equipment. To minimize chemical injury, do not apply Chlorpyrifos 4E to drought stressed grain sorghum within 3 days following irrigation or rain except where the product is applied in irrigation water.

Chlorpyrifos 4E may also be applied through sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of Chlorpyrifos 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See **SPRINKLER IRRIGATION** section for further information.

RESTRICTIONS: *The treated crop is not to be used for grain, forage, fodder, hay, or silage within 30 days after application of 1 pint of Chlorpyrifos 4E per acre or within 60 days after application of rates above 1 pint per acre. Do not treat sweet varieties of sorghum. Do not apply more than 3 pints of Chlorpyrifos 4E per acre per season. Do not make more than 3 applications per season.*

SOYBEANS

For use to control armyworms, bean leaf beetle, corn earworm, cutworms, European corn borer, grasshoppers, green cloverworm, lesser cornstalk borer, Mexican bean beetle, saltmarsh caterpillar and other woollybears, southern green stink bug, spider mites, and velvetbean caterpillar.

Soil Treatment

Use Chlorpyrifos 4E at the rate of 1 to 2 pints per acre to control cutworms and lesser cornstalk borer. Mix the specified dosage in a minimum of 10 gallons of spray per acre and apply to the soil surface using suitable ground spray equipment. Equivalent rates of insecticide spray required per 100 feet of row for various row spacing are given in the accompanying table. For at-plant treatments, apply the insecticide over the row in a 4- to 6-inch band in front of the planter shoe or press wheel or after the press wheel followed by a drag chain for light incorporation. Do not apply as an in-furrow treatment. For postemergence rescue treatments, apply as a directed spray in a 9- to 12-inch band at the base of the plant. To plants under 6 inches high, apply over-the-top in a 6- to 12-inch band. Treat when field counts or conditions indicate that pests are or may become a problem.

Fluid Ounces of Spray Required Per 100 Feet of Row for Various Row Spacing

Volume of Spray Per Acre	36"	32"	28"	24"
10 gallons	8.8	7.9	6.9	5.9
15 gallons	13.2	11.8	10.3	8.8
20 gallons	17.6	15.7	13.7	11.8

Foliar Treatment

Use Chlorpyrifos 4E at the following rate by application in sufficient water to ensure thorough coverage of treated plants:

PEST	CHLORPYRIFOS 4E
European corn borer, Southern green stink bug	2 pints/acre
Bean leaf beetle, Cutworms, Corn earworm, Saltmarsh caterpillar and other woollybears, soybean aphid	1 - 2 pints/acre
Mexican bean beetle, Armyworms	1 - 1 1/2 pints/acre
Velvetbean caterpillar, Grasshoppers, Green cloverworm, Spider mites	1/2 - 1 pint/acre

Apply as a broadcast spray using either aerial or ground equipment when field counts indicate damaging insect populations are developing or present; retreat as necessary to maintain control. For effective control of spider mites when large numbers of eggs are present, apply a second spray 3 to 5 days after initial treatment to control newly-hatched nymphs. On determinate soybeans, do not apply more than one application after pod set.

Chlorpyrifos 4E insecticide may also be applied through sprinkler irrigation systems as a postemergence broadcast application to control the above listed foliar pests. For best results, use the recommended rate of Chlorpyrifos 4E per acre. Maintain vigorous tank agitation to assure uniformity of the application throughout the injection period. See

SPRINKLER IRRIGATION section for further information.

RESTRICTIONS: *Do not apply more than 6 pints (3 lbs. a.i.) of Chlorpyrifos 4E per acre per season. Do not make more than 3 applications per season. Do not apply last treatment within 28 days before harvest nor apply last two treatments closer than 14 days apart. Do not allow livestock to graze in treated areas or otherwise feed treated soybean forage, hay, and straw to meat or dairy animals.*

STRAWBERRIES

Use Chlorpyrifos 4E by application as a broadcast foliar spray to control strawberry bud weevil at the rate of 1 quart per acre. Apply in a minimum of 40 gallons of spray per acre when buds first appear and 10 to 14 days later. Do not apply after berries start to form or when berries are present. Chlorpyrifos 4E should not be tank mixed with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination noninjurious under your current conditions of use. Phytotoxicity may occur when Chlorpyrifos 4E is applied to strawberries experiencing high temperature and drought stress.

RESTRICTIONS: *For prebloom use only. Do not make more than two applications per season or apply within 21 days before harvest.*

SUNFLOWERS

For use to control cutworms, sunflower beetle larvae and adults, stem weevil, sunflower moth, banded sunflower moth, woollybears, seed weevil, and grasshoppers.

Preplant Incorporation Treatment

Use Chlorpyrifos 4E insecticide at the following rates by application in sufficient water to the soil surface and incorporate into the soil:

PEST	CHLORPYRIFOS 4E
Cutworms	2 - 4 pints/acre

Use recommended rate in not less than 10 gallons of water per acre and apply as a broadcast spray to the soil surface using suitable power-operated ground spray equipment. On the same day of treatment, incorporate the insecticide into the top 2 to 4 inches of soil using a disc, field cultivator, or equivalent equipment.

Postemergence Treatment

Use Chlorpyrifos 4E for control of the following pests at the dosage indicated by application in sufficient water to ensure thorough coverage of treated plants:

PEST	CHLORPYRIFOS 4E
Cutworms	2 - 3 pints/acre
Sunflower beetle larvae and adults, Stem weevil, Sunflower moth, Banded sunflower moth, Woollybears, Seed weevil	1 - 1 1/2 pints/acre
Grasshoppers	1 pint/acre

Apply as a broadcast spray using either aerial (fixed-wing or helicopter) or power-operated ground spray equipment when field counts indicate that pests are or may become a problem. For cutworm control, a second treatment may be made 7 to 10 days later if needed. For stem weevil control, optimal treatment time is within 5 to 7 days after adult weevils begin to appear. For sunflower moth control, make first application during early 1 to 5 percent bloom stage. A second treatment may be made 7 days later if needed. For seed weevil control, treat when field counts indicate there are 10 to 12 adults per plant for oil crops and 1 to 3 adults per plant on confectionery crops.

Additional treatments should be made at successive 7- to 10-day intervals if field counts indicate need to retreat. For sunflower beetle larvae or adult control, treat when field counts indicate there are 10 larvae or 1 to 2 adults per seedling. Additional treatments may be made at successive 7- to 10-day intervals if field counts indicate need to retreat.

RESTRICTIONS: *Do not apply more than 6 pints of Chlorpyrifos 4E per acre per season. Do not make more than 3 applications per season. Do not apply within 42 days before harvest. Do not allow livestock to graze in treated areas.*

SUGAR BEETS

Apply Chlorpyrifos 4E as a broadcast foliar spray at a rate of 1/2 to 1 pint per acre to control grasshoppers, 1-1/2 to 2 pints per acre to control beet armyworms, and 2 pints per acre to control cutworms. Treat when field counts indicate that damaging insect populations are or may be a problem. Mix the specified dosage with 2 to 5 gallons of water per acre and apply using suitable aerial spray equipment or with 10 to 30 gallons of water per acre when using power-operated ground spray equipment. Retreat as necessary to maintain control.

RESTRICTIONS: *Do not apply within 30 days before harvest of beet roots and tops. Do not make more than 3 applications per season. Do not apply more than a total of 6 pints (3 lbs. a.i.) per acre per season. Do not allow livestock to graze in treated areas nor harvest treated beet tops as feed for meat or dairy animals within 30 days after last treatment.*

SWEET POTATOES

Use Chlorpyrifos 4E to reduce the feeding damage caused by populations of *Conderus* wireworm, *Systena* flea beetle, and the sweet potato flea beetle. Apply at the rate of 4 pints per acre as a broadcast (overall) spray to the soil surface followed by incorporation. Mix the specified dosage with enough water to obtain uniform coverage and apply as a coarse spray using suitable ground spray equipment. Incorporate the insecticide to a depth of 4 to 6 inches as soon as possible after application by using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant the crop in the usual manner no later than 14 days after treatment (any delay in planting will reduce the length of time that Chlorpyrifos 4E will protect against feeding damage). Chlorpyrifos 4E will not control false wireworms or white-fringed beetle or other grubs that attack sweet potatoes.

RESTRICTIONS*: Do not make more than one application per season. Do not harvest within 125 days of treatment.*

TOBACCO*

Use Chlorpyrifos 4E for preplant treatment to control larvae of cutworms, flea beetles, mole crickets, root maggots, and wireworms. Apply 4 pints (2 lbs. a.i.) of Chlorpyrifos 4E per acre in not less than 10 gallons of water as a broadcast (overall) spray to the soil surface one week before transplanting. Immediately following application, incorporate the insecticide into the soil to a depth of 2 to 4 inches using suitable equipment. The application of Chlorpyrifos 4E will also suppress the movement of imported fire ants into treated fields.

To control the above insects and low to moderate populations of rootknot nematodes in North Carolina, South Carolina, and Virginia, use Chlorpyrifos 4E at the rate of 4 pints (2 lbs. a.i.) per acre. To control the above insects and moderate populations of rootknot nematodes in all tobacco growing regions, use Chlorpyrifos 4E in a tank mix with Nemacur® 3 at the rate of 2 quarts of Chlorpyrifos 4E plus 4 quarts of Nemacur 3 nematicide per acre. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for Nemacur 3 used in combination with Chlorpyrifos 4E.

Apply the specified dosage in not less than 10 gallons of water as a broadcast (overall) spray to the soil surface 24 to 48 hours before bedding and transplanting. Immediately following application, incorporate into the soil surface 24 to 48 hours before bedding and transplanting. Immediately following application, incorporate into the soil to a depth of at least 4 inches using suitable equipment. Where the nematode species *Meloidogyne arenaria* or *M. Javanica* are present or high populations of *M. incognita*, apply Telone* II soil fumigant at the recommended label rate.

RESTRICTIONS: *Do not apply more than 4 pints (2 lbs. a.i.) per application. Do not make more than one application per season. Do not apply more than 4 pints (2 lbs. a.i.) per acre per season. *Not Registered for Use in California.*

TREE FRUITS

Worker Restricted Entry Interval: Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days unless PPE required for early entry is worn.

Use Chlorpyrifos 4E as a dormant or delayed dormant spray at the rates indicated to control the following insects on the crops listed. While Chlorpyrifos 4E may be used without oil, oil is recommended to control additional pests such as European red mite.

CROP	PEST	CHLORPYRIFOS 4E PER 100 GALLONS OF SPRAY*
Apples (1)	Rosy apple aphid, San Jose scale, Lygus, *Pandemis* leafroller, Climbing cutworms, Obliquebanded leafroller	1/2 - 1 pint (Use a minimum of 1.5 pints/acre)
Pears	San Jose scale, Climbing cutworms, Pear psylla adults	
Plums, Prunes	San Jose scale, Mealy plum aphid, Climbing cutworms, Peach twig borer	
Almonds, Peaches, Nectarines	San Jose scale, Peach twig borer, Climbing cutworms	

* Based on 200 to 600 gallons per acre as a dilute spray.
(1) Post bloom use on apple trees is prohibited.

For dilute spray, tank mix the specified dosage with 1 to 2 gallons of a petroleum spray oil recommended for dormant use in 100 gallons of water and spray the entire tree by application to runoff using suitable ground spray equipment. (See **Additional Precautions Specific to California** section for use in California).

For low volume (concentrate) sprays (less than 200 gallons of spray mixture per acre), use the same amount of Chlorpyrifos 4E as for a dilute spray and apply in a manner that will ensure thorough coverage of the trees. Use the higher dosage of Chlorpyrifos 4E for severe infestations. Use oil as recommended by your state agricultural experiment station or extension service specialist.

PRECAUTIONS: Because cold or dry conditions may cause Chlorpyrifos 4E plus oil sprays to infuse trees resulting in bud damage or drop, do not apply until winter rains or irrigation has replenished soil moisture such that bark and twigs are not desiccated. Do not use more than 4 pints of Chlorpyrifos 4E per acre.

Additional Precautions Specific to California: Use a minimum of 100 gallons of total spray volume per acre. Do not use more than 4 gallons of spray oil per acre on almonds, peaches, or nectarines. Do not use any adjuvants or surfactants in addition to or as a substitute for a petroleum spray oil in a tank mix with Chlorpyrifos 4E. Do not apply on almonds in the following counties in California: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba.

RESTRICTIONS: *Make only one application during the dormant season. Do not allow meat or dairy animals to graze in treated orchards. Do not make post-bloom applications on apples.*

TREE NUTS

Use Chlorpyrifos 4E at the dosage indicated by application as a foliar spray to control pests listed in the following table. Mix the required dosage in sufficient water to ensure thorough and complete coverage of the foliage and crop, and apply as a concentrate or dilute spray using conventional, power-operated spray equipment. For dilute sprays applied to tree nut crops, mix the required dosage in sufficient water to allow for spray to runoff. For concentrate sprays, apply an equivalent amount of Chlorpyrifos 4E per acre. Treat when pests appear or in accordance with local conditions. Insect control by aerial application may be less than control by ground application because of less coverage. Consult your state agri-

cultural experiment station, certified pest control advisor, or extension service specialist for specific use information in your area.

ALMONDS, FILBERTS, WALNUTS
Use Chlorpyrifos 4E at the rates indicated to control the listed pests.

CROP	PEST	DOSAGE	RESTRICTIONS CHLORPYRIFOS 4E
Almonds	Navel orangeworm, Peach twig borer, San Jose scale	4 pints/acre	Make no more than 3 foliar applications per season on almonds and filberts and no more than 2 applications per season on walnuts. Do not apply within 14 days of harvest. Do not allow livestock to graze in treated orchards. Do not apply more than 8 pints (4 lbs. a.i.) per acre per season.
Filberts	Eye-spotted bud moth, Filbert aphid, Filbert leafroller, Filbert worm, Obliquebanded leafroller, Omnivorous leaftier, Winter moth	3 - 4 pints/acre	
Walnuts	Codling moth, Walnut scale	4 pints/acre	

PECANS
Use Chlorpyrifos 4E at the rates indicated to control the listed pests.

PEST	DOSAGE OF CHLORPYRIFOS 4E DILUTE OR CONCENTRATE PINTS/ACRE	REMARKS AND RESTRICTIONS
Pecan nut casebearer, Fall webworm	1 1/2 - 4	Make no more than five applications per year. Do not apply more than 8 pints (4 lbs. a.i.) per acre per season. Do not apply within 28 days of harvest. Do not allow livestock to graze in treated orchards. Make no applications of tank mixtures closer to harvest than the longest preharvest interval shown for any of the products in the tank mixture. For dilute applications with ground equipment, use at least the minimum rate of Chlorpyrifos 4E listed for the pest. Apply in 100-600 gallons of water per acre. For aerial applications, use 5-15 gallons of water per acre. NOTE: With aerial application, control may be reduced due to poor coverage.
Phylloxera spp.[1], Black pecan aphid, Hickory shuckworm[2], Pecan leaf scorch mite (suppression)[3], Fire ants and other ant species[4]	2 - 4	
Yellow pecan aphid, Black margined aphid	1 - 4 pints of Chlorpyrifos 4E plus: 5.33 fl. oz. of Pydrin 2.4E, OR 1.70 fl. oz. Asana 1.9EC, OR 3.00 fl. oz. of Ammo 2.5EC, OR 2.56 fl. oz. of Cymbush 3E	

1. For best *Phylloxera* spp. control, make 2 applications at 7- to 10-day intervals using a minimum of 1.0 pint of Chlorpyrifos 4E per acre starting at bud swell.
2. For best results make 2 applications, 10-14 days apart.
3. To suppress pecan leaf scorch mite, use a preventative program.
4. For ant control, apply as an orchard floor spray. Do not apply where weed growth or other obstructions prevent uniform coverage of the orchard floor.

ALMOND ORCHARD FLOORS
Use Chlorpyrifos 4E to control Southern fire ant and pavement ant by applying the specified dose with ground application equipment that will uniformly apply the spray to the orchard floor. Use when ant activity becomes evident within the orchard.

Since worker ants cease most of their foraging activity at temperatures above 90°F, best results will be achieved with applications made at temperatures below 90°F at the time of application. Dosage of Chlorpyrifos 4E and spray volume may vary depending on the irrigation method employed in the orchard as follows:

Ant Control in Sprinkler- or Drip-Irrigated Orchards
Apply Chlorpyrifos 4E as a broadcast spray to the entire orchard floor using ground spray equipment at 4 to 8 pints per acre in 25 or more gallons of water. Use the high rate for heavy infestations and the low rate for light infestations. In orchards where ant activity is concentrated around the irrigation emitters, apply the high rate to a 6- to 8-foot band along the drip-irrigation line and the low rate to the rest of the orchard.

Ant Control in Flood-Irrigated Orchards
Apply Chlorpyrifos 4E at 4 to 8 pints per acre in 25 or more gallons of water to the entire orchard floor using ground spray equipment. Apply the high rate to heavily infested areas and the low rate to lightly infested areas. Where ant colonies are abundant only in the berm areas, apply Chlorpyrifos 4E at 8 pints per treated acre in 50 or more gallons of water to a 6- to 10-foot band along the treeline (berm).

Do not apply where weed growth or other obstructions would impede uniform coverage of the orchard floor. Mow or chemically control weeds before the application of Chlorpyrifos 4E. Foliar applications of Chlorpyrifos 4E may be made in addition to the orchard floor treatment.

RESTRICTIONS: *Do not make more than 2 applications per season. Do not apply more than 8 pints (4 lbs. a.i.) per season to the orchard floor. Do not apply the last treatment within 14 days of harvest. Do not allow livestock to graze in treated orchards.*

VEGETABLES

Worker Restricted Entry Interval: Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 3 days for cauliflower and 24 hours for all other vegetables unless PPE required for early entry is worn.

Use Chlorpyrifos 4E at the dosages indicated to control the pests listed in the following table. To avoid phytotoxicity in vegetables except Brussels sprouts, do not mix with other pesticide products or treat plants that are under extreme heat and drought stress.

CROP	PEST	DOSAGE CHLORPYRIFOS 4E	USE DIRECTIONS	RESTRICTIONS
Cauliflower	Root maggot	1.6 - 2.4 fl. oz./1000 linear ft. of row	For direct-seeded crops, apply the specified dosage in a water-based spray as a 4-inch wide band over the row at planting time. Shallow incorporation is necessary. Placement be-hind the planter shoe and in front of the press wheel is recommended. For transplanted crops, apply Chlorpyrifos 4E as a water-based spray directed to the base of the plants immediately after setting. Use a minimum of 40 gallons of total spray per acre. Do not add any additional adjuvants, surfactants, or spreader stickers. Do not apply as a foliage application.	Do not apply more than 2 pints of Chlorpyrifos 4E to cauliflower planted in 40-inch rows. Use proportional amounts for other row spacings not to exceed 4 pints of Chlorpyrifos 4E per acre. Do not apply more than 2.6 pints of Chlorpyrifos 4E per acre to broccoli, Brussels sprouts, cabbage, Chinese cabbage, collards, kale, kohlrabi, and turnips planted in 40-inch rows. Do not apply more than 4 1/2 pints of Chlorpyrifos 4E per acre to these crops in 20-inch rows (or two rows per bed). Use proportional amounts for other row spacings not to exceed 4 1/2 pints of Chlorpyrifos 4E per acre. Do not make more than one application per season within 30 days before harvest.
Broccoli, Brussels Sprouts, Cabbage, Chinese Cabbage, Collards, Kale, Kohlrabi, Turnips		1.6 - 2.75 fl. oz./1000 linear ft. of row		
Broccoli, Cabbage	Root aphid	1.2 fl. oz/1000 ft. of row for single row plantings, and 2.4 fl. oz/1000 linear ft. of row for double row plantings	Apply Chlorpyrifos 4E in a water emulsion or with liquid fertilizer injected as a sidedress on each side of the row after plants are established. Avoid mechanical damage to crop roots. Use a minimum of 15 gallons of total spray volume per acre.	
Brussels sprouts	Armyworms, Cabbage aphid, Cutworms. Imported cabbage worm, Striped flea beetle (adult)	1 - 2 pints/acre	Apply Chlorpyrifos 4E with conventional power-operated equipment in 20 to 150 gallons of water per acre. Apply when insects appear on foliage and at 7- to 14-day intervals or thereafter as needed. Consult your state agricultural station, extension service specialist, or integrated pest control advisor for proper time to treat in your area.	Do not make more than 6 applications per season. Do not apply within 21 days before harvest.
Radishes	Root maggot	1.0 fl. oz/1000 linear ft. of row	Apply the specified dosage as a water-based drench in the seed furrows with the seed at planting time. Use a minimum of 40 gallons of total drench per acre.	Do not apply more than 5 1/2 pints of Chlorpyrifos 4E per acre or make more than one application per season.
Rutabagas	Root maggot	1.6 - 3.3 fl. oz/1000 linear ft. of row	Apply the specified dosage in a water-based spray as a 4-inch wide band over the row at planting time, behind the planter shoe and in front of the press wheel to achieve shallow incorporation. Use a minimum of 40 gallons of total spray volume per acre.	Do not apply more than 4 1/2 pints of Chlorpyrifos 4E per acre or make more than one application per season. Do not use rutabaga tops for food or feed purposes.

WHEAT

For use only in Arizona, Colorado, Idaho, Kansas, Minnesota, Montana, Nebraska, New Mexico, Nevada, North Dakota, Oklahoma, Oregon, South Dakota, Texas, Utah, Washington, and Wyoming.

For use to control aphids (including Russian wheat aphid), wheat midge, brown wheat mite, grasshoppers, army cutworms and to provide suppression of other cutworm species.

PEST	DOSAGE	TIMING/ SPECIAL DIRECTIONS
Aphids (including Russian wheat aphid), Brown wheat mite, Grasshoppers	1/2 to 1 pint per/acre	From emergence to flowering, treat when 15-20% of tillers are infested. From flowering to early milk stage, treat when 20% or more of tillers are infested.
Wheat midge (orange wheat blossom midge)	1 pint/acre	Treatment is recommended when 75% of the wheat heads have emerged from the boot and when midge adults are found in the crop (1 midge per 4-5 heads). Application timing is critical to ensure good control. If possible, apply in the late afternoon or early evening when temperatures exceed 50° F and wind speed is less than 7 mph.
Army cutworms, other cutworm species (suppression only)	1 pint/acre	Control may be reduced under high temperature conditions (greater than 80°F), under dry soil conditions, or if larvae are more than 1/2 inch long. Treat when field counts or crop injury indicates that damaging pest populations are developing or present. A second application of 1 pint/acre may be made for additional control.
Cereal leaf beetle	1-2 pints/ acre	Target application when eggs are near hatching and larvae emerging as monitored by plant inspection.

Mix the required dosage with water and apply in a minimum of 2 gallons per acre finished spray volume. Apply using aerial (fixed wing or helicopter) or power-operated ground spray equipment. For effective coverage of wheat heads using ground application, apply in a minimum of 10 gallons per acre of spray through appropriate nozzles. Higher spray volumes have increased crop protection at the recommended dosage. Chlorpyrifos 4E may also be applied through sprinkler-irrigation systems at recommended broadcast application rates to control listed foliar pests (see directions above). **Report any bird or fish kills which may be associated with the use of chlorpyrifos by calling 1-212-661-9800.**

Restrictions*: Do not make more than 2 applications per crop. Do not apply within 28 days of harvest. Do not allow livestock to graze or otherwise feed on treated forage within 14 days of application. Do not feed straw from treated wheat within 28 days of application. Do not apply directly to bodies of water. Do not apply product where runoff is likely to occur to aquatic habitats (including lakes, public reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries, or to other natural waters). Do not apply when weather conditions favor drift or runoff from treated areas.*

Ground Application

For ground applications, the distance from treated areas to aquatic habitats (including lakes, public reservoirs, rivers, permanent streams, marshes, natural ponds, esturaries or other natural waters) must be 30 feet or more.
Do not make ground applications if wind speed is greater than 15 mph.
Do not apply at spray boom pressures greater than 45 psi.

Aerial Application

Do not apply by air within 300 feet of aquatic habitats (including lakes, public reservoirs, rivers, permanent streams, marshes, natural ponds, estuaries or other natural waters).
Do not make aerial applications of Chlorpyrifos 4E when wind speeds exceed 10 mph or when an atmospheric temperature inversion exists.
Boom length should not exceed 75% of the wing span and release height for aerial applications should be no greater than 10 feet above the crop canopy.

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.
PESTICIDE STORAGE: Store in original container in secured dry storage area. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 100°F for extended periods of time. Storage below 20°F may result in formation of crystals. If product crystallizes, store at 50°F to 70°F and agitate to redissolve crystals. If container is damaged or spill occurs, use product immediately or dispose of product and damaged container as indicated below.
PESTICIDE DISPOSAL: Open dumping is prohibited. 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 FOR NON-REFILLABLE CONTAINERS: Triple rinse (or equivalent). Then offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or by other procedures approved by state and local authorities. Or, triple rinse (or equivalent). Then puncture and dispose in a sanitary landfill, or by incineration or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

WARRANTY STATEMENT

FarmSaver.com, LLC warrants that this product conforms to the chemical description on the label thereof and is reasonably fit for purposes stated on such label only when used in accordance with directions under normal use conditions. It is impossible to eliminate all risks inherently associated with use of this product. Crop injury, ineffectiveness, or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of FarmSaver.com, LLC. To the extent allowed by law, FarmSaver.com, LLC shall not be liable for consequential, special, or indirect damages resulting from the use or handling of this product. All such risks shall be assumed by the Buyer. In addition to the foregoing, no purchaser of this product (other than an end user) shall be entitled to any reimbursement for any loss suffered as a result of any suspension or cancellation of the registration for this product by the U.S. Environmental Protection Agency. Except as expressly provided herein, FarmSaver.com, LLC makes no warranties, guarantees, or representations of any kind, either expressed or implied, or by usage of trade, statutory or otherwise, with regard to the product sold, including, but not limited to merchantability, fitness for a particular purpose, use or eligibility of the product for any particular trade usage. The exclusive remedy of any buyer or user of this product for any and all losses, injuries, or damages resulting from or in any way arising from the use, handling, or application of this product, whether in contract, warranty, tort, negligence, strict liability, or otherwise, shall be damages not exceeding the purchase price paid for this product or, at FarmSaver.com, LLC's election, the replacement of this product.

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