

67760-112

12 | 20 | 2012

1 | 27

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460



OFFICE OF  
CHEMICAL SAFETY AND  
POLLUTION PREVENTION

December 20, 2012

Ms. Carrie M. Tackema  
Cheminova, Inc.  
P. O. Box 110566  
One Park Drive, Suite 150  
Research Triangle Park, NC 27709

Subject: Amended labeling to implement required spray drift mitigation measures  
Product Name: Bolton  
EPA Registration Number: 67760-112  
Submission dated August 13, 2012

Dear Ms. Tackema:

The labeling referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide, and Rodenticide Act, is acceptable. A stamped copy of the label is enclosed for your records. Please submit one copy of your final printed labeling before you release the product for shipment. Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). If you have any questions, please contact Julie Chao by phone at 703-308-8735, or by email at [chao.julie@epa.gov](mailto:chao.julie@epa.gov).

Regards,

*for* Venus Eagle, Product Manager 01  
Insecticide-Rodenticide Branch  
Registration Division (7505P)

2/27

# RESTRICTED USE PESTICIDE

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

**BEFORE USING THIS PESTICIDE - STOP - READ THE LABEL**

## **BOLTON™ Insecticide**

**For control of listed insects infesting certain field, fruit, nut and vegetable crops**

**ACTIVE INGREDIENTS:**

Chlorpyrifos: o,o-diethyl, o-(3,5,6-trichloro-2-pyridinyl) phosphorothioate..... 30.00%

Gamma-cyhalothrin: cyclopropanecarboxylic acid, (2-chloro-3,3,3-

Trifluoro-1-propenyl)-2,2-dimethyl, cyano (3-phenoxyphenyl) methyl ester..... 0.99%

**OTHER INGREDIENTS:** ..... 69.01%

**TOTAL:** ..... 100.00%

Contains 2.5 lb chlorpyrifos and 0.083 lb gamma-cyhalothrin per gallon. Contains petroleum distillate.

**KEEP OUT OF REACH OF CHILDREN**

**WARNING AVISO**

**AL USUARIO:** Si usted no entiende la etiqueta, busque a alguien para que se la explique a Usted en detalle. **(TO THE USER:** If you do not understand the label, find someone to explain it to you in detail)

**IN CASE OF MEDICAL EMERGENCY INVOLVING THIS PRODUCT, CALL TOLL FREE,  
DAY OR NIGHT, 1-866-303-6950**

Read the entire label before using this product.

Use only according to label instructions.

Read the **WARRANTY DISCLAIMER, INHERENT RISKS OF USE, and LIMITATION OF REMEDIES** before buying or using.

If terms are not acceptable, return product unopened without delay.

SEE BOOKLET FOR ADDITIONAL PRECAUTIONARY STATEMENTS AND USE DIRECTIONS

EPA Reg. No.: 67760-112

EPA Est. No.: 4787-DNK-001

Net Contents: 2.5 gallons

Manufactured for:

Cheminova, Inc.

One Park Drive, Suite 150

P.O. Box 110566

Research Triangle Park, NC 27709

[www.cheminova.us.com](http://www.cheminova.us.com)

**ACCEPTED**

**DEC 20 2012**

**Under the Federal Insecticide, Fungicide,  
and Rodenticide Act, as amended, for the  
pesticide registered under:**

EPA Reg. No.:

67760-112



**PRECAUTIONARY STATEMENTS  
HAZARDS TO HUMANS AND DOMESTIC ANIMALS  
KEEP OUT OF REACH OF CHILDREN**

**WARNING**

May be fatal if swallowed. Causes substantial but temporary eye injury or skin irritation. Harmful if absorbed through skin. Harmful if inhaled. Do not get in eyes, on skin, or on clothing. Avoid breathing (dust, vapor or spray mist).

**PERSONAL PROTECTIVE EQUIPMENT (PPE)**

Some materials that are chemical-resistant to this product are made of 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 selection chart.

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

- long sleeved shirt and long pants;
- socks and shoes;
- protective eyewear.

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 Controls 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 exposures;
- 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.

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. Discard clothing and other absorbent materials that have been drenched or heavily contaminated with this product's concentrate. Do not reuse them.

**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 a 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 Worker Protection Standard (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 c...otorized ground application equipment in...anner that meets the requirements listed in the Worker Protection Standard (WPS) for agricultural pesticides (40 CFR 170.240(d)(4-6)), the handler PPE requirements may be reduced or modified as specified in the WPS.

5/27

**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.

**FIRST AID**

**Organophosphate**

<b>IF SWALLOWED:</b>	Call a poison control center or doctor immediately for treatment advice. Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything to an unconscious person.
<b>IF ON SKIN OR CLOTHING:</b>	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Call a poison control center or doctor for treatment advice.
<b>IF IN EYES:</b>	Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.
<b>IF INHALED:</b>	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. Call a poison control center or doctor for further treatment advice.
<b>NOTE TO PHYSICIAN:</b>	<b>Chlorpyrifos</b> is a cholinesterase inhibitor affecting the central and peripheral nervous systems and producing cardiac and respiratory depression. <b>Antidote:</b> Administer atropine sulphate in large doses. TWO to FOUR mg intravenously or intramuscularly as soon as cyanosis is overcome. Repeat at 5 to 10 minute intervals until signs of atropinization appear. 2-PAM chloride is a pharmacological antidote and may be administered as an adjunct to, but not a substitute for, atropine, which is a symptomatic and often lifesaving antidote. <b>DO NOT GIVE MORPHINE OR TRANQUILIZERS.</b> At first sign of pulmonary edema, the patient should be given supplemental oxygen and treated symptomatically. Continued absorption of <b>chlorpyrifos</b> may occur and relapse may occur after initial improvement. <b>VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS.</b> Contains petroleum distillate – vomiting may cause aspiration pneumonia.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-866-303-6950 for emergency medical treatment information.

**ENVIRONMENTAL HAZARDS**

This pesticide is toxic to fish, aquatic invertebrates, small mammals, birds and bees. 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 wash water 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 labelling. Read all Directions for Use carefully before applying. 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. This product cannot be reformulated or repackaged into other end-use products.

**AGRICULTURAL USE REQUIREMENTS**

Use this product only in accordance with its labelling 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 exemptions 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 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 re-entry requirement pursuant to 40 C.F.R. Part 170.

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

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

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

**STORAGE AND DISPOSAL**

**PESTICIDE STORAGE:** Store in original container in secured dry storage area. Protect against strong heat from sunshine or other source. Prevent cross-contamination with other pesticides and fertilizers. Do not store above 100°F for extended periods of time. Storage below 20°F may result in formation of crystals. If product crystallizes, store at 50 to 70°F and agitate to redissolve crystals. If container is damaged or if the pesticide is leaking or has been spilled, use product immediately or dispose of product and damaged container as indicated below.

**PESTICIDE DISPOSAL:** To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

**CONTAINER HANDLING AND DISPOSAL:** Do not contaminate water, food, or feed by storage and disposal.

**Nonrefillable containers equal to or less than 5 gallons:**

Do not reuse or refill this container. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. Triple rinse container promptly after emptying. **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 ¼ full with water and cap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

**Nonrefillable containers greater than 5 gallons:**

Do not reuse or refill this container. Offer for recycling if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities. Triple rinse container promptly after emptying. **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 ¼ 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. Repeat this procedure two more times. **Pressure rinse as follows:** Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

**Refillable containers 5 gallons or larger:** Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

**PRODUCT INFORMATION**

BOLTON™ insecticide is an emulsifiable concentrate for use in listed crops. It resists washoff once dry. Target pests and application rates are listed in crop specific tables below.

**USE PRECAUTIONS**

Applying at low spray volumes under high temperature and wind conditions may reduce insect control.

Unusually cool conditions may cause some reduction in insect control.

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

**SPRAY DRIFT MANAGEMENT**

**Buffer Zones**

In New York State, a 25 ft vegetated, non-cropped buffer strip not traversed by drainage tiles must be maintained between a treated field and a coastal salt marsh or stream that drains into a coastal salt marsh, for both aerial or ground application. For aerial applications, the 25 ft vegetated non-cropped buffer strip for runoff protection would be part of the larger 50 ft buffer strip required for spray drift.

**Vegetative Buffer Strip**

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

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

For further guidance, see the following publication for information on constructing and maintaining effective buffers: *Conservation Buffers to Reduce Pesticide Losses. Natural Resources Conservation*

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

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 blast	50
Aerial (fixed wing or helicopter)	150

The buffer distances specified in the below table are the distances in feet that must exist to separate sensitive sites from the targeted application site. Buffers are measured from the edge of the sensitive site to the edge of the application site.

Sensitive sites are areas frequented by non-occupational bystanders (especially children). These include residential lawns, pedestrian sidewalks, outdoor recreational areas such as school grounds, athletic fields, parks and all property associated with buildings occupied by humans for residential or commercial purposes. Sensitive sites include homes, farmworker housing, or other residential buildings, schools, daycare centers, nursing homes, and hospitals. Non-residential agricultural buildings, including barns, livestock facilities, sheds, and outhouses are not included in this prohibition.

Application rate (lb ai/A)	Nozzle Droplet Type	Required Setback (Buffer Zones) (feet)		
		Aerial	Airblast	Ground
>0.5-1	coarse or very coarse	10	10	10
>0.5-1	medium	25	10	10
>1-2	coarse or very coarse	50	10	10
>1-2	medium	80	10	10
>2-3	coarse or very coarse	80 <sup>1</sup>	10	10
>2-3	medium	100 <sup>1</sup>	10	10
>3-4	medium or coarse	NA <sup>2</sup>	25	10
>4	medium or coarse	NA	50	10

<sup>1</sup> Aerial application of greater than 2 lb ai/A is only permitted for Asian Citrus Psylla control, up to 2.3 lb ai/A.

<sup>2</sup> NA is not allowed.

Only pesticide handlers are permitted in the setback area during application of this product. Do not apply this product if anyone other than a mixer, loader, or applicator, is in the setback area. Exception: Vehicles and persons riding bicycles that are passing through the setback area on public or private roadways are permitted.

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

#### Aerial Application

1. The boom width must not exceed 75% of the wingspan or 80% of the rotor blade.
2. Nozzles must always point backward, parallel with the air stream, and never be pointed downward more than 45 degrees.
3. Nozzles must produce a medium or coarser droplet size (255-340 microns volume median diameter) per ASE 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.



- 9/27
4. 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.
  5. Use upwind swath displacement and apply only when wind speed is 3 to 10 mph as measured by an anemometer. Do not apply when wind speed exceeds 15 mph.
  6. 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 supersede 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  $\frac{3}{4}$  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 the 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

10/27  
temperatures with altitude 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 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.

1. Choose only nozzles and pressures that produce a medium or coarse droplet size (255-400 microns volume median diameter), per ASAE Standard 572. See manufacturer's catalog or USDA/NAAA Applicator's Guide for spray size quality ratings.
2. Apply with nozzle height no more than 4 feet above the ground or crop canopy.
3. Do not apply product when wind speed exceeds 15 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.

1. Nozzles must be directed so spray is not projected above the canopies.
2. Apply only when wind speed is 3 to 15 mph at the application site as measured by an anemometer outside of the orchard/vineyard on the upwind side.
3. Outward pointing nozzles must be shut off when turning corners at row ends and when spraying the outer two rows.

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

1. 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.
2. 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 when spraying the outer two rows 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 recommended for insecticides. Apply BOLTON™ insecticide in a spray volume of not less than 2 gallons per acre for aerial application equipment (fixed wing or helicopter) or not less than 10 gallons per acre for ground equipment, unless otherwise specified. Increase spray volume to ensure adequate coverage with increased density and height of crop canopy. See Spray Drift Precautions section for recommendations on droplet size.

11 / 27

**Ground Application:** Orient boom and nozzles to ensure uniform coverage. 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 (235-400 microns). Unless otherwise indicated, a spray volume of 10 gallons or more per acre is recommended. For band application, use proportionally less spray volume.

### **Aerial Application**

Use a minimum spray volume of 2 gallons per acre and follow recommendations for **best management practices** for aerial application, above.

Marking of swaths by flagging, permanent markers or use of GPS equipment is recommended.

### **Chemigation (Sprinkler Irrigation)**

BOLTON may be applied to the following crops through sprinkler irrigation equipment: alfalfa, corn (field and sweet), cotton, sorghum, soybeans, and wheat. Do not apply this product by chemigation unless specified in crop-specific directions in this label. 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 recommended for broadcast application.

### **Use Directions For Sprinkler Irrigation**

The following use directions are to be followed when BOLTON is applied through sprinkler irrigation systems. Thoroughly clean the injection system and tank of any fertilizer or chemical residues, and dispose of the residues according to State and Federal laws. Flush the injector with soap and water. Determine the amount of insecticide needed to cover the desired acreage. Mix according to instructions in the Mixing Directions section and bring mixture to desired volume. Do not add crop oil when BOLTON is applied 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 **Additional Use Precautions** section. The mixture containing BOLTON 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.

### **Additional Use Precautions For Sprinkler Irrigation**

The following use precautions will result in a safe and successful application of mixtures containing BOLTON:

1. Apply this product only through the following sprinkler irrigation systems: center pivot, lateral move, end tow, side (wheel) roll, traveller, 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.
2. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from nonuniform distribution of treated water.
3. If you have questions about calibration, you should contact state extension service specialists, equipment manufacturers or other experts.
4. Do not connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system.
5. A person knowledgeable about the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
6. The system must contain a functional check valve, vacuum relief valve, and 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.
7. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

12/  
27

8. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
9. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
10. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
11. Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. The metering pump must provide a greater pressure than that of the irrigation system at the point of injection. The pump must meet Section 675 for "Electrically Driven or Controlled Irrigation Machines" NEC 70 and must contain Viton or Teflon seals.
12. To insure uniform mixing of the insecticide into the water line, inject the mixture through a nozzle placed in the fertilizer injection port or 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.
13. 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.
14. **Calibration:** In order to calibrate the irrigation system and injector to apply the mixture of BOLTON, determine the following:
  1. Calculate the number of acres irrigated by the system
  2. Set the irrigation rate and determine the number of minutes for the system to cover the intended treatment area
  3. Calculate the total gallons of insecticide mixture needed to cover the desired acreage. Divide the total gallons of insecticide mixture needed by the number of minutes to cover the treatment area. This value equals the gallons per minute output that the injector must deliver. Convert the gallons per minute to milliliters or ounces per minute. Calibrate the injector pump with the system in operation at the desired irrigation rate. It is suggested that the timed output of the injector pump be checked at least twice before operation, and the system monitored during operation.
15. Do not apply when wind speed favors drift beyond the area intended for treatment. End guns must be turned off during the application, if they irrigate non-target areas.
16. Do not allow irrigation water to collect or runoff and pose a hazard to livestock, wells, or adjoining crops.
17. Reentry: Follow requirements in the Agricultural Use Requirements section or crop-specific sections of this label.
18. Do not apply through sprinkler systems that deliver a low coefficient of uniformity such as certain water drive units.

**Maximum Application Rate**

Do not exceed the maximum application rate of ai per acre per year allowed by using other gamma-cyhalothrin or lambda-cyhalothrin containing products. The maximum rate allowed for use in both gamma-cyhalothrin and lambda-cyhalothrin products are used during the same crop growing season can be calculated based upon the listed maximum rates in the following table:

Crop	Gamma-Cyhalothrin (lb ai/acre/season)	Lambda-Cyhalothrin (lb ai/acre/season)
alfalfa	0.06	0.12
Brussels sprout	0.12	0.24
conifer	0.12	0.24
corn	0.06	0.12
cotton	0.1	0.2
sorghum	0.04	0.08
soybean	0.03	0.06
sunflower	0.1	0.2
tree fruits	0.1	0.2
tree nuts	0.08	0.16

13 / 27

wheat	0.03	0.06
-------	------	------

When the maximum application rate of gamma-cyhalothrin is reached, no lambda-cyhalothrin product can be used. The lambda-cyhalothrin quantity can be divided by 2 to calculate the total ai based upon gamma-cyhalothrin.

**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 BOLTON™ insecticide. 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.

BOLTON is compatible with insecticides, herbicides, miticides and fungicides and non-pressure fertilizer solutions commonly recommended except for alkaline materials such as Bordeaux mixture and lime. It is always recommended that a small jar compatibility test be run prior to tank mixing. Prepare tank mixtures in the same manner as recommended above for use of BOLTON alone. When tank mixing BOLTON 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 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 BOLTON 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 15 minutes. Formation of precipitates that do not readily redisperse indicates an incompatible mixture that should not be used.

**CROP USES**

**ALFALFA**

**Foliar Application Including Chemigation:**

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 gallons per acre (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. BOLTON may be applied through sprinkler irrigation systems to control listed foliar pests. Use listed broadcast application rates. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	BOLTON (fl oz/acre)
corn rootworm adults (spotted cucumber beetle), grasshoppers, leafhoppers	5-9
Alfalfa caterpillar, blue alfalfa aphid, cutworm spp., green cloverworm, looper spp., pea aphid, spotted alfalfa aphid (suppression) (not for use in California), threecornered alfalfa hopper, velvetbean caterpillar, webworm spp.	9-18
Alfalfa blotch leafminer, alfalfa seed chalcid adult, alfalfa weevil larvae and adults, armyworms, bean leaf beetle, blister beetle sp., clover leaf weevil spp., clover root borer adult, clover root curculio spp. adult, clover stem borer adult, corn earworm, cowpea aphid, cowpea curculio adult, cowpea weevil adult, Egyptian alfalfa weevil larvae and adults, grape colapsis adult, green June beetle adult, green peach aphid, Japanese beetle adult, Mexican bean beetle, pea weevil adult, plant bugs, spider mites, spittlebug spp., sweet clover weevil adult, thrips spp., whitefringed beetle spp. adult	13-23

**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.

**Specific Use Precautions:**

- BOLTON™ insecticide should not be tank mixed 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 BOLTON. 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 BOLTON.

**Specific Use Restrictions:**

- Preharvest Interval:** Do not cut or graze treated alfalfa within 7 days after application of 5-9 fl oz per acre of BOLTON, within 14 days after application of 9-18 fl oz per acre, or within 21 days after application of rates above 18 fl oz per acre.
- Do not make more than 4 applications per season of BOLTON or other product containing chlorpyrifos or apply any product containing chlorpyrifos more than once per alfalfa cutting.

15/27

•Do not make a second application of BOLTON or other product containing chlorpyrifos within 10 days of the first application.

**BRUSSELS SPROUT**

**Foliar Application**

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 in your area.

Target Pests	BOLTON (fl oz/acre)
cabbage aphid, grasshoppers	9-13
cutworms, fall armyworms, imported cabbage worm	9-18
Beet armyworm, cabbage looper, cabbage webworm, southern cabbage worm, stink bugs, striped flea beetle (adult), yellowstriped armyworm	13-23

**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.

**Specific Use Restrictions:**

- Preharvest Interval:** Do not apply within 21 days before harvest.
- Do not make more than 3 applications of product containing chlorpyrifos per crop.
- Do not make a second application of BOLTON™ or other product containing chlorpyrifos within 10 days of the first application.

**CONIFER AND DECIDUOUS TREES (Plantations Only)**

Apply BOLTON as required by scouting to control exposed foliage, flower, cone, seed and bark feeding insects. Timing and frequency of applications should be based upon insect populations reaching locally determined economic thresholds.

Unless otherwise indicated, apply only as a foliar spray using power-operated ground equipment. Thorough coverage of foliage is essential. Use a minimum of 10 gallons per acre (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	BOLTON (fl oz/acre)
aphids European pine sawfly gypsy moth pales weevil (adult)	pine needle scale (1) pine tortoise scale (1) spittlebugs spruce budworm
pales weevil (2)	122 fl oz/100 gal Do not exceed max. volume/acre/year, see below.
coneworm spp. (3) seed bug spp. (3)	See (3) below.

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

1. For **scale control** apply when scale crawlers are active.
2. Apply as a cut stump drench.
3. **Coneworm/Seed Bug/Thrips spp. in Seed Orchards:**
  - For high volume sprayers, dilute 31 fl oz of BOLTON per 100 gallons of water and apply 5 to 10 gallons of finished spray per tree.
  - For low volume sprayers, dilute 51 fl oz of BOLTON per 100 gallons of water and apply 100 gallons of finished spray volume per acre.

16/27

**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.

**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. Before treating large numbers of other conifer or deciduous species, a small block of plants must be treated and observed 7 to 10 days for symptoms of phytotoxicity. **Note:** The user assumes responsibility for determining if it is safe to treat these conifer or deciduous species with BOLTON under commercial growing conditions.

**Specific Use Restrictions:**

- Preharvest Interval:** Do not apply within 30 days of harvest.
- Chemigation:** Do not apply this product through any type of irrigation system.
- Do not make more than three applications of BOLTON™ insecticide or products containing chlorpyrifos per season.
- Do not make a second application of BOLTON or other product containing chlorpyrifos within 7 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.
- In plantations and nurseries, do not apply more than 0.12 lb gamma-cyhalothrin (184 fl oz of BOLTON) per acre per year.
- In seed orchards, do not apply more than 0.25 lb gamma-cyhalothrin (382 fl oz of BOLTON) per acre per year.

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

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

Apply as a broadcast spray to the soil surface 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:** BOLTON 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 labelling for each product used in combination with BOLTON.

TARGET PESTS	BOLTON (fl oz/acre)
armyworms, cutworms	9-23

**At-Plant T-Band Application**

Apply as a liquid T-band in fields with no more than 30% cover of crop residue remaining on the soil surface. Apply BOLTON at a rate of 2.3 fl oz per 1000 linear feet of row (31 fl oz per acre with 40-inch row spacing) in a minimum spray volume of 5 gpa. Position a flat fan nozzle over the open seed furrow immediately behind the planter shoe, in front of the press wheel, and adjust to provide a 5 to 6- inch band width centered over the row. Incorporate into the top 1 inch of soil using tines, chains, or other suitable equipment.

The following table provides equivalent application rates for various row spacings when BOLTON is applied at the rate of 1.74 fl oz per 1000 ft of row for grubs, seed corn beetle, seed corn maggot and wireworms, or applied at a rate of 1.33 fl oz per 1000 ft of row for cutworms alone.

Target Pests	Amount of BOLTON Required	
	Row Spacing (inches)	fl oz/acre
cutworms	30	23
	36	20
	38	19
	40	18
grubs seed corn beetle	30	30
	36	25



17/27

seed corn maggot	38	24
wireworms	40	23

**Sprayer Calibration Information for Band Application:**

Fluid Ounces of Spray Required Per 100 Feet of Row for Various Row Spacings and Spray Volumes				
Volumes of Spray Per Acre (gal)	30"	36"	38"	40"
5	3.67	4.41	4.65	4.90
10	7.34	8.82	9.30	9.80
15	11.00	13.23	13.95	14.70
20	14.68	17.64	18.60	19.69

**Postemergence Application Including Chemigation**

Apply as a postemergence broadcast spray using 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. Use higher carrier volume when foliage is dense and/or pest pressure is high and/or under high temperatures and wind conditions. BOLTON may be tank-mixed with glyphosate products such as Glyphos® herbicide when application is to be made to glyphosate-tolerant corn. BOLTON may be broadcast applied postemergence through sprinkler irrigation systems at listed application rates to control listed foliar pests. For best results, tank mix BOLTON with 2 pints of non-emulsifiable oil. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	BOLTON (fl oz/acre)
Grasshoppers	5-9
Aphids, armyworms, bean leaf beetle, cereal leaf beetle, corn rootworm adults (2), cutworms (3), flea beetle adults (1), green cloverworm, greenbug, meadow spittlebug, southern corn leaf beetle, webworms (4), western bean cutworm	9-18
aster leafhopper, chinch bugs (1), corn earworm, European corn borer (5), hop vine borer, sap beetle, southwestern corn borer (6), stalk borer, stink bug spp., tarnished plant bug	13-23
billbugs (1), common stalk borer (9), corn rootworm larvae (7), (8), Japanese beetle adult, lesser cornstalk borer	22-23

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

**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.

**Pest-Specific Use Directions:**

- 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.
- The recommended dosage will control silk clipping by **corn rootworm adults**.
- For **cutworms**, it is preferable to apply BOLTON™ 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.
- For **webworm** control, shallow incorporation using a rotary hoe or other suitable equipment immediately before or soon after treatment is necessary.
- For **European corn borer** control, use 18 to 23 fl oz per acre when application is made with power-operated ground or aerial equipment or 13 to 23 fl oz 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 BOLTON may be made in addition to an at-planting application of chlorpyrifos insecticide.
8. BOLTON may also be applied through sprinkler irrigation systems at the rate of 22 to 23 fl oz 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 (Sprinkler Irrigation) section for application instructions.
9. Do not use BOLTON 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 or ears.
- Do not allow meat or dairy animals to graze in treated areas nor harvest treated corn silage as feed for meat or dairy animals within 14 days after last treatment.
- Do not apply more than 92 fl oz of BOLTON per acre per season.
- Do not make more than 3 applications of any product containing chlorpyrifos per season.
- Do not make a second application of BOLTON™ 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 1 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 apply more than 46 fl oz after silk initiation.
- Do not apply more than 23 fl oz after corn has reached the milk stage (yellow kernels with milky fluid).

**COTTON**

**Foliar Application Including Chemigation**

Apply as a broadcast foliar spray using aircraft or ground spray equipment in all states except 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 and wind conditions. Treat when field counts indicate damaging insect populations are developing or present. BOLTON may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

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

**All States Except Arizona and California**

TARGET PESTS	BOLTON (fl oz/acre)
cabbage looper, cotton aphid, cotton leafperforator, cutworms, grasshoppers	9-18
bollworm (2), cotton aphid, cotton fleahopper (1), cotton leafworm, cutworms spp., European corn borer, fall armyworm, plant bugs (1) ( <i>Lygus</i> , <i>Mirids</i> ), saltmarsh caterpillar, thrips spp., yellowstriped armyworm	13-23

19/27

beet armyworm, boll weevil, pink bollworm, stink bug spp.	18-23
bandedwing whitefly, sweetpotato whitefly, tobacco whitefly	23-31

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

**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.

**Pest-Specific Use Directions:**

1. Suppression that will minimize damage from plant bugs and cotton fleahoppers. Use higher rates for increased levels of control.
2. **Bollworms:** For best results, it is suggested that fields be scouted twice per week and applications made when worms are ¼ inch or less in length.

**Arizona and California**

TARGET PESTS	BOLTON (fl oz/acre)
armyworms, bollworms (2), cotton aphid, cotton fleahopper, cotton leaf perforator, cutworms, <i>Lygus</i> , salt marsh caterpillar, silverleaf whitefly (1), thrips	18-25
pink bollworm	23-31

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

**Pest-Specific Use Directions:**

1. **Silverleaf whitefly:** Apply in tank mix combination with the recommended rate of another insecticide labelled for control or suppression.
2. **Bollworms:** For best results, it is suggested that fields be scouted twice per week and applications made when worms are ¼-inch or less in length.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 21 days before harvest.
- Do not apply more than 153 fl oz BOLTON™ per acre per season.
- Do not make more than 3 applications of BOLTON or other products containing chlorpyrifos per crop season.
- Do not make a second application of BOLTON 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.

**SORGHUM, GRAIN SORGHUM (MILO)**

**Postemergence Application Including Chemigation**

Apply as a postemergence broadcast spray using 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. Control may be reduced at low spray volumes under high temperature and wind conditions. BOLTON may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	BOLTON (fl oz/acre)
grasshoppers, sorghum midge (1), yellow sugar cane aphid and other aphids	5-9
chinch bugs (3), cutworms, fall armyworms, flea beetle spp., greenbug (2), lesser cornstalk borer (3), yellowstriped armyworm	9-23

20/27

beet armyworm, corn earworm, European and southwestern corn borer, stink bug spp., webworms	13-23
---	-------

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

**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.

**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 within the indicated 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 centered over the row. Do not reduce the dosage for banded or directed applications. Concentrate the full labelled dosage rate in the treated zone.

**Specific Use Precautions:**

- To minimize the potential for chemical injury, do not apply BOLTON™ insecticide to drought stressed grain sorghum within 3 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 rates of application. Do not apply more than 26 fl oz per acre of BOLTON 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 26 fl oz of BOLTON per acre or within 60 days after application of rates above 26 fl oz per acre.
- Do not apply more than 77 fl oz of BOLTON per acre per season.
- Do not make more than 3 applications of BOLTON or other products containing chlorpyrifos per use season.
- Do not make a second application of BOLTON or other product containing chlorpyrifos within 10 days of the first application.
- Do not treat sweet varieties of sorghum.
- Do not apply more than 15 fl oz per acre per season once crop is in soft dough stage.

**SOYBEAN**

**Conservative Tillage: 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 for extended residual control.

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

TARGET PESTS	BOLTON (fl oz/acre)
cutworms, grasshoppers, lesser corn stalk borer	9-23

**Postemergence Application Including Chemigation**

Apply as a postemergence broadcast spray using 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. Use

21 / 27

higher carrier volume when foliage is dense and/or pest pressure is high and/or under high temperatures and wind conditions. Apply when field counts indicate damaging pest populations are developing or present. BOLTON may be tank mixed with glyphosate products when application is to be made to glyphosate-tolerant soybeans. Use a higher rate in the rate range when there is increased pest pressure. Chlorpyrifos+Gamma-cyhalothrin may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	BOLTON (fl oz/acre)
grasshoppers, green cloverworm, velvetbean caterpillar	5-9
blister beetle spp., cabbage looper, cutworms, painted lady caterpillar, saltmarsh caterpillar, silverspotted skipper, soybean aphid, spider mites, webworm spp., woollybear caterpillar, yellowstriped armyworm	9-18
bean leaf beetle, corn earworm, Japanese beetle adult, Mexican bean beetle, Mexican corn rootworm adult, northern corn rootworm adult, potato leafhopper, southern corn rootworm beetle adult, stink bug spp., threecornered alfalfa hopper, thrips spp., western corn rootworm beetle adult	13-23
beet armyworm, European corn borer, lesser cornstalk borer	18-23

**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.

**Specific Use Precaution:**

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

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply last treatment within 30 days before harvest.
- Do not apply more than 46 fl oz of BOLTON™ insecticide per acre per season.
- Do not make a second application of BOLTON or other products containing chlorpyrifos within 14 days of the first application.
- Do not make more than 3 applications per year of BOLTON or other products containing chlorpyrifos.
- 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.

**SUNFLOWER**

**Postemergence Application**

Apply as a postemergence broadcast spray using 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. Use a higher rate in the rate range when there is increased pest pressure.

TARGET PESTS	BOLTON (fl oz/acre)
grasshoppers	5-9

banded sunflower moth, cutworms, fall armyworm, painted lady caterpillar, seed weevil (4), stem weevil (2), sunflower beetle larvae and adults (1), sunflower moth (3), woolly bears	13-23
beet armyworm, head-clipper weevil adult, Japanese beetle adult, leafhopper spp., meadow spittlebug, spotted cabbage looper, stink bug spp., sunflower maggot adult, tarnished plant bug ( <i>Lygus</i> ) spp.	18-23

Number in parentheses (-) refer to Pest-Specific Use Directions.

**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.

**Pest-Specific Use Directions:**

1. **Sunflower beetle:** For control of larvae or adults, treat when field counts indicate 10 larvae or 1 to 2 adults per seedling.
2. **Stem weevil:** Optimal treatment time is within 5 to 7 days after adult weevils begin to appear.
3. **Sunflower moth:** To control, make first application during early 1% to 5% bloom stage.
4. **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 confectionery crop varieties.
5. **Tarnished plant bug (*Lygus*):** use the higher rate in the rate range where populations are heavy. It is recommended to 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 45 days before harvest.
- Do not apply more than 69 fl oz of BOLTON™ insecticide per acre after bloom initiation or 96 fl oz per acre per season.
- Do not make more than 3 applications per season of BOLTON or other products containing chlorpyrifos.
- Do not make a second application of BOLTON or other products containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated areas.

**TREE NUTS  
(Foliar Sprays)**

**Foliar Application**

Apply BOLTON at the dosages indicated by application as a foliar spray to control pests listed in the following table. Mix the required dosage in sufficient water to ensure thorough and complete coverage of the foliage and crop and apply as a concentrate or dilute spray using conventional, power-operated spray equipment. For dilute sprays applied to tree nut crops, mix the required dosage in sufficient water to allow for spray to runoff. For concentrate sprays, apply an equivalent amount of BOLTON per acre. Treat when pests appear or in accordance with local conditions. Aerial application may result in less effective insect 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.

CROP	TARGET PESTS	BOLTON (fl oz/acre)
almond	ant spp., leafooted bug, leafroller spp., navel orangeworm, peach twig borer, stink bug spp.	18-31

filbert	eye-spotted bud moth, filbert aphid, filbert leafroller, filbert worm, obliquebanded leafroller, omnivorous leafhopper, stink bug spp., winter moth	
pecan	blackmargined aphid, fall webworm, pecan nut casebearer, yellow pecan aphid	13-31
	ant spp., black pecan aphid, hickory shuckworm (2), <i>Phylloxera</i> spp. (3), pecan leaf scorch mite (suppression) (4), spittlebugs (1), stink bug spp.	18-31
walnut	ant spp., codling moth, leafhopper, leafrollers, navel orangeworm, stink bug spp., walnut aphid, walnut husk fly, walnut scale	

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

**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.

**Pest-Specific Use Directions:**

1. For control of **spittlebug**, use a dosage of 31 fl oz per acre for concentrate sprays.
2. For best results against **hickory shuckworm**, make 2 applications, 10 to 14 days apart.
3. For best control of ***Phylloxera* spp.**, make 2 applications at a 10-day interval using a minimum of 31 fl oz of BOLTON™ insecticide per acre starting at bud swell.
4. For suppression of **pecan leaf scorch mite**, use a preventative program.

**Specific Use Precautions:**

- BOLTON is highly toxic to bees exposed to direct treatment. Do not apply 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 BOLTON.

**Specific Use Restrictions:**

- **Preharvest Interval:** Do not apply within 14 days of harvest of almonds, filberts and walnuts, or 28 days of harvest of pecans.
- Do not apply more than 93 fl oz of BOLTON per acre per season as a foliar spray.
- Do not make more than 3 total applications per season of BOLTON or other products containing chlorpyrifos to almonds, pecans and filberts and no more than 2 applications per season on walnuts.
- Do not make a second application of BOLTON or other product containing chlorpyrifos within 10 days of the first application.
- Do not allow meat or dairy animals to graze in treated orchards.

**TREE FRUITS AND TREE NUTS (DORMANT/DELAYED DORMANT SPRAYS)**

Apply as a dormant or delayed dormant spray. While BOLTON may be used without oil, oil is recommended to control additional pests. 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 BOLTON per acre.

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

**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 tree nuts unless PPE required for early entry is worn.

24/27

**Use Precautions:**

- Cold or dry conditions may cause BOLTON 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 BOLTON.

**Use Restrictions:**

- Make only one application of chlorpyrifos during the dormant season.
- Do not use more than 100 fl oz of BOLTON (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.
- **Maximum Application Rate:** refer to table on page 11 of this label.

Crop	Target Pests	BOLTON (fl oz/acre)
almond cherry nectarine peach pear plum prune	American plum borer greater peach tree borer lesser peach tree borer peach twig borer	45-70

**Specific Use Precautions:**

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

**Specific Use Precautions:**

- Do not make a soil or foliar application of BOLTON™ or products containing chlorpyrifos within 10 days of a dormant/delayed dormant application of chlorpyrifos to the orchard.
- Do not exceed the maximum rate of 0.08 lb ai per acre per year allowed by using other gamma-cyhalothrin (or 0.16 lb ai per acre per year for lambda-cyhalothrin containing products). The maximum rate allowed for use if both gamma-cyhalothrin and lambda-cyhalothrin products are used during the same crop growing season can be calculated based upon the listed maximum rates in the Maximum Application Rate table, page 11.

**Additional Restrictions Specific to California:**

- Do not use more than 1% dormant oil in almond orchards less than 4 years old.
- Use a minimum of 100 gpa 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.
- Do not use any adjuvants or surfactants in addition to, or as a substitute for, a petroleum spray oil in a tank mix with BOLTON.
- Do not apply on almonds in the following counties in California: Butte, Colusa, Glenn, Solano, Sutter, Tehama, Yolo, and Yuba.

Crop	Target Pests	BOLTON (fl oz/acre)
apple	Rosy apple aphid San Jose scale	45-70

**Specific Use Restrictions:**

- Post-bloom application to apples is prohibited.



**Additional Restrictions Specific to California:**

- Use a minimum of 100 gpa total spray volume.
- Refer to the University of California pest management guide for apples.
- Do not use any adjuvants or surfactants in addition to, or as a substitute for, a petroleum spray oil in a tank mix with BOLTON.

**TREE FRUITS AND TREE NUTS (Trunk Spray or Preplant Dip)**

Apply BOLTON as required by scouting, usually intervals of 5 days or more. Timing and frequency of applications should be based on insect populations reaching locally determined economic thresholds and IPM recommendations.

Apply BOLTON 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 2 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.

CROPS	TARGET PESTS	BOLTON (fl oz/100 gal)
cherry	American plum borer greater peach tree borer lesser peach tree borer	54-122
almond peach nectarine	peach tree borers (1) (2)	122

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

**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 tree nuts unless PPE required for early entry is worn.

**Pest-Specific Use Directions:**

1. **Preplant Dip Application (Peaches and Nectarines Only).** For preplant control of **peachtree borer**, use BOLTON™ insecticide at the equivalent application rate of 67 fl oz 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.
2. 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 of harvest of almonds, peaches and nectarines or within 21 days before harvest of cherries.
- Do not make more than 1 chlorpyrifos application per year in almonds, peaches and nectarines and no more than 3 chlorpyrifos applications per year in cherries.
- Do not exceed the maximum rate of 0.08 lb ai per acre per year allowed by using other gamma-cyhalothrin (or 0.16 lb ai per acre per year for lambda-cyhalothrin containing products). The maximum rate allowed for use if both gamma-cyhalothrin and lambda-cyhalothrin products are used during the same crop growing season can be calculated based upon the listed maximum rates in the Maximum Application Rate table.
- Do not allow meat or dairy animals to graze in treated orchards.
- **Maximum Application Rate:** refer to table on page 11 of this label.

## WHEAT

26/27

### Postemergence Application Including Chemigation

Apply as a postemergence broadcast spray using 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. BOLTON may be applied through sprinkler irrigation systems at listed broadcast application rates to control listed foliar pests. See Chemigation (Sprinkler Irrigation) section for application instructions.

TARGET PESTS	BOLTON (fl oz/acre)
aphid spp. (such as Russian wheat aphid, oat bird-cherry aphid, greenbug, English grain aphid) (1), brown wheat mite, grasshoppers	5-9
army cutworms (2), armyworm spp., cereal leaf beetle (3), cutworms (2), flea beetle spp., grass sawfly, orange blossom wheat midge, wheat midge (4)	9-18
stink bug spp.	13-18

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

**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.

### 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. Target application when eggs are near hatching and larvae is emerging as monitored by plant inspection.
4. For control of **wheat midge**, treatment is recommended when 75% of the wheat heads have emerged from the boot and when midge adults are found in the crop (1 midge per 4-5 heads). 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:

- Do not make more than two applications of BOLTON™ or products containing chlorpyrifos per season.
- Maximum single application rate is 18 fl oz of BOLTON per acre.
- Do not allow livestock to graze in treated areas or harvest treated wheat forage as feed for meat or dairy animals within 7 days after last treatment. Do not feed treated straw to meat or dairy animals within 30 days after the last treatment.

### WARRANTY DISCLAIMER

Cheminova warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used in strict accordance with the directions, subject to the inherent risks set forth below. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, CHEMINOVA MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR ANY OTHER EXPRESS OR IMPLIED WARRANTY.

### INHERENT RISKS OF USE

It is impossible to eliminate all risks associated with use of this product. Crop injury, lack of performance, or other unintended consequences may result because of such factors as use of the product contrary to label instructions (including conditions noted on the label, such as unfavorable temperatures, soil conditions, etc.), abnormal conditions (such as excessive rainfall, drought, tornadoes, hurricanes), presence of other materials, the manner of application, or other factors, all of which are beyond the control of Cheminova or the Seller. All such risks shall be assumed by Buyer and User. Buyer and User agree to hold Cheminova and the Seller harmless for any claims related to such factors.

27/  
27

### LIMITATION OF REMEDIES

To the extent consistent with applicable law, the exclusive remedy for losses or damages resulting from this product (including claims based on contract, negligence, strict liability, or other legal theories), shall be limited to one of the following, at Cheminova's election:

- (1) Refund of purchase price paid by buyer or user for product bought, or
- (2) Replacement of amount of product used.

To the extent consistent with applicable law, Cheminova shall not be liable for consequential, incidental, or special damages or losses.

The terms of the Warranty Disclaimer above and this Limitation of Remedies cannot be varied by any written or verbal statements or agreements. No employee or sales agent of Cheminova or the Seller is authorized to vary or exceed the terms of the Warranty Disclaimer or this Limitation of Remedies in any manner.

BOLTON is a trademark of Cheminova, Inc.

"Glyfos" is a registered trademark of Cheminova, Inc.

"Steadfast" is a registered trademark of E.I. duPont Nemours and Company

"Lightning" is a registered trademark of BASF Corporation

"Compex" is a trademark of Kalo

"Unite" is a trademark of Haco

8-13-12

1/H13/2