



**U.S. ENVIRONMENTAL PROTECTION  
AGENCY**  
**Office of Pesticide Programs**  
**Registration Division (7505C)**  
**Ariel Rios Building**  
**1200 Pennsylvania Ave., NW**  
**Washington, D.C. 20460**

EPA Reg.  
Number:  
  
84229-20

Date of Issuance:  
January 21, 2011  
  
Date of Expiration:  
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NOTICE OF PESTICIDE:  
 Registration  
 Reregistration  
 (under FIFRA, as amended)

Term of Issuance:  
**unconditional**  
  
Name of Pesticide Product:  
**Chlorpyrifos 4 EC**

Name and Address of Registrant (include ZIP Code):  
 Tide International USA, Inc.  
 c/o Pyxis Regulatory Consulting, Inc.  
 4110 136<sup>th</sup> St. NW  
 Gig Harbor, WA 98332

**Note:** Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Registration Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act. Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(C) provided that you:

1. Submit and/or cite all data required for registration of your product under FIFRA sec. 3(c)(5) when the Agency requires all registrants of similar products to submit such data.
2. Make the following label changes before you release the product for shipment:
  - a. Add the phrase "EPA Registration Number 84229-20".
3. Per the indicated EPA Guidelines, submit the following within the months indicated as measured from the effective date of this registration.
  - a. One year storage stability (830.6317) (measurements at 0, 3, 6, 9, and 12 months).  
Submit in both electronic and hard copy format. Due within 18 months.
  - b. Corrosion characteristics (830.6320) (measurements at 0, 3, 6, 9, and 12 months).  
Submit in both electronic and hard copy format. Due within 18 months.
4. Submit two (2) copies of the final printed labeling before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions. A copy of the label stamped "accepted with comments" is enclosed for your records. If you have any questions, please contact Tom Harris at (703) 308-9423 or harris.thomas@epa.gov.

enclosure

Signature of Approving Official:

Thomas C. Harris  
 Insecticide Rodenticide Branch  
 Registration Division (7505P)

Date:

**JAN 21 2011**

# RESTRICTED USE PESTICIDE

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

## Chlorpyrifos 4 EC

For control of listed insects infesting certain field, fruit, nut, and vegetable crops and for use on commercial turfgrass (golf courses (turf only), road medians and industrial plant sites) and turfgrass grown for sod.

GROUP	1B	INSECTICIDE
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### ACTIVE INGREDIENT:

Chlorpyrifos (O,O-diethyl O-(3,5,6-trichloro-2-pyridinyl) phosphorothioate) ..... 44.9%

OTHER INGREDIENTS: ..... 55.1%

TOTAL: ..... 100.0%

Contains 4 pounds of chlorpyrifos per gallon.

Contains petroleum distillates.

## 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 the label, find someone to explain it to you in detail).

FIRST AID Organophosphate	
<b>If swallowed:</b>	<ul style="list-style-type: none"> <li>• Immediately call a poison control center or doctor.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give <b>any</b> liquid to the person.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul>
<b>If in eyes:</b>	<ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
<b>If on skin or clothing:</b>	<ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-424-9300 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
Contains petroleum distillate – vomiting may cause aspiration pneumonia. Chlorpyrifos is a cholinesterase inhibitor. 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.	

EPA Reg. No. 84229-~~XX~~ 20

### Manufactured for:

Tide International USA, Inc.  
21 Hubble  
Irvine, CA 92618

EPA Est. No.

ACCEPTED  
With COMMENTS  
In EPA Letter Dated:  
JAN 21 2011

Net Contents:

Under the Federal Insecticide, Fungicide  
and Rodenticide Act, As amended, for the  
pesticide Registered under EPA Reg. No:

84229-20

084229-000EN.20110120.Chlorpyrifos 4 EC label  
with EPA 20110120 comments incorporated\_without  
ornamental nursery language.pdf

**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
WARNING**

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

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are barrier laminate and viton. For more information, follow instructions in Supplement Three of PR Notice 93-7. If you want more options, follow the instructions for category G on an EPA chemical resistance category selections chart.

**Mixers and loaders** using a mechanical transfer loading system and applicators using aerial application equipment must wear:

- Long-sleeved shirt and long pants
- Shoes and socks

In addition to the above, **mixers and loaders** using a mechanical transfer loading system must wear:

- Chemical-resistant gloves
- Chemical-resistant apron
- A NIOSH-approved dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or a NIOSH-approved respirator with any R, P, or HE filter

See Engineering Control for additional requirements.

All **other mixers, loaders, applicators and 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 dust mist filtering respirator with MSHA/NIOSH approval number prefix TC-21C or 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/maintaining PPE. If no such instructions for washables exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

**ENGINEERING CONTROLS**

Mixers and loaders supporting aerial applications must use a mechanical transfer system that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides [40 CFR 170.240(d)(4)] for dermal protection, and must:

- Wear the personal protective equipment required above for mixers/loaders
- Wear protective eyewear if the system operates under pressure, and
- Be provided and have immediately available for use in an emergency, such as broken package, spill, or equipment breakdown: coveralls, chemical-resistant footwear and chemical-resistant headgear if overhead exposure

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

Use of human flaggers is prohibited. Mechanical flagging equipment must be used.

When handlers use closed cab motorized ground application equipment that meets the requirements listed in the 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 before eating, drinking, chewing gum, using tobacco, or using the toilet.
- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

### ENVIRONMENTAL HAZARDS

This pesticide is 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 from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. Do not contaminate water when disposing of equipment washwaters 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.

### PHYSICAL OR CHEMICAL HAZARDS

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

### DIRECTIONS FOR USE

#### Restricted Use Pesticide

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

This product cannot be reformulated or repackaged into other end-use products.

Do not apply this product in a way that will contact workers or other persons, either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your state or tribe, consult the agency responsible for pesticide regulation.

### AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI). The REI for each crop is listed in the directions for use associated with each crop.

**Exception:** If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances allows workers to enter the treated area if there will be no contact with anything that has been treated.

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

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 long pants
- Chemical-resistant gloves made of any waterproof material
- Chemical-resistant footwear plus socks
- Chemical-resistant headgear for overhead exposure.

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

## PRODUCT INFORMATION

Chlorpyrifos 4 EC insecticide is an emulsifiable concentrate for use in crops listed on this label. Chlorpyrifos 4 EC can also be used to control various insect pests injurious to turfgrass grown for sod, on golf courses, in roadway medians or around industrial buildings. This product resists washoff once it is dry. Target pests and application rates are provided in the accompanying tables.

### Use Precautions and Restrictions

- This product is not for outdoor residential use on lawns, turf, ornamentals, home gardens, flowers, shrubs, or trees. This restriction applies to all uses listed on this label.
- **DO NOT** aerially apply this product in Mississippi.
- **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 nor use hay for livestock bedding.
- **DO NOT** use in poultry houses or greenhouses.
- **DO NOT** aerially apply this product unless specified in crop-specific directions in this label or Tide International USA, Inc. supplemental labeling.

**Chemigation:** **DO NOT** apply this product by chemigation unless specified in crop-specific directions in this label or Tide International USA, Inc. supplemental labeling.

Keep product out of fishpools and other bodies of water.

Insect control may be reduced at low spray volumes under high temperature and wind conditions.

Some reduction in insect control may occur under unusually cool conditions.

**Flood irrigation:** To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours following a soil surface or foliar application of Chlorpyrifos 4 EC.

### Insecticide Resistance Management (IRM)

Chlorpyrifos 4 EC contains a Group 1B insecticide. Insect/mite biotypes with acquired resistance to Group 1B may eventually dominate the insect/mite population if Group 1B insecticides are used repeatedly in the same field or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by Chlorpyrifos 4 EC or other Group 1B insecticides.

To delay development of insecticide resistance, the following practices are recommended:

- Avoid consecutive use of insecticides with the same mode of action (same insecticide group) on the same species.
- Use tank mixtures or premix products containing insecticides with different modes of action (different insecticide groups) provided the products are registered for the intended use.
- Base insecticide use on comprehensive Integrated Pest Management (IPM) programs.
- Monitor treated insect populations in the field for loss of effectiveness.
- Contact your local extension specialist, certified crop advisor, and/or manufacturer for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.
- For further information or to report suspected resistance, contact your Tide International USA, Inc. representative.

### Spray Drift Management

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, non-target crops, aquatic and wetland sites, woodlands, pastures, rangelands, or animals.

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather-related factors determine the potential for spray drift. The applicator is responsible for considering all of these factors when making the decision to apply this product.

Observe the following precautions when spraying Chlorpyrifos 4 EC adjacent to permanent bodies of water such as rivers, natural ponds, lakes, streams, reservoirs, marshes, estuaries, and commercial fish ponds.

The following treatment setbacks or buffer zones must be utilized for applications around the above-listed aquatic areas with the following application equipment:

Application Method	Required Setback (Buffer Zone)(feet)
Ground boom	25
Chemigation	25
Orchard airblast	50
Aerial (fixed wing or helicopter)	150

Making applications when wind is blowing away from sensitive areas is the most effective way to reduce the potential for adverse effects.

The following spray drift **best management practices** are recommended to avoid off-target drift movement from applications.

#### Aerial Application

- The boom width must not exceed 75% of the wingspan or 90% of the rotor blade.
- Nozzles must always point backward, parallel with the air stream, and never be pointed downward more than 45 degrees.
- Nozzles must produce a medium or coarser droplet size (255 to 340 microns volume median diameter) per ASABE Standard 572 under application conditions. Airspeed, pressure, and nozzle angle can all effect droplet size. See manufacturer's catalog or USDA/NAAA Applicator's Guide for spray size quality ratings.
- Applications must not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.
- Use upwind swath displacement and apply only when wind speed is 3 to 10 mph as measured by an anemometer. Do not apply product when wind speed exceeds 10 mph.
- If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

Where states have more stringent regulations, they must be observed.

The applicator should be familiar with and take into account the information covered in the Aerial Drift Reduction Advisory.

#### Aerial Drift Reduction Advisory

**This section is advisory in nature and does not supercede the mandatory label requirements.**

**Information on Droplet Size:** The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent adverse effects from drift if

applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

**Controlling Droplet Size:**

- Volume – Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets.
- Pressure – Do not exceed the nozzle manufacturer’s recommended pressures. For many nozzle types, lower pressure produces larger droplets. When higher flow rates are needed, use higher flow rate nozzles instead of increasing pressure.
- Number of Nozzles – Use the minimum number of nozzles that provide uniform coverage.
- Nozzle orientation – Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential.
- Nozzle type – Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

**Boom Length:** For some use patterns, reducing the effective boom length to less than 3/4 of the wingspan or rotor length may further reduce drift without reducing swath width.

**Application Height:** Applications should not be made at a height greater than 10 feet above the top of the target plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure of droplets to evaporation and wind.

**Swath Adjustment:** When applications are made with a crosswind, the swath will be displaced downwind. Therefore, on the up and downwind edges of the field, the applicator should compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase, with increasing drift potential (higher wind, smaller drops, etc.).

**Wind:** Drift potential is lowest between wind speeds of 2 to 10 mph. However, many factors, including droplet size and equipment type, determine drift potential at any given speed. Application should be avoided below 1.5 mph due to variable wind direction and high inversion potential. **Note:** Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

**Temperature and Humidity:** When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

**Temperature Inversions:** Applications should not occur during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

**Sensitive Areas:** The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

**Ground Boom Application**

The following mandatory spray drift **best management practices** are required to reduce the likelihood of off-target drift movement from ground applications.

- Choose only nozzles and pressures that produce a medium or coarse droplet size (255 to 400 microns volume median diameter) per ASABE Standard 572. See manufacturer's catalog or USDA/NAAA Applicator's Guide for spray size quality ratings.
- Apply with nozzle height no more than 4 feet above the ground or crop canopy.
- Do not apply product when wind speed exceeds 10 mph as measured by an anemometer.

**Orchard Airblast Application**

The following mandatory spray drift best management practices are required to reduce the likelihood of off-target drift movement from airblast applications.

- Nozzles must be directed so spray is not projected above the canopies.
- Apply only when wind speed is 3 to 10 mph at the application site as measured by an anemometer outside of the orchard/vineyard on the upwind side.
- Outward pointing nozzles must be shut off when turning corners at row ends.

The applicator should take into account the following **best management practices** to reduce off-site spray drift. This section is advisory and does not supercede mandatory label requirements.

- Number of nozzles, nozzle orientation and spray volume, air speed and wind direction are key factors in adjusting airblast spray delivery to match the height and density of the crop canopy. Airblast equipment should be adjusted to provide uniform coverage while minimizing the amount of spray movement over-the-top or completely through the crop canopy.
  - High air volumes deliver spray more efficiently than air at high speed. Reducing forward travel speed decreases the air speed necessary to deliver the spray to the top of the crop canopy.
  - Use air guides along with the number and orientation of spray nozzles to achieve the desired spray coverage and directional control.
- The following steps should be taken to minimize drift and the amount of non-target spray:
  - Orient nozzles and adjust air speed/volume/direction to force the spray through the crop canopy but not allow drift past the canopy.
  - Shut off spray delivery when passing gaps in crop canopy within rows.
  - Spray the outside rows of orchards from outside in, directing the spray into the orchard and shutting off nozzles on the side of the sprayer away from the orchard.
  - When treating smaller trees, vines or bushes, shut off top nozzles to minimize over-the-top spray movement.

**Application Directions**

**Broadcast Foliar Application:** Apply with conventional power-operated spray equipment using nozzles and spray pressures specified for insecticides. Apply Chlorpyrifos 4 EC in a spray volume of not less than 2 gallons per acre (gpa) for aerial application equipment (fixed wing or helicopter) or not less than 10 gpa for ground equipment, unless otherwise specified. Increase spray volume to ensure adequate coverage with increased density and height of crop canopy.

**Ground Application:** Orient the boom and nozzles so that uniform coverage is obtained. The swath width should not be wider than the boom. Follow nozzle manufacturer's recommendations for insecticide nozzles with respect to nozzle type, pressure, and spacing.



**Broadcast Soil Application:** Apply with conventional power-operated spray equipment that will apply the product uniformly to the soil surface. Use nozzles that produce medium or coarse droplets (235 to 400 microns). Unless otherwise indicated, a spray volume of 10 gpa or more is needed. For band application, use proportionately less spray volume.

**Aerial Application:** Use a minimum spray volume of 2 gpa. Marking of swaths by mechanical flagging, permanent markers or use of GPS equipment is recommended.

**Chemigation Application:** Chlorpyrifos 4 EC may be applied to the following crops through sprinkler irrigation equipment: alfalfa, almond (orchard floors only), citrus (orchard floors only), corn (field and sweet), cotton, cranberry, peppermint, sorghum, soybeans, spearmint, sugarbeet, pecan and walnut (orchard floors), and wheat, or other crops as specified in Tide International USA, Inc. supplemental labeling. Do not apply this product by chemigation unless specified in crop-specific directions in this label or Tide International USA, Inc. supplemental labeling. Do not apply to labeled crops through any other type of irrigation system.

**Note:** Unless otherwise indicated in specific use directions, the application rates for chemigation are the same as those specified for broadcast application.

**Use Directions for Sprinkler Irrigation:**

The following use directions must be followed when Chlorpyrifos 4 EC 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 Chlorpyrifos 4 EC needed to cover the desired acreage. Mix according to instructions in the Mixing Directions section and bring mixture to desired volume. Do not add crop oil when Chlorpyrifos 4 EC is applied to by chemigation. Maintain continuous agitation during mixing and throughout the application period. 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 Calibration Instructions in the following Special Use Precautions section. The mixture containing Chlorpyrifos 4 EC must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving to ensure uniform application at the correct rate. When the application is finished, flush and clean the entire irrigation and injector system prior to shutting down the system.

**Use Precautions for Sprinkler Irrigation:** The following use precautions will result in a safe and successful application of mixtures containing Chlorpyrifos 4 EC:

- Apply this product only through the following sprinkler irrigation systems: 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. Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.
- Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.
- If you have questions about calibration, contact state extension service specialists, equipment manufacturer's, or other experts.
- Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.
- A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
- The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from back flow. Refer to the American Society of Agricultural Engineer's Engineering Practice 409 for more information.

- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch that will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. 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 "Electronically Driven or Controlled Irrigation Machines" NEC 70 and must contain viton or Teflon seals.
- To ensure uniform mixing of the insecticide into the water line, inject the mixture through a nozzle placed in the fertilizer injection port of just ahead of an elbow or tee in the irrigation line so that the turbulence will assist in mixing. It is suggested that the injection point be higher than the insecticide tank to prevent siphoning.
- The tank holding the insecticide mixture should be large enough to allow the system to complete the application with one filling. It must be free of rust, fertilizer, sediment, and foreign material, and equipped with an in-line strainer situated between the tank and the injector pump.
- **Calibration:** In order to calibrate the irrigation system and injector to apply the mixture of Chlorpyrifos 4 EC, 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 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 timed output of the injector pump be checked at least twice before operation, and the system monitored during operation.
- 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 non-target areas.
- Do not allow irrigation water to collect or run off and pose a hazard to livestock, wells, or adjoining crops.
- **Reentry:** Follow requirements in the Agricultural Use Requirements section or crop-specific sections of this label.
- Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.

### Mixing Directions

To prepare the spray, add a portion of the required amount of water to the spray tank and, with the spray tank agitator operating, add Chlorpyrifos 4 EC. 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 4 EC is compatible with insecticides, miticides, and fungicides and non-pressure fertilizer solutions commonly recommended except for alkaline materials such as Bordeaux mixture and lime. It is

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always recommended that a small jar compatibility test be run prior to tank mixing. Prepare tank mixtures in the same manner as directed above for use of Chlorpyrifos 4 EC alone. When tank mixing Chlorpyrifos 4 EC with herbicides, add wettable powders first, flowables second, and emulsifiable concentrates last. When a fertilizer solution is involved, it is strongly recommended that a fertilizer pesticide compatibility agent such as Unite or Complex be used. Maintain a constant agitation during both mixing and application to ensure uniformity of the spray mixture. Do not allow spray mixtures to stand overnight.

**Tank Mix Compatibility Test:** Test compatibility of the intended tank mixture before adding Chlorpyrifos 4 EC to the spray or mix tank. Add proportional amounts of each tank mix ingredient to a pint or quart jar, cap, shake, and let set for 15 minutes. Formation of precipitates that do not readily re-disperse indicates an incompatible mixture that should not be used.

## USES

### Alfalfa

(Not for use in Mississippi)

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

Apply as a broadcast foliar spray using aircraft or ground spray equipment. Use a higher rate in the rate range for increased pest pressure. Use a minimum spray volume of 2 gpa for aerial application (fixed wing or helicopter) or 10 gpa for ground equipment. Use a spray volume of 5 gpa or more by air or up to 20 gpa by ground when foliage is dense and/or pest population is high and/or under high temperature and wind conditions. Some reduction in insect control may occur under unusually cool conditions.

**Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems to control listed foliar pests. Use specified broadcast application rates. See Chemigation Application section for application instructions.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
corn rootworm adults (spotted cucumber beetle) grasshoppers leafhoppers	0.5 - 1
alfalfa blotch leaf minor alfalfa caterpillar alfalfa weevil larvae and adults armyworms blue alfalfa aphid cowpea aphid cutworms Egyptian alfalfa weevil larvae and adults (1) pea aphid plant bugs spittlebugs spotted alfalfa aphid (suppression) (not for use in California)	1 - 2
alfalfa webworm	1.5

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- 1. **In California:** For Egyptian alfalfa weevil control, apply the specified dosage in a minimum of 5 gpa of water when larvae are actively feeding.

**Specific Use Precautions:**

- Do not tank mix Chlorpyrifos 4 EC with other pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination to be non-injurious to alfalfa under current conditions of use. Some phytotoxic symptoms may be observed on young, tender, rapidly growing alfalfa treated with Chlorpyrifos 4 EC. Alfalfa will outgrow these 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 in the treated area. Protective information may be obtained from your Agricultural Extension Service.
- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours following an application of Chlorpyrifos 4 EC.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not cut or graze treated alfalfa within 7 days after application of ½ pint of Chlorpyrifos 4 EC 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 four applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season or apply any product containing chlorpyrifos more than once per alfalfa cutting.
- Maximum single application rate is 1 lb. ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.

**Apple Tree Trunk**

(Not for use in Mississippi)

**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.

Apply as a post-bloom application to the lower 4 feet of the apple tree trunk for borer control in states east of the Rockies only (except Mississippi). Mix with water and apply directly to trunk from a distance of no more than 4 feet using low volume handgun or shielded spray equipment. Do not allow spray to contact foliage or fruit.

Target Pests	Chlorpyrifos 4 EC (quarts/100 gal)
American plum borer apple bark borer broad necked root borer dogwood borer flatheaded apple tree borer roundheaded apple tree borer tilehorned prionus	1.5

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 28 days before harvest.
- Do not make more than one post-bloom trunk application per year.
- This product may not be used if a pre-bloom application of any other product containing chlorpyrifos has been made during the year.
- Do not allow meat or dairy animals to graze in treated orchards.
- Treat only the lower 4 feet of the apple tree trunk.

- Do not apply when wind speed is greater than 10 mph.

### Asparagus

(For use only in Arizona, California, Idaho, Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, Oregon, South Dakota, Washington, and Wisconsin)

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

Apply as a ground broadcast foliar spray. Use sufficient volume of finished spray to ensure thorough coverage of crop foliage. Note: Chlorpyrifos 4 EC may be applied aerially or with ground equipment for control of armyworms and grasshoppers.

Target Pests	Chlorpyrifos 4 EC (pints/acre)
armyworms (1) asparagus aphids (1) asparagus beetles (1) cutworms (2) grasshoppers (1) symphylans (3)	2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

#### Pest-Specific Use Directions:

1. For **armyworms**, **asparagus beetles**, **asparagus aphids**, and **grasshoppers**, apply during the fern stage when field counts or crop injury indicates that damaging pest populations are developing or present.
2. For **cutworms**, it is preferable to apply when the soil is moist and worms are active on or near the soil surface.
3. For **symphylans**, apply at least two weeks before harvest for optimum control.

#### Specific Use Restrictions:

- Do not make more than one preharvest application per season or apply within 1 day before harvest.
- Do not make more than two postharvest applications during the fern stage.
- Maximum single application rate preharvest or postharvest is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not make second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.

### Brassica (Cole) Leafy Vegetables<sup>1</sup> and Radish, Rutabaga, and Turnip

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

<sup>1</sup>Brassica (cole) leafy vegetables including broccoli, broccoli raab, Brussels sprout, cabbage, cauliflower, cavalo broccolo, Chinese broccoli, Chinese cabbage, collards, kale, kohlrabi, mizuna, mustard greens, mustard spinach, rape greens

**Specific Use Restriction:** If a preplant incorporation application for direct seeded or transplanted crops is made, **do not** apply this product as an at-plant or post-plant soil application. If an at-plant or post plant soil application is made, **do not** apply this product as a preplant incorporation application for direct seeded or transplanted crops.

**Preplant Incorporation Application for Direct Seeded or Transplanted Crops**

Apply Chlorpyrifos 4 EC as a broadcast spray to the soil surface using power-operated ground spray equipment. Use a total spray volume of 10 gpa or more. On the day of treatment, incorporate Chlorpyrifos 4 EC into the top 2 to 4 inches of soil using a disc, field cultivator, or equivalent equipment.

Crop	Target Pests	Chlorpyrifos 4 EC (pints/acre)
cauliflower	billbugs	4
broccoli Brussels sprout Cabbage Chinese cabbage collards kale kohlrabi turnip	cutworms grubs root maggot symphylans wireworms	4.5
radish		5.5
rutabaga		4.5

**Specific Use Precautions:**

Insecticides, including Chlorpyrifos 4 EC, may contribute to the stress of plants under certain environmental conditions. This stress may reduce plant stand or interfere with normal plant development. Herbicides used preplant incorporated may interact with insecticides and enhance this stress.

**At-Plant or Post Plant Soil Application**

Apply as indicated in Pest-Specific Use Directions. Use a higher rate in the rate range when there is increased pest pressure.

Crop	Target Pests	Chlorpyrifos 4 EC (fl oz/1000 ft of row)
cauliflower	root maggot (1)	1.6 – 2.4
broccoli Brussels sprout cabbage Chinese cabbage collards kale kohlrabi turnip		1.6 – 2.75
broccoli cabbage	root aphid (2)	1.2 (2.4 for double row plantings)
radish	root maggot (3)	1
rutabaga	root maggot (1)	1.6 – 3.2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- 1. Root Maggot:**
  - Direct seeded crops (broccoli, Brussels sprout, cabbage, cauliflower, Chinese cabbage, collard, kale kohlrabi, turnip, rutabaga):** Apply the specified dosage in a water-based spray as a 4-inch wide band over the row at planting time. Band placement should be behind the planter shoe and in front of the press wheel to achieve shallow incorporation. Use a minimum of 40 gpa total spray volume.
  - Transplanted crops (broccoli, Brussels sprout, cabbage, cauliflower, Chinese cabbage, collards, kale, kohlrabi, turnip):** Apply Chlorpyrifos 4 EC as a water-based spray directed to the base the plants immediately after setting. Use a minimum of 40 gpa total spray. Do not add any additional adjuvants, surfactants or spreader stickers. Do not apply as a foliage application.

2. **Root aphid (broccoli, cabbage):** Apply Chlorpyrifos 4 EC in water or with liquid fertilizer injected as a sidedress on each side row after plants are established. See Mixing Directions section for Mixing Instructions for Liquid Fertilizer. Avoid mechanical damage to crop roots. Use a minimum of 15 gpa of total spray volume.
3. **Root maggot (radish):** Apply the specified dosage as a water-based drench in the seed furrows with the seed at planting time. Use a minimum of 40 gpa of total drench.

**Specific Use Restrictions for Preplant Incorporation and At-Plant or Post Plant Soil Applications:**

- **Soil Applications (all labeled crops):**
  - ◆ **Preharvest Interval:** Do not apply within 30 days before harvest.
  - ◆ Do not foliarly apply any chlorpyrifos product labeled for foliar application (e.g., Lorsban 50W) within 10 days of a soil application of Chlorpyrifos 4 EC.
  - ◆ Do not aerially apply this product in Mississippi.
- **Cauliflower:** Do not apply more than 2 pints of Chlorpyrifos 4 EC to cauliflower planted in 40-inch rows. Use proportional amounts for other row spacings, but do not exceed 4 pints of Chlorpyrifos 4 EC per acre. The maximum single application rate for cauliflower is 1.2 oz ai chlorpyrifos (2.4 fl oz of Chlorpyrifos 4 EC) per 1000 ft of row.
- **Broccoli, Brussels sprout, cabbage, Chinese cabbage, collard, kale, kohlrabi, turnip:** Do not apply more than 2.6 pints of Chlorpyrifos 4 EC per acre when planted in 40-inch rows. Do not apply more than 4.5 pints of Chlorpyrifos 4 EC per acre to these crops when in 20-inch rows (or two rows per bed). Use proportional amounts for other row spacings, but do not exceed 4.5 pints of Chlorpyrifos 4 EC per acre.
- **Radish:** Do not apply more than 5.5 pints of Chlorpyrifos 4 EC per acre. The maximum single application rate for radish is 0.5 oz ai chlorpyrifos (1 fl oz of Chlorpyrifos 4 EC) per 1000 ft of row.
- **Rutabaga:** Do not apply more than 4.5 pints of Chlorpyrifos 4 EC per acre. The maximum single application rate for rutabaga is 1.6 oz ai chlorpyrifos (3.2 fl oz of Chlorpyrifos 4 EC) per 1000 ft of row. Do not use rutabaga tops for food or feed purposes.

**Foliar Application (Brussels Sprout Only)**

Apply with conventional power-operated spray equipment in 20 to 150 gpa of water. Use a higher rate in the rate range when there is increased pest pressure. Consult your state agricultural experiment station, extension service specialist, or integrated pest control advisor for proper time to treat your area.

Crop	Target Pests	Chlorpyrifos 4 EC (pint/acre)
Brussels sprout	armyworms cabbage aphid cutworms imported cabbage worm striped flea beetle (adult)	1 - 2

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 21 days before harvest.
- Do not make more than three applications of products containing chlorpyrifos per crop.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- Do not aerially apply this product in Mississippi.

**Christmas Trees (Plantations)**

**(Not for use in Mississippi)**

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

Unless otherwise indicated, apply as a foliar spray using power-operated ground equipment. Thorough coverage of foliage is essential. Use a minimum 10 gpa of finished spray with ground equipment. Use

higher volume of finished spray, 20 gpa or more, when foliage is dense and/or pest density is high and/or under high temperature and wind conditions.

Target Pests		Chlorpyrifos 4 EC
ants (4) aphids adelgids (cooley) (eastern spruce gall) Douglas fir needle midge European pine sawfly European pine shoot moth grasshoppers gypsy moth mites (1) (European red spider) (two spotted spider)	pales weevil (adult) pine needle midge pine spittlebug plant bugs scale (2) (black pine) (pine needle) (pine tortoise) (spruce bud) (striped pine) spittlebugs spruce budworm spruce needleminer	1 quart/acre
pales weevil (3)		3 quarts/100 gal

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

#### Pest-Specific Use Directions:

1. When large numbers of **spider mite** eggs are present at the first application, a second application after 7 to 10 days may be required to control newly hatched nymphs and maintain effective control. **Not for control of mites in Washington and Oregon.**
2. For scale control, apply when scale crawlers are active.
3. Apply as a cut stump drench.
4. Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants, and pharaoh ants.

#### Specific Use Precautions:

**Phytotoxicity:** Do not apply under conditions of extreme heat or drought stress. Environmental factors and varietal differences significantly influence potential phytotoxic expression. **Testing has shown that Chlorpyrifos 4 EC may be used at specified rates on the following conifer species without serious phytotoxicity: balsam fir, concolor fir, Douglas fir, eastern white pine, Fraser fir, grand fir, noble fir, Scotch pine, white spruce.** Before treating large numbers of other conifer species, treat a small block of plants and observe them 7 to 10 days for symptoms of phytotoxicity. **Note:** The user assumes responsibility for determining if it is safe to treat other conifer species with Chlorpyrifos 4 EC under commercial growing conditions.

#### Specific Use Restrictions:

- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Do not make second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 7 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.

#### Citrus Fruits<sup>1</sup>

(Not for use in Mississippi)

**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.

<sup>1</sup>Citrus fruits including calamondin, chironja, citrus citron, citrus hybrids, grapefruit, kumquat, lemon, lime, mandarin (tangerine), pummelo, satsuma mandarin, sour orange, sweet orange, tangelo, tangor



Apply as a concentrate or dilute spray using conventional, power-operated spray equipment. Use a higher rate in the rate range when there is increased pest pressure. Use sufficient water to ensure thorough and complete coverage of the foliage and fruit. For dilute sprays (greater than 200 gpa), use a spray concentration of at least 0.5 pints of Chlorpyrifos 4 EC per 100 gallons of finished spray. Complete coverage is not necessary for outside canopy sprays targeting certain pests such as lepidoptera insects and katydids. Treat when pests become a problem or in accordance with the local spray schedule as specified by your State Agricultural Experiment Station, certified Pest Control Advisor, or Extension Service Specialist. To avoid excessive ridging, do not apply Chlorpyrifos 4 EC to citrus from December 1 up to the initiation of bloom (5% visible bloom).

**Use of Spray Oils:** To improve control of aphids, mealybugs, scale insects, and thrips, a petroleum spray oil recommended for use on citrus trees may be added to spray mixtures at up to 1.8 gallons per 100 gallons of spray.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
aphids (including brown citrus aphid) glassywinged sharpshooter grasshoppers (1) katydids lepidopterous larvae (such as: avocado leafroller, cutworms, fruit tree leafroller, orange dogs, orange tortrix, western tussock moth) mealybugs (see below for California and Arizona) scale insects (such as: black scale, brown soft scale, chaff scale, California red scale (see below for California and Arizona), Florida red scale, long scale, purple scale, and snow scale) thrips (see below for California and Arizona)	2 - 7
citrus rust mites (2) (Florida only)	4 - 7
citrus psylla (3) (Florida only)	5
thrips suppression and mealybugs (California and Arizona, see restrictions)	6 - 12
California red scale (California and Arizona, see restrictions)	8 - 12

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Lubber grasshoppers:** Effective control requires direct contact with spray when grasshoppers are small (less than 1 inch in length).
2. For control of **citrus rust mites**, use a spray concentration of at least 1 pint of Chlorpyrifos 4 EC per 100 gallons.
3. For control of **citrus psylla**, add citrus oil at 2% v/v in a tank mix with Chlorpyrifos 4 EC.

**Specific Use Precautions:**

- Observe local recommendations for tank mix combinations especially with regard to use of Chlorpyrifos 4 EC with spray oil. Do not use penetrating surfactants in tank mixes with Chlorpyrifos 4 EC. Consult with a county farm advisor, county agency, extension service personnel, agricultural commissioner, pest control advisor, or local Tide International USA, Inc. representative for local recommendations.

- Do not apply when trees are stressed by drought or high temperatures.
- Chlorpyrifos 4 EC is highly toxic to bees exposed to direct treatment and must not be applied when bees are actively visiting the area. During the citrus bloom period in California, apply from 1 hour after sunset until 2 hours before sunrise.
- Do not use Chlorpyrifos 4 EC in combination with spray oil when temperatures are expected to exceed 95°F on the day of application or for several consecutive days thereafter.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 21 days before harvest for applications of up to 7 pints of Chlorpyrifos 4 EC per acre or within 35 days for application of rates above 7 pints per acre.
- Do not apply more than 15 pints of Chlorpyrifos 4 EC (7.5 lb ai chlorpyrifos) per acre per year.
- Do not make more than two applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per year (does not include citrus orchard floors).
- Do not make second foliar application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 30 days of first application.
- The use of application rates greater than 8 pints of Chlorpyrifos 4 EC (4 lb ai chlorpyrifos) per acre are allowed only in the following counties in California: Fresno, Tulare, Kern, Kings, and Madera.
- Do not allow meat or dairy animals to graze in treated areas.

**Citrus<sup>1</sup> Orchard Floors  
(Not for use in Mississippi)**

**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.

<sup>1</sup>Citrus fruits including Calamondin, chironja, citrus citron, citrus hybrids, grapefruit, kumquat, lemon, lime, mandarin (tangerine), pummelo, Satsuma mandarin, sour orange, sweet orange, tangelo, tangor

Apply as a ground broadcast spray directed to the orchard floor to control foraging ants (excluding fire, harvester, carpenter and pharaoh ants). Do not apply spray to contact foliage or fruit. Apply in a total spray volume of 25 gpa or more using equipment that will apply the spray uniformly to the soil surface. Use a higher rate in the rate range for increased pest pressure. For best results, remove weed growth or other obstructions that might prevent the spray from reaching the soil surface. Foliar applications of Chlorpyrifos 4 EC or other products containing chlorpyrifos may be made in addition to the orchard floor treatments but must comply with the 10 day re-treatment interval (see Specific Use Restrictions).

**Chemigation:** Chlorpyrifos 4 EC may 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. Apply at specified broadcast application rates to control listed pests. See Chemigation Application section for application restrictions.

**Note:** Do not apply in tank mixture with Evik herbicide.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
ants (1)	1.5 - 2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants, and pharaoh ants.

**Application with Dry Bulk Fertilizer:** Most dry fertilizers can be used for impregnation with Chlorpyrifos 4 EC. Apply Chlorpyrifos 4 EC at the equivalent broadcast rate using a minimum of 200 lb per acre of dry bulk fertilizer.

**Impregnation of Dry Bulk Fertilizer:** Use a closed rotary drum mixer suitable for blending of dry bulk fertilizer equipped with an internal spray nozzle. Add the dry fertilizer to the mixer followed by the appropriate amount of Chlorpyrifos 4 EC. After mixing the dry ingredients to ensure uniformity, add water through the spray nozzle in an amount sufficient to just dampen the mixture (4 to 8 pints of water per ton of fertilizer). The spray nozzle should be positioned within the mixer to provide uniform coverage of the tumbling mixture of fertilizer and Chlorpyrifos 4 EC. Addition of water will cause Chlorpyrifos 4 EC to uniformly adhere to the dry bulk fertilizer. Bulk fertilizer impregnated with Chlorpyrifos 4 EC should be applied immediately, **not stored**. Foliar applications of Chlorpyrifos 4 EC may be made in addition to the orchard floor treatments.

Compliance with any and all federal and state laws and regulations relating to the Chlorpyrifos 4 EC and fertilizer mixture is the responsibility of the person offering such mixture for sale or distribution.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 28 days before harvest.
- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per year (does not include foliar applications to citrus trees).
- Do not apply more than 3 quarts of Chlorpyrifos 4 EC (3 lb ai chlorpyrifos) per acre per year.
- Maximum single application rate is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.

**Corn (Field, Sweet, Seed)**

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

**Conservation Tillage: Preplant, At-Plant, or Preemergence Applications**

Apply as a broadcast spray to surface trash and exposed soil using power-operated ground spray equipment. Use a total spray volume of 20 gpa or more. Use a higher rate in the rate range to extend residual control.

**Tank Mixing:** Chlorpyrifos 4 EC may also be applied in tank mixtures with paraquat or glyphosate and/or liquid fertilizer solutions. See Mixing Directions section for tank mixing instructions. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for each product used in combination with Chlorpyrifos 4 EC.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
armyworms cutworms	1 - 2

**Postemergence Application**

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gpa for ground spray equipment or 2 to 5 gpa for aircraft equipment. Control may be reduced at low spray volumes under high temperature and wind conditions. Chlorpyrifos 4 EC may be tank mixed with glyphosate products such as Glyphomax<sup>®</sup> XRT herbicide or Durango<sup>®</sup> herbicide when application is to be made to glyphosate-tolerant corn.

**Chemigation:** Chlorpyrifos 4 EC may be broadcast applied postemergence through sprinkler irrigation systems at specified application rates to control listed foliar pests. For best results, tank mix Chlorpyrifos 4 EC with 2 pints of non-emulsifiable oil. See Chemigation Application section for application instructions.

	<b>Chlorpyrifos 4 EC</b>
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Target Pests	(pint/acre)
grasshoppers	0.5 - 1
aphids	1 - 2
armyworms	
chinch bugs (1)	
corn rootworm adults (2)	
cutworms (3)	
European corn borer (5)	
flea beetle adults (1)	
southern corn leaf beetle	
webworms (4)	
western bean cutworm	
corn earworm	1.5 - 2
southwestern corn borer (6)	
billbugs (1)	2
common stalk borer (9)	
corn rootworm larvae (7), (8)	
lesser cornstalk borer	

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. For best **billbug**, **chinch bug**, or **flea beetle** control, ground apply in a minimum spray volume of 20 to 40 gpa at 40 psi. If corn is less than 6 inches tall, apply in a 9- to 12-inch wide band over the row. For corn greater than 6 inches tall, apply using drop nozzles directed to the base of the plant. Do not reduce the application rate 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 pest pressure, a second application may be needed.
2. The specified dosage will control silk clipping by corn rootworm adults.
3. For **cutworms**, it is preferable to apply Chlorpyrifos 4 EC when soil is moist and worms are active on or near the soil surface. If ground is dry, cloddy, or crusted at time of treatment, worms may be protected from the spray and effectiveness will be reduced. Shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment may improve control. A second application may be required if damage or density levels exceed economic thresholds established for your area.
4. For **webworm** control, shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment is necessary.
5. For **European corn borer** control, use 1.5 to 2 pints per acre when application is made with power-operated ground or aerial equipment or 1 to 2 pints per acre when application is made through a sprinkler irrigation system. University research indicates that achieving greater than 50% control of first-generation European borer with a single liquid insecticide treatment is highly dependent upon timing, insecticide placement, and weather conditions.
6. For **southwestern corn borer**, a second application may be applied 21 days later if needed due to reinfestation.
7. For postemergence control of **corn rootworm larvae**, apply at cultivation. Direct the spray to 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. A cultivation application of Chlorpyrifos 4 EC may be made in addition to an at-planting application of Lorsban 15G.
8. Chlorpyrifos 4 EC 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. Apply with enough water to wet the root zone to the depth control needed. If soils are wet, allow enough soil drying to occur such that an application using a minimum amount of water will not produce surface runoff. See Chemigation Application section for application instructions.
9. Do not use Chlorpyrifos 4 EC in combination with a burndown herbicide for control of common stalk borer. For **common stalk borer** control, treat approximately 11 days after application of glyphosate or after burndown with paraquat herbicide is complete (3 to 5 days).

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 21 days before harvest of grain, ears, forage or fodder.
- Do not make more than three applications of any product containing chlorpyrifos per season, including the maximum allowed of two granular applications, at the 1 lb ai chlorpyrifos rate.
- Do not apply more than 6 pints of Chlorpyrifos 4 EC (3 lb ai chlorpyrifos) per acre per season.
- Maximum single application rate is 2 pints of Chlorpyrifos 4 EC (1 lb ai chlorpyrifos) per acre.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- If more than 1 lb ai granular chlorpyrifos per acre is applied at-plant (for a maximum of 1.3 lb ai per acre per season), only one additional application of a liquid product containing chlorpyrifos at 1 lb ai per acre is allowed per season, for a total of 2.3 lb ai chlorpyrifos per acre per season.
- Do not apply in tank mixes with Steadfast or Lightning herbicides.
- Do not aerially apply this product in Mississippi.

**Cotton**

**(Not for use in Mississippi)**

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

Apply as a broadcast foliar spray using aircraft or ground spray equipment (see separate rate table for Arizona and California). Use a higher rate in the rate range when there is increased pest pressure. Use sufficient spray volume to ensure thorough coverage of treated plants, but no less than 10 gpa for ground spray equipment or 2 gpa for aircraft equipment. Increase spray volume when foliage is dense and/or pest population is high and/or under high temperature or wind conditions. Treat when field counts indicate damaging insect populations are developing or present.

**Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems at specified broadcast application rates to control listed foliar pests. See Chemigation Application section for application instructions.

Proper application methods are necessary to ensure thorough spray coverage and correct rate, and minimize off-target drift. Follow Application Directions for ground and aerial application and Spray Drift Management recommendations in Product Information section of this label.

**All States Except Arizona and California**

Target Pests	Chlorpyrifos 4 EC (pint/acre)
cotton fleahopper (1) plant bugs (1) ( <i>Lygus</i> , <i>Mirids</i> )	0.37 - 1
grasshoppers thrips	0.5 - 1
cotton aphid fall armyworm yellowstriped armyworm	0.5 - 2
spider mites (2)	1
beet armyworm cotton bollworm (3) cutworms pink bollworm salt marsh caterpillar tobacco budworm (3)	1.5 - 2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. The 0.37 per acre rate will not provide a high degree of control but, compared to the 1 pint per acre rate, will minimize the damage from **plant bugs** and **cotton fleahoppers** and allow increased survival and build-up of beneficial insects to aid in the control of **bollworms** infesting cotton.
2. **Spider mites:** When large numbers of eggs are present, scout the treated area in 3 to 5 days. If newly hatched nymphs are present, make a follow-up application of a non-chlorpyrifos product that is effective against mites.
3. **Bollworms and budworms:** For best results, it is suggested that fields be scouted twice per week and applications made when worms are 1/4-inch or less in length.

**Arizona and California**

Target Pests	Chlorpyrifos 4 EC (pint/acre)
armyworms cotton aphid cotton fleahopper <i>Lygus</i> salt marsh caterpillar silverleaf whitefly (1) thrips	1 - 2
boll weevil cotton bollworm (2) cotton leaf perforator (suppression) cutworms pink bollworm spider mites (suppression) tobacco budworm (2)	2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Silverleaf whitefly:** Apply in tank mix combination with the specified rate of a pyrethroid insecticide labeled for control or suppression.
2. **Bollworms and budworms:** For best results, it is suggested that fields be scouted twice per week and applications made when worms are 1/4-inch or less in length.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days before harvest.
- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per crop season.
- Do not apply more than 6 pints of Chlorpyrifos 4 EC (3 lb ai chlorpyrifos) per acre per season.
- Maximum single application rate is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.
- Do not feed gin trash or treated forage to meat or dairy animals.

**Cranberry**

(Not for use in Mississippi)

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

Apply as a broadcast foliar spray. Use sufficient spray volume to ensure thorough coverage, but no less than 15 gpa. Except for control of cranberry weevil, treat when field counts indicate damaging insect populations are developing or present.

**Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems to control listed pests. Apply at specified broadcast application rates. See Chemigation Application section for application instructions.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
brown spanworm cranberry fruitworm cranberry weevil (1) cutworms fireworms sparganothis fruitworms	3

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. 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).

**Specific Use Precautions:**

Apply only after the winter flood water has been removed. To avoid pesticide contamination of flood waters, do not apply when bogs are flooded.

**Specific Use Restrictions:**

- Preharvest Interval: Do not apply within 60 days before harvest.
- Do not make more than two applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Maximum single application rate is 1.5 lb ai chlorpyrifos (3 pints of Chlorpyrifos 4 EC) per acre.
- Do not make a second application of Chlorpyrifos 4EC or other product containing chlorpyrifos within 10 days of first application.

**Fig**

(For use only in California)

**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.

Apply Chlorpyrifos 4 EC as a dormant application in late winter prior to beetle emergence and prior to leaf formation. Use a spray volume of 10 gpa or more and apply as a broadcast spray to the soil surface using power-operated ground spray equipment. On the day of treatment, incorporate Chlorpyrifos 4 EC into the top 3 inches of soil using suitable equipment.

Target Pest	Chlorpyrifos 4 EC (quart/acre)
dried fruit beetle	2

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 217 days (7 months) before harvest.
- Make only one application per year of Chlorpyrifos 4 EC or other product containing chlorpyrifos.
- Maximum single application rate is 2 lb ai chlorpyrifos (2 quarts of Chlorpyrifos 4 EC) per acre.

### Grape

(Not for use in Mississippi)

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

#### Soil Surface Application

(For use only in areas east of the Continental Divide)

Apply Chlorpyrifos 4 EC just before the pest emerges from the soil. Apply 2 quarts of the diluted spray mixture to the soil surface on a 15-square foot area (4.4 foot circle) around the base of each vine.

Target Pest	Chlorpyrifos 4 EC (pint/100 gal)
grape borer	4.5

#### Specific Use Precautions:

- Do not allow spray to contact fruit or foliage.

#### Prebloom Application

(For use only in areas east of the Continental Divide)

Apply as a spray drench ground application using a minimum spray volume of 25 gpa.

Target Pest	Chlorpyrifos 4 EC (quart/acre)
climbing cutworm <sup>1</sup>	1
grape mealybugs <sup>2</sup>	

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

#### Pest-Specific Use Directions:

- For **cutworm** control in Connecticut, Massachusetts, and Rhode Island, apply 1 quart of Chlorpyrifos 4 EC per acre as a broadcast spray in a minimum spray volume of at least 50 gallons of water using power-operated ground spray equipment. Treat when cutworms first become active and when field counts indicate damaging insect populations are developing or present. Do not apply after bloom stage of growth. Consult your state agricultural experiment station or extension service specialist concerning cutworm control practices in your area.
- For **grape mealybug** control in Connecticut, Massachusetts, and Rhode Island, apply 1 quart of Chlorpyrifos 4 EC per acre in a minimum spray volume of at least 50 gallons of water per acre using power-operated ground spray equipment only prior to late budbreak. Applications after budbreak may result in transient leaf yellowing (Concords).

#### Specific Use Precautions:

- Do not use in conjunction with soil surface application for grape borer control.

#### Specific Use Restrictions for Soil Surface Application and Prebloom Application:

- Preharvest Interval:** Do not apply within 35 days before harvest.
- Do not make more than one application of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Maximum single application rate for soil surface application is 2.25 lb ai chlorpyrifos (4.5 pints of Chlorpyrifos 4 EC) per acre.
- Maximum single application rate for prebloom application to minimize phytotoxicity is 1 lb ai chlorpyrifos (1 quart of Chlorpyrifos 4 EC) per acre.
- Based upon available residue data, the use of Chlorpyrifos 4 EC in grapes is restricted to areas east of the Continental Divide only. Do not use in the state of Mississippi.

### Legume Vegetables (Succulent or Dried) Except Soybean<sup>1</sup>

(Not for use in Mississippi)



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

<sup>1</sup>Legume vegetables including adzuki bean, bean, blackeyed pea, broad bean (dry and succulent), catjang, chickpea, cowpea, crowder pea, English pea, field bean, field pea, garden pea, grain lupin, green pea, guar, lima bean (dry and green), kidney bean, lablab bean, lentil, moth bean, mung bean, navy bean, pea, pigeon pea, pinto bean, rice bean, southern pea, sweet lupin, tepary bean, urd bean, white lupin, white sweet lupin

**Preplant Broadcast Application**

Apply Chlorpyrifos 4 EC at a rate of 2 pints per acre to control seed maggots. Make a preplant broadcast application in a minimum of 10 gpa of spray to the soil surface using suitable ground equipment. To improve the activity against seed maggots, Chlorpyrifos 4 EC must be incorporated into the top 1 to 3 inches of soil using suitable tillage equipment.

**At Plant T-Band Application**

Apply 1.8 fl oz of Chlorpyrifos 4 EC per 1000 feet of row at 30-inch row spacing. Apply the spray in a 3- to 5-inch wide band over the row behind the planter shoe and in front of the press wheel to achieve shallow incorporation. Mix the specified dosage in a minimum of 10 gpa of spray and apply to the soil surface using suitable ground spray equipment. Equivalent rates of insecticide spray required per 100 feet of row for listed row spacings are given in the accompanying table. To improve the activity of Chlorpyrifos 4 EC against seed maggots, incorporate Chlorpyrifos 4 EC into the top 1/2 to 1-inch of soil using tines or chains or other suitable equipment.

Spray Volume Per Acre (Gallons)	fl oz of Spray Volume per 100 Feet of Row			
	30-inch	28-inch	24-inch	22-inch
10	7.3	6.9	5.9	5.4
15	11	10.3	8.8	8.1
20	14.7	13.7	11.8	10.8

**Specific Use Precaution:**

Insecticides, including Chlorpyrifos 4 EC, may contribute to the stress of the bean plant under certain environmental conditions. This stress may reduce plant stand or interfere with normal plant development. Herbicides used preplant incorporated may interact with insecticides and enhance this stress.

**Specific Use Restrictions:**

- Do not make more than one application of Chlorpyrifos 4 EC per year.
- Do not apply more than 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not apply Chlorpyrifos 4 EC at-plant if the field was treated with a preplant incorporated treatment of Chlorpyrifos 4 EC.

**Onion (Dry Bulb)**

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

**At-Plant Soil Drench Application**

For direct seeded onions to control onion maggot, apply 32 fl oz Chlorpyrifos 4 EC per acre in a water-based spray as a 2- to 4-inch wide band over the row at planting time in a minimum of 40 gpa. Equivalent rates of insecticide spray required per 1000 feet of row for listed row spacings are given in the table below. Shallow incorporation is necessary. Place behind the planter shoe and in front of the presswheel. Phytotoxicity may occur if Chlorpyrifos 4 EC is sprayed directly onto onion seeds. Do not mix Chlorpyrifos 4 EC with other pesticide products. **Note:** The user should exercise reasonable judgment and caution with this product. Until familiar with results under user planting and growing conditions, limit application of this product to a small area to determine plant tolerance and extent of injury if such occurs prior to initiating large scale applications.

Chlorpyrifos 4 EC (32 fl oz/acre)	Row Spacing			
	6-inch	10-inch	12-inch	18-inch
fl oz/1000 ft of row	0.37	0.61	0.73	1.1

**Specific Use Restrictions:**

- Do not make more than one application per year.
- Maximum single application rate is 0.03 lb ai chlorpyrifos per 1000 feet of row.
- Do not aerially apply this product in Mississippi.

**Postplant Soil Drench Application**

Apply as an early season directed spray to the base of onion seedlings or transplants during peak egg laying. Use a minimum of 100 gpa for thorough wetting.

Target Pest	Chlorpyrifos 4 EC (quart/acre)
onion maggot	1
seedcorn maggot	

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 60 days before harvest.
- Do not make more than two applications (at plant plus postplant) per year.
- Maximum single application rate is 1 lb ai chlorpyrifos (1 quart of Chlorpyrifos 4 EC) per acre.
- Do not aerially apply this product in Mississippi.

**Peanut**

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

Apply to the soil surface as a preplant broadcast spray followed by immediate soil incorporation to a depth of 3 to 4 inches using a disc, field cultivator, or equivalent equipment. Use a minimum of 10 gpa total spray.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
wireworms (suppression)	4

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 21 days before harvest.
- Do not make more than one preplant application of Chlorpyrifos 4 EC per season.
- The combined total of preplant and postplant applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos must not exceed 4 lb ai chlorpyrifos per acre per season.
- Maximum single application rate is 2 lb ai chlorpyrifos (4 pints of Chlorpyrifos 4 EC) per acre.
- Do not feed treated peanut forage or hay to meat or dairy animals.
- Do not aerially apply this product in Mississippi.

**Pear**

**(For use only in California, Oregon and Washington)**

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

**Postharvest Application**

Mix the specified dosage in 100 to 400 gpa of spray and apply using an airblast speed sprayer or other suitable ground equipment.

Target Pest	Chlorpyrifos 4 EC (pint/acre)
codling moth	4

**Specific Use Restrictions:**

- Do not make more than one postharvest application (prior to dormancy) per year.
- Maximum single application rate is 2 lb ai chlorpyrifos (4 pints of Chlorpyrifos 4 EC) per acre.
- Do not harvest or use treated fruit for food or feed.
- Do not allow meat or dairy animals to graze in treated orchards.
- If unauthorized entry into a treated orchard cannot be prevented, then the orchard shall be posted with appropriate signs according to the Worker Protection Standard while treated, unharvested fruit remains on the tree.

**Peppermint and Spearmint**

(Not for use in Mississippi)

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

Apply as a broadcast spray using a total spray volume of 10 gpa or more using ground equipment.

**Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems at specified broadcast application rates to control listed foliar pests. See Chemigation Application section for application instructions.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
cutworm (1)	2 – 4
garden symphylans (2) mint root borer (3)	4

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Cutworms:** Apply during May and June when field counts indicate damaging insect populations are developing or present. When larvae are less than ¾ inch in length, use the 2 pint rate; otherwise, use a higher rate in the rate range.
2. **Garden symphylans:** Apply preplant to the soil surface. 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.
3. **Mint borer:** Apply postharvest when field counts indicate damaging insect populations are developing or present. If ground applied, follow with approximately 1 acre inch of sprinkler irrigation immediately after application to incorporate the insecticide into the soil or apply by chemigation.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 90 days before harvest.
- Make only one application of Chlorpyrifos 4 EC or other product containing chlorpyrifos during the growing season.
- Do not make more than one preplant incorporated application in the spring.
- Make only one postharvest application of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Maximum single application rate is 2 lb ai chlorpyrifos (4 pints of Chlorpyrifos 4 EC) per acre.
- Do not use in conjunction with a broadcast foliar application of Chlorpyrifos 4 EC for cutworm control.

**Sorghum – Grain Sorghum (Milo)**

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

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gpa for ground spray equipment or 2 to 5 gpa for aircraft equipment. Control may be reduced at low spray volumes under high temperature and wind conditions.

**Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems at specified broadcast application rates to control listed foliar pests. See Chemigation Application section for application instructions.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
sorghum midge (1)	0.5
grasshoppers yellow sugar cane aphid and other aphids	0.5 – 1
greenbug (2)	0.5 – 2
armyworms chinch bugs (3) cutworms lesser cornstalk borer (3)	1 - 2
webworms	1
European and southwestern corn borer	1.5 – 2
corn earworm	2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Sorghum midge:** Apply when 30% to 50% of the seed heads are in bloom.
2. **Greenbug:** Use a higher rate in the rate range when pest populations are high.
3. **Chinch bugs and lesser cornstalk borer:** 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- to 12-inch band centered in the row. For plants less than 6 inches high, apply an 8- to 12-inch band centered over the row. Do not reduce the dosage for banded or directed applications. Concentrate the full labeled dosage rate in the treated zone.

**Specific Use Precautions:**

- To minimize the potential for chemical injury, do not apply Chlorpyrifos 4 EC to drought stressed grain sorghum within three days following irrigation or rain except where the product is applied in irrigation water.
- Be aware that sorghum lines used in seed production fields may be more susceptible to chemical injury. Susceptible inbred lines or hybrids are likely to be at greater risk of yield-reducing chemical injury when treated at the higher application rates. Do not apply more than 1 pint of Chlorpyrifos 4 EC per acre to seed sorghum if the additional risk of crop injury is unacceptable.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not harvest for grain, forage, fodder, hay, or silage within 30 days after application of 1 pint of Chlorpyrifos 4 EC per acre or within 60 days after application of rates above 1 pint per acre.
- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per use season.
- Do not apply more than 3 pints of Chlorpyrifos 4 EC (1.5 lb ai chlorpyrifos) per acre per season.
- Maximum single application rate is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.

- Do not treat sweet varieties of sorghum.
- Do not aerially apply this product in Mississippi.

**Soybean**

**(Not for use in Mississippi)**

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

**Soil Application**

Apply as a broadcast treatment to soil surface in a minimum spray volume of 10 gpa using suitable ground spray equipment or as a band application. Use a higher rate in the rate range when there is increased pest pressure. For band application, equivalent rates of insecticide spray required per 100 feet of row for listed row spacing are given in the table below. For at-plant treatments, apply in a 4- to 6-inch band centered over the row. Position the spray nozzle 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 a postemergence rescue treatment, apply as a directed spray in a 9- to 12-inch band at the base of the plant. For plants less than 6 inches tall, apply over-the-top in a 6- to 12-inch band.

Target Pests	At-Plant Treatment (broadcast, T-band or Band) (pint/acre)	Postemergence Rescue Treatment (Band Only) (pint/acre)
cutworms	1 - 2	1 - 2
lesser cornstalk borer		

Fluid Ounces of Spray Required Per 100 Feet of Row for Listed Row Spacings and Spray Volumes				
Volume of Spray per Acre (gal)	36"	32"	28"	24"
10	8.8	7.9	6.9	5.9
15	13.2	11.8	10.3	8.8
20	17.6	15.7	13.7	11.8

**Foliar Application**

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gpa for ground spray equipment or 2 to 5 gpa for aircraft equipment. Apply when field counts indicate damaging pest populations are developing or present. Chlorpyrifos 4 EC may be tank mixed with glyphosate products such as Glyphomax XRT or Durango when application is to be made to glyphosate-tolerant soybeans. Use a higher rate in the rate range when there is increased pest pressure.

**Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems at specified broadcast application rates to control listed foliar pests. See Chemigation Application section for application instructions.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
grasshoppers	0.5 - 1
green cloverworm	
spider mites (1)	
velvetbean caterpillar	
armyworms	1 - 2
bean leaf beetle	
corn earworm	
cutworms	
Mexican bean beetle	

Target Pests	Chlorpyrifos 4 EC (pint/acre)
potato leafhopper saltmarsh caterpillar and other woolly bears soybean aphid thistle caterpillar (painted lady butterfly)	
European corn borer southern green stink bug	2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. **Spider mites:** When large numbers of eggs are present, scout the treated area in 3 to 5 days. If newly hatched nymphs are present, make a follow-up application of a non-chlorpyrifos product that is effective against mites.

**Specific Use Precaution:**

- On determinate soybeans, do not make more than one application after pod set.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 28 days before harvest.
- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per year.
- Do not apply more than 6 pints of Chlorpyrifos 4 EC (3 lb ai chlorpyrifos) per acre per season.
- Maximum single application rate is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 14 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas or otherwise feed treated soybean forage, hay, and straw to meat or dairy animals.

**Strawberry**

(Not for use in Mississippi)

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

**Preplant Incorporation Application**

Apply Chlorpyrifos 4 EC in sufficient water to ensure uniform soil coverage and incorporate into the soil in the spring for protection of strawberries during the following year.

Target Pests	Chlorpyrifos 4 EC (quart/acre)
garden symphylans grub	2

**Foliar Application**

Apply as a broadcast foliar spray when buds first appear and repeat application 10 to 14 days later. Use a minimum spray volume of 40 gpa.

Target Pest	Chlorpyrifos 4 EC (quart/acre)
strawberry bud weevil	1

**Postharvest Application**

Apply as a directed spray to crown of strawberry plants immediately after plants are topped. Repeat application, if required, 14 to 18 days later. Use a minimum spray volume of 100 gpa.

Target Pest	Chlorpyrifos 4 EC (quart/acre)
strawberry crown moth	1

**Specific Use Precautions:**

- Do not tank mix Chlorpyrifos 4 EC with pesticides, surfactants, or fertilizer formulations unless prior use has shown the combination is non-injurious under your current conditions of use.
- Phytotoxicity may occur when Chlorpyrifos 4 EC is applied to strawberries under conditions of high temperature and drought stress.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 21 days before harvest.
- **Preplant Application:** Do not make more than one application of Chlorpyrifos 4 EC or other product containing chlorpyrifos per year.
- **Foliar and Postharvest Applications:** Do not make more than two applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per year.
- **Postharvest Application:** Do not sprinkle irrigate for one week following application.
- Maximum single application rate is 2 lb ai chlorpyrifos (2 quarts of Chlorpyrifos 4 EC) per acre for preplant incorporation and 1 lb ai chlorpyrifos (1 quart of Chlorpyrifos 4 EC) per acre for foliar and postharvest application.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first foliar application and within 14 days of postharvest application.
- **For prebloom use only.** Do not apply after berries start to form or when berries are present.

**Sugarbeet**

(Not for use in Mississippi)

<b>Worker Restricted Entry Interval:</b> Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 24 hours unless PPE required for early entry is worn.
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**Soil Application (At Planting or Preplant Incorporated)**

To reduce feeding damage from early season insects such as cutworms, apply at planting or as a preplant treatment and incorporate to a depth of 1 to 2 inches. Do not apply as an in-furrow treatment. Apply 1 pint of Chlorpyrifos 4 EC per planted acre to a 10-inch wide band centered over the row for furrows 30 inches apart. (For rows 30 inches apart, this is equivalent to 9.2 fl oz of Chlorpyrifos 4 EC per 10,000 feet of row). For other row widths, adjust the spray volume per planted acre in proportion to the length of row actually treated.

**Postemergence Application:** Apply specified rate as a broadcast or banded foliar spray. Treat when field counts indicate that damaging insect populations are developing or present.

**Broadcast Application:** Apply the specified dosage in water using 2 to 5 gpa of finished spray when using aerial spray equipment or 10 to 30 gpa when using ground spray equipment. **Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems at specified broadcast application rates to control listed foliar pests. See Chemigation Application section for application instructions.

**Banded Foliar Spray:** Apply the specified rate within the band using a minimum of 7 gallons of spray volume in a 5- to 7-inch wide band centered over the row. Do not reduce the rate for band applications. Concentrate the full labeled dosage rate (see band rates in table below) in the treated zone. For best results, lightly incorporate band-applied treatments, either mechanically or with irrigation.

Target Pests	Chlorpyrifos 4 EC	
	Broadcast (pint/acre)	Band (pint/acre)

grasshoppers (1)	0.5 – 1	-
leafminers	1	0.67
spider mites		
Tarnished plant bug ( <i>Lygus</i> )	1	-
aphids	1 – 2	0.67 – 1.33
fall armyworm		
yellowstriped armyworm		
webworms		
beet armyworm	1.5 – 2	1 – 1.33
cutworms	2	1.33
flea beetle adults		
sugarbeet root maggot adults (2), (5)	0.5 – 1	-
sugarbeet root maggot larvae (3), (5)	-	1.33 – 2
sugarbeet root maggot larvae (4), (5)	2	1.33 - 2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- 1. Grasshoppers:** The low rate will control small nymphs (1<sup>st</sup> through 3<sup>rd</sup> instar).
- 2. Sugarbeet root maggot adults:** Apply anytime from 7 days before until 3 days after peak adult emergence in order to target adults present at time of application based on local field trap monitoring.
- 3. Sugarbeet root maggot larvae:** Use a primary treatment to control root maggot larvae. Base application timing on local field trap monitoring. Apply anytime from 7 days before until 3 days after peak adult emergence.
- 4. Sugarbeet root maggot larvae:** Use as supplemental postemergence treatment following an at-plant insecticide application for control of root maggot larvae. Base application timing on local field trap monitoring. Apply anytime from 7 days before until 3 days after peak adult emergence.
- 5.** To prevent potential development of insecticide resistance in **sugarbeet root maggot**, producers are encouraged to take the following steps: (1) avoid making more than two applications of Chlorpyrifos 4 EC per season when adults are active; (2) if an organophosphate insecticide was applied at planting, make no more than one postemergence application of Chlorpyrifos 4 EC when adults are active.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 30 days before harvest of beet roots and tops.
- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Do not apply more than 6 pints of Chlorpyrifos 4 EC (3 lb ai chlorpyrifos) per acre per season.
- Maximum single application rate is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas or harvest treated beet tops as feed for meat or dairy animals within 30 days of last treatment.
- To avoid unacceptable crop injury, do not tank mix Chlorpyrifos 4 EC with Quadris or Headline or with any EC formulation or any tank mix containing oil adjuvant.

**Sunflower**

(Not for use in Mississippi)

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

**Preplant Incorporation Application**



Broadcast apply to soil surface in a minimum spray volume of 10 gpa using suitable 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. Use a higher rate in the rate range when there is increased pest pressure.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
cutworms	2 - 4

**Postemergence Broadcast Application**

Apply as a postemergence broadcast spray using sufficient spray volume to ensure thorough coverage of treated plants, but no less than 15 gpa for ground spray equipment or 2 to 5 gpa for aircraft equipment. Use a higher rate in the rate range when there is increased pest pressure.

Target Pest	Chlorpyrifos 4 EC (pint/acre)
grasshoppers	1
banded sunflower moth	1 - 1.5
seed weevil (4)	
stem weevil (2)	
sunflower beetle larvae and adults (1)	
sunflower moth (3)	
woolly bears	
cutworms	2
tarnished plant bug ( <i>Lygus</i> ) (5)	1 - 2

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- Sunflower beetle:** For control of larvae or adults, treat when field counts indicate 10 larvae or 1 to 2 adults per seedling.
- Stem weevil:** Optimal treatment time is within 5 to 7 days after adult weevils begin to appear.
- Sunflower moth:** To control, make first application during early 1% to 5% bloom stage.
- Seed weevil:** To control, apply when field counts indicate 10 to 12 adults per plant for oil crop varieties and 1 to 3 adults per plant on confectionary crop varieties.
- Tarnished plant (*Lygus*):** Use a higher rate in the rate range where populations are heavy. Apply at the onset of pollen spread or approximately 10% bloom (R-5 growth stage). For best protection, make a second application 10 days later. Use sufficient water to ensure thorough coverage of treated plants.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 42 days before harvest.
- Do not make more than three applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Do not apply more than 6 pints of Chlorpyrifos 4 EC (3 lb ai chlorpyrifos) per acre per season.
- Maximum single application rate is 2 lb ai chlorpyrifos (4 pints of Chlorpyrifos 4 EC) per acre for preplant incorporation and 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre for postemergence broadcast treatment.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.

**Sweet Potato**

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

Apply to the soil surface as a preplant broadcast spray to reduce the feeding damage caused by listed pests. Use a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 4 to 6 inches using a rotary hoe, disc cultivator, or other suitable incorporation equipment. Plant sweet potatoes in the usual manner no more than 14 days after treatment. Delaying planting more than 14 days after application will reduce the time interval or protection against feeding damage.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
Conderus (wireworm) sweet potato flea beetle Systema (flea beetle)	4

**Specific Use Precaution:**

- Chlorpyrifos 4 EC will not control false wireworms, white fringe beetle or other grubs that attack sweet potatoes.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 125 days before harvest.
- Do not make more than one application of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Maximum single application rate is 2 lb ai chlorpyrifos (4 pints of Chlorpyrifos 4 EC) per acre.
- Do not aurally apply this product in Mississippi.

**Tobacco**

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

Apply as a preplant broadcast spray to reduce the feeding damage caused by listed pests. Apply 24 to 48 hours before bedding and transplanting using a spray volume of 10 gpa or more. Incorporate immediately after application to a depth of 2 to 4 inches using suitable incorporation equipment. Before broadcast application of Chlorpyrifos 4 EC onto existing beds, knock down beds to final shape for transplanting. Use PTO-driven implements that will incorporate Chlorpyrifos 4 EC to a depth of 4 inches.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
cutworms flea beetles mole crickets root maggots wireworms	2

To control the above listed pests and suppress populations of rootknot nematodes in all tobacco growing regions, use Chlorpyrifos 4 EC in a tank mix with Nematicur 3 at the rate of 2 pints of Chlorpyrifos 4 EC plus 4 quarts of Nematicur 3 nematicide per acre. Read and carefully follow all applicable directions, restrictions, and precautions on labeling for Nematicur 3 used in combination with Chlorpyrifos 4 EC. Apply the specified rate(s) to the soil surface in a spray volume of 10 gpa or more 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 specified label rate.

**Specific Use Restrictions:**

- Do not make more than one application of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season

- Maximum single application rate is 1 lb ai chlorpyrifos (2 pints of Chlorpyrifos 4 EC) per acre.
- Do not aerially apply this product in Mississippi.

**Tree Fruits<sup>1</sup>, Almond, and Walnut (Dormant/Delayed Dormant Sprays)  
(Not for use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days for tree fruits and 24 hours for almond and walnut unless PPE required for early entry is worn.

<sup>1</sup>Apple, cherry, nectarine, peach, pear, plum, prune

Apply as a dormant or delayed dormant spray. While Chlorpyrifos 4 EC may be used without oil, oil is recommended to control additional pests such as European red mite. See precautions for use of oil below. Apply as a concentrate or dilute spray using conventional, power-operated spray equipment. For dilute sprays (greater than 200 gpa), use sufficient spray volume to completely wet tree foliage, but not to point of runoff. For concentrate sprays (less than 200 gpa), uniformly apply an equivalent amount of Chlorpyrifos 4 EC per acre.

Use a higher rate in the rate range when there is increased pest pressure.

**Use Precautions for Tree Fruits, Almond and Walnut:**

- Cold or dry conditions may cause Chlorpyrifos 4 EC plus oil sprays to infuse into trees, resulting in bud damage or bud drop. Do not apply until winter rains or irrigation has replenished soil moisture such that bark and twigs are not desiccated.
- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours of application of Chlorpyrifos 4 EC.

**Use Restrictions for Tree Fruits, Almond and Walnut:**

- Make only one application of chlorpyrifos during the dormant season.
- For apple, do not make more than one application of Chlorpyrifos 4 EC to the apple tree trunk per year as either a pre-bloom or post-bloom application.
- Do not use more than 4 pints of Chlorpyrifos 4 EC (2 lb ai chlorpyrifos) per acre per season as a dormant/delayed dormant application.
- Do not allow meat or dairy animals to graze in treated orchards.

**Almond, Cherry, Nectarine, Peach, Pear, Plum, Prune**

Target Pests	Chlorpyrifos 4 EC (pint/acre)
American plum borer	1.5 - 4
brown almond mite	
climbing cutworms	
European red mite	
greater peach tree borer	
lesser peach tree borer	
mealy plum aphid	
peach twig borer	
pear psylla adults	
San Jose scale	

**Specific Use Precautions for Almond, Cherry, Nectarine, Peach, Pear, Plum, Prune:**

- Avoid contact with foliage in sweet cherries as premature leaf drop may result.

**Specific Use Restrictions for Almond, Cherry, Nectarine, Peach, Pear, Plum, Prune:**

- Do not make a soil or foliar application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of a dormant/delayed dormant application of chlorpyrifos to the orchard.

**Additional Restrictions Specific to California for Almond, Cherry, Nectarine, Peach, Pear, Plum, Prune:**

- Do not use more than 1% dormant oil and/or penetrating surfactants in almond orchards less than 4 years old.
- Use a minimum of 100 gpa of total spray volume.
- Use up to 2% supreme oil with no more than 4 gpa on almonds.
- Use up to 2% supreme oil with no more than 6 gpa on peaches and nectarines.
- Refer to the University of California pest management guide for pears, plums, and prunes.
- In orchards with high overwintering populations of European red mite or brown almond mite, use higher spray volumes that allow for the use of higher per acre rates of oil.
- 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 4 EC.
- Do not apply on almonds in the following counties in California: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba.

**Apple**

Target Pests	Chlorpyrifos 4 EC (pint/acre)
climbing cutworms <i>Lygus</i> obliquebanded leafroller pandemis leafroller rosy apple aphid San Jose scale	1.5 - 4

**Specific Use Restrictions for Apple:**

- Only one application for any chlorpyrifos containing product can be made per year. The application can be either a prebloom dormant/delayed dormant spray to the canopy or the trunk, or a post-bloom application to the lower 4 feet of the trunk [for post-bloom application instructions and restrictions on apple, refer to Apple Tree Trunk section of the label].

**Additional Restrictions Specific to California for Apple:**

- Use a minimum of 100 gpa of total spray volume.
- Refer to the University of California pest management guide for apples.
- In orchards with high overwintering populations of European red mite or brown almond mite, use higher spray volumes that allow for the use of higher per acre rates of oil.
- 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 4 EC.

**Tree Fruits<sup>1</sup> and Almond (Trunk Spray or Preplant Dip)  
(Not for use in Mississippi)**

**Worker Restricted Entry Interval:** Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) of 4 days for tree fruits and 24 hours for almond unless PPE required for early entry is worn.

<sup>1</sup>Cherry, nectarine, peach

Apply Chlorpyrifos 4 EC to tree trunks and lower branches using a coarse, low-pressure spray to control pests listed in the following table. Use a higher rate in the rate range when there is increased pest pressure. Unless otherwise specified, a second application may be made after two weeks and a third application may be made after harvest. Avoid spray contact with foliage in sweet cherries as premature leaf drop may result. Consult your state agricultural experiment station or extension service specialist for proper application timing for your area.

		Chlorpyrifos 4 EC
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Crops	Target Pests	(quart/100 gal)
cherry	American plum borer greater peach tree borer lesser peach tree borer	1.5 – 3
almond peach nectarine	peach tree borers (1), (2)	3

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- Preplant Dip Application (Peaches and Nectarines Only).** For preplant control of **peach tree borer**, use Chlorpyrifos 4 EC at the equivalent application rate of 3 quarts per 100 gallons of water. Dip trees several inches above the grafting bud scar and plant immediately or allow them to dry before returning to storage. Do not allow peach trees to remain in contact with the dip solution.
- For control of **peach tree borer** in established trees, apply before newly hatched borers enter the tree. Use as a coarse, low-pressure trunk spray and thoroughly wet all bark areas from ground level to scaffold limbs. Do not allow spray to contact fruit. Consult written recommendations provided by your state agricultural experiment station or extension service specialist for proper time to treat in your area.

**Specific Use Restrictions:**

- Preharvest Interval:** Do not apply within 14 days before harvest of almonds, peaches and nectarines or within 21 days before harvest of cherries.
- Do not make more than one chlorpyrifos application per year in peaches and nectarines and no more than three chlorpyrifos applications per year in cherries.
- Do not allow meat or dairy animals to graze in treated orchards.

**Tree Nuts<sup>1</sup> (Foliar Sprays)**

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

<sup>1</sup>Almond, filbert, pecan, walnut

Apply Chlorpyrifos 4 EC as a foliar spray at the dosages indicated 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 4 EC per acre. Treat when pests appear or in accordance with local conditions. Aerial application may result in less effective insect control because of reduced coverage. Consult your state agricultural experiment station, certified pest control advisor, or extension service specialist for specific use information in your area.

Crops	Target Pests	Chlorpyrifos 4 EC (pint/acre)
almond	leaf footed plant bug navel orangeworm peach twig borer San Jose scale	4
filbert	eye-spotted bud moth filbert aphid filbert leafroller filbert worm obliquebanded leafroller omnivorous leaftier	3 – 4

Crops	Target Pests	Chlorpyrifos 4 EC (pint/acre)
	winter moth	
pecan	blackmargined aphid (1) spittlebugs (2) yellow pecan aphid (1)	1 – 4
	fall webworm pecan nut casebearer	1.5 – 4
	black pecan aphid hickory shuckworm (3) <i>Phylloxera</i> spp. (4) pecan leaf scorch mite (suppression) (5)	2 – 4
walnut	codling moth walnut husk fly walnut scale	4

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

#### Pest-Specific Use Directions:

1. For control of **yellow pecan aphid** and **blackmargined aphid**, apply in a tank mix combination with the specified rate of a pyrethroid insecticide labeled for control or suppression of these aphids.
2. For control of **spittlebug**, use a dosage of 2 to 4 pints per acre for concentrate sprays.
3. For best results against **hickory shuckworm**, make two applications, 10 to 14 days apart.
4. For best control of ***Phylloxera* spp.**, make two applications at a 10-day interval using a minimum of 1 pint of Chlorpyrifos 4 EC per acre starting at bud swell.
5. For suppression of **pecan leaf scorch mite**, use a preventative program.

#### Specific Use Precautions:

- Chlorpyrifos 4 EC is highly toxic to bees exposed to direct treatment and should not be applied when bees are foraging in the treated area.
- To avoid contamination of irrigation tail waters, do not flood irrigate within 24 hours of application of Chlorpyrifos 4 EC.

#### Specific Use Restrictions:

- **Preharvest Interval:** Do not apply within 14 days before harvest of almonds, filberts and walnuts, or 28 days before harvest of pecans.
- Do not make more than three total applications per season of Chlorpyrifos 4 EC or other product containing chlorpyrifos to almonds, pecans and filberts and no more than two applications per season on walnuts.
- Do not apply more than a total of 8 pints of Chlorpyrifos 4 EC (4 lb ai chlorpyrifos) per acre per season as a foliar spray.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated orchards.
- Do not use on almond, filbert or walnut in Mississippi.
- Do not aerially apply this product in Mississippi.

#### Tree Nut<sup>1</sup> Orchard Floors (Not for use in Mississippi)

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

<sup>1</sup>Almond, pecan, walnut

Apply as a ground broadcast spray directed to the orchard floor using ground application equipment that will apply the spray uniformly. Do not allow spray to contact foliage or fruit. Treat when ant activity (excluding fire, harvester, carpenter, and pharaoh ants) becomes evident in the orchard. Since worker ants (excluding fire, harvester, carpenter, and pharaoh ants) cease most of their foraging activity at temperatures above 90°F, best results will be achieved if applied at a time of day when temperatures are below 90°F.

**Chemigation:** Chlorpyrifos 4 EC may be applied to almond, pecan and walnut orchard floors through sprinkler irrigation systems only if the system uniformly covers the soil surface at the base of the tree. Use specified broadcast application rates to control listed pests. See Chemigation Application section for application instructions.

Orchard Floor	Target Pests	Chlorpyrifos 4 EC (pint/acre)
pecan	ants (1)	4
almond		4 - 8
walnut		

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants and pharaoh ants.

Eliminate weed growth that would prevent uniform coverage of the orchard floor by mowing or with herbicide treatment. Foliar applications of Chlorpyrifos 4 EC may be made in addition to the orchard floor treatment.

**Specific Use Precaution:**

- To avoid contamination of irrigation tail water, do not flood irrigate within 24 hours of application of Chlorpyrifos 4 EC.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days before harvest.
- Do not make more than two applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season to the orchard floor. If the 8 pint per acre rate is used, a second application is not allowed.
- Do not apply more than 8 pints of Chlorpyrifos 4 EC (4 lb ai chlorpyrifos) per acre per season to the orchard floor.
- Do not make a second application of Chlorpyrifos 4 EC or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated orchards.

**Turfgrass (Grown for Sod)  
(Not for use in Mississippi)**

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

Dilute Chlorpyrifos 4 EC in water and apply to turfgrass grown for sod using suitable application equipment. For best results, turfgrass should be moist at time of treatment.

Pests	Amount of Chlorpyrifos 4 EC per	
	fl oz/1000 sq ft	quart/acre

ants (1) armyworms (such as: beet, fall, yellowstriped) centipedes chiggers chinch bugs crickets cutworms deer ticks earwigs European crane fly larvae fiery skipper fleas gnats grasshoppers	greenbug aphids green June beetle grubs leafhoppers Lucerne moth millipedes mites (such as: clover, Bermudagrass stunt, winter grain) mosquitoes pillbugs springtails sod webworms (lawn moths) (2) sowbugs ticks	0.75	1
billbug adults (such as: bluegrass, Denver, hunting) (3)		0.75 – 1.5	1 – 2
annual bluegrass weevil ( <i>Hyperodes</i> ) (4) black turfgrass ataenius adults (5) mole crickets (6)		1.5	2
white grubs (such as: black turfgrass ataenius, European chafer, Japanese beetle larvae, and northern and southern masked chafers) (7)		1.5 – 3	2 - 4

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

**Specific Use Directions:**

1. Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants and pharaoh ants.
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 your 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 4 EC through high-pressure injection or other suitable subsurface placement application equipment. Depending upon the application equipment used, follow the manufacturer's directions 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 ½ to 1 inch of water to wash the insecticide into the thatch and underlying soil.**

**Wheat**

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

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

**Foliar Application**



Apply using aerial (fixed wing or helicopter) or power-operated ground spray equipment. Mix the required dosage with water and apply in a minimum of 2 to 5 gpa finished spray volume for aerial equipment or 15 gpa for ground spray equipment. Apply when field counts indicate damaging pest populations are developing or present.

**Chemigation:** Chlorpyrifos 4 EC may be applied through sprinkler irrigation systems at specified broadcast application rates to control listed foliar pests. See Chemigation Application section for application restrictions.

Target Pests	Chlorpyrifos 4 EC (pint/acre)
aphids (such as Russian wheat aphid, greenbug, English grain aphid) (1) brown wheat mite grasshoppers	0.5 - 1
army cutworms (2) armyworms (3) cereal leaf beetle (4) cutworms (suppression) (2) wheat midge (5)	1

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

1. Consult university extension bulletins for local treatment recommendations.
2. Control may be reduced under high temperature conditions (greater than 80°F), under dry soil conditions, or if larvae are more than ½ inch long.
3. Suppression should be expected under conditions of heavy pest populations or large worms.
4. Target application when eggs are near hatching and larvae is emerging as monitored by plant inspection.
5. For control of **wheat midge**, treat when 75% of the wheat heads have emerged from the boot and when midge adults are found in the crop (1 midge per 4 to 5 heads). If possible, apply in the late afternoon or early evening when temperatures exceed 50°F and wind speed is less than 7 mph.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days before harvest for forage and hay and within 28 days before harvest for grain and straw.
- Do not make more than two applications of Chlorpyrifos 4 EC or other product containing chlorpyrifos per season.
- Maximum single application rate is 0.5 lb ai chlorpyrifos (1 pint of Chlorpyrifos 4 EC) per acre.
- Do not allow meat or dairy animals 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.

**Commercial Turfgrass**

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

**For golf courses (turf only), road medians and industrial plant sites (see separate directions for turfgrass grown for sod).**

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

Pests	Amount of Chlorpyrifos 4 EC (fl oz) per	
	1000 sq ft	Acre
ants (7)	3/4	32
green june beetle grubs		
armyworms (such as: leafhoppers		
beet, fall, lucerne moth		
yellowstriped) millipedes		
chinch bugs mites (such as: clover,		
crickets Bermudagrass stunt,		
cutworms winter grain)		
earwigs pillbugs		
European crane fly larvae sod webworms (lawn		
fiery skipper moths) (1)		
gnats sowbugs		
grasshoppers		
greenstriped mapleworms		
greenbug aphids		
billbug adults (such as bluegrass, Denver, hunting) (2)		
annual bluegrass weevil ( <i>Hyperodes</i> ) (3)		
black turfgrass ataenius adults (4)		
mole crickets (5)		
white grubs (such as: black turfgrass ataenius, European chafer, Japanese beetle larvae, northern and southern masked chafers) (6)		

Numbers in parenthesis (-) refer to Pest-Specific Use Directions.

**Pest-Specific Use Directions:**

- Sod webworms:** Delay watering or mowing of the treated area for 12 to 24 hours after treatment.
- Billbugs:** Spray early in the season just prior to or coinciding with, the first appearance of adults as recommended by your local Agricultural Extension Service Specialist.
- To control **annual bluegrass weevil**, spray suspected problem areas in mid-April and again in mid-May, or as recommended by your local Agricultural Extension Service Specialist.
- Black turfgrass ataenius** adults: Spray early in the season as recommended by your local Agricultural Extension Service Specialist. Re-treat as needed 1 to 2 weeks later.
- Mole crickets:** Apply through high pressure injection or other suitable subsurface application equipment. Follow the manufacturer's recommendations 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. Efficacy may be enhanced by spraying late in the afternoon or early evening and irrigating the turf prior to treatment to move mole crickets to the soil surface.
- 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. Irrigate immediately after application with 1/2 to 1 inch of water to move the insecticide into the top 1 to 2 inches of soil.
- Excludes ants of significant public health importance such as fire ants, harvester ants, carpenter ants, and pharaoh ants.

**Certification Period:** 42 days from day of application.

**Specific Use Precautions:**

To prevent repeated skin exposure to treated sod, wear elbow-length chemical-resistant gloves in addition to the PPE listed elsewhere on this label.

### 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-contaminate 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:** Wastes resulting from the use of this product must be disposed of on site or at an approved waste disposal facility.

**CONTAINER DISPOSAL:** Nonrefillable container. Do not reuse or refill this container. Triple rinse container (or equivalent) promptly after emptying.

(Nonrefillable container ≤ 5 gallons): Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or, if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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

### CONDITIONS OF SALE AND LIMITATION OF WARRANTY AND LIABILITY

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

Tide International USA, Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks referred to above, when used in accordance with directions under normal use conditions. This warranty does not extend to the use of this product contrary to label instructions, or under abnormal conditions or under conditions not reasonably foreseeable to or beyond the control of Seller or Tide International USA, Inc., and Buyer and User assumes the risk of any such used. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, TIDE INTERNATIONAL USA, INC. MAKES NO WARRANTIES OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY EXCEPT AS STATED ABOVE.

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