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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON D C 20460

OFFICE OF
CHEMICAL SAFETY
AND POLLUTION PREVENTION

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JUN 12 2012

Subject Bolton Insecticide, EPA Reg No 67760-112
Application Dated March 12, 2012
Decision 462690

Dear Ms Tackema

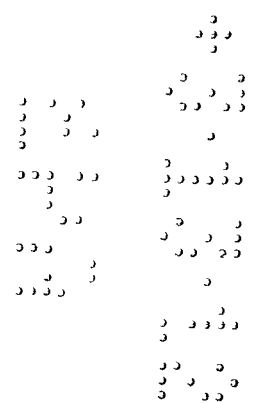
The labeling referred to above, submitted in connection with registration under the Federal insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable subject to the comments below

Two (2) copies of the finished labeling must be submitted prior to releasing the product for shipment A stamped copy of the label is enclosed for your records If you have any questions, you may contact Samantha Hulkower at (703) 603-0683 or Hulkower Samantha@epa.gov

Sincerely,

Mark Suarez
Product Manager (13)
Insecticide Branch
Registration Division (7505P)

Enclosure Copy of Label Stamped "Accepted"

Table of Contents	Page
Precautionary Statements	3
Hazards to Humans and Domestic Animals	3
Personal Protective Equipment (PPE)	3
Engineering Controls	3-4
User Safety Recommendations	4
First Aid	4
Environmental Hazards	4
Physical or Chemical Hazards	4
Directions for Use	5
Agricultural Use Requirements	5
Storage and Disposal	5-6
Product Information	6
Application Directions and Use Precautions	6-11
Mixing Directions	11
Uses	
Alfalfa	11-12
Brussels Sprout	12-13
Conifer and Deciduous Trees (Plantations Only)	13-14
Corn (Field Corn and Sweet Corn including Corn Grown for Seed)	14-16
Cotton	16-17
Sorghum – Grain Sorghum (Milo)	17-18
Soybean	18-19
Sunflower	19-20
Tree Nuts (Foliar Sprays)	20-21
Tree Fruits and Tree Nuts (Dormant/Delayed Dormant Sprays)	21-22
Tree Fruits and Tree Nuts (Trunk Spray or Preplant Dip)	22-23
Wheat	23-24
Warranty Disclaimer	24
Inherent Risks of Use	24
Limitation of Remedies	24-25



**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 cab motorized ground application equipment in a manner 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

USER SAFETY RECOMMENDATIONS	
<p>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</p>	

FIRST AID	
Organophosphate	
IF SWALLOWED	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
IF ON SKIN OR CLOTHING	Take off contaminated clothing Rinse skin immediately with plenty of water for 15-20 minutes Call a poison control center or doctor for treatment advice
IF IN EYES	Hold eye open and rinse slowly and gently with water for 15-20 minutes Remove contact lenses if present after the first 5 minutes then continue rinsing eye Call a poison control center or doctor for treatment advice
IF INHALED	Move person to fresh air If person is not breathing call 911 or an ambulance then give artificial respiration preferably mouth-to-mouth if possible Call a poison control center or doctor for further treatment advice
NOTE TO PHYSICIAN	Chlorpyrifos is a cholinesterase inhibitor affecting the central and peripheral nervous systems and producing cardiac and respiratory depression Antidote 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 DO NOT GIVE MORPHINE OR TRANQUILIZERS At first sign of pulmonary edema the patient should be given supplemental oxygen and treated symptomatically Continued absorption of chlorpyrifos may occur and relapse may occur after initial improvement VERY CLOSE SUPERVISION OF THE PATIENT IS INDICATED FOR AT LEAST 48 HOURS 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 rinseate 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 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

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 farms 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 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
- 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 ¾ 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 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 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 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

Ground Application Orient the 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 Engineers Engineering Practice 409 for more information
- 7 The pesticide injection pipeline must contain a functional automatic quick-closing check valve to prevent the flow of fluid back toward the injection pump
- 8 The pesticide injection pipeline must also contain a functional normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down
- 9 The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops
- 10 The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected
- 11 Systems must use a metering pump such as a positive displacement injection pump (e.g diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock The metering pump must provide a greater pressure than that of the irrigation system at the point of injection The pump must meet Section 675 for Electrically Driven or Controlled Irrigation Machines NEC 70 and must contain Viton or Teflon seals
- 12 To insure uniform mixing of the insecticide into the water line inject the mixture through a nozzle 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
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 Compex be used Maintain constant agitation during both mixing and application to ensure uniformity of the spray mixture Do not allow spray mixtures to stand overnight

Tank Mix Compatibility Test Test compatibility of the intended tank mixture before adding BOLTON 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 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 pine needle scale (1)	31
European pine sawfly pine tortoise scale (1)	
gypsy moth spittlebugs	
pales weevil (adult) 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

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 labeling 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 seed corn maggot wireworms	30	30
	36	25
	38	24
	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

- 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 recommended dosage will control silk clipping by **corn rootworm adults**.
- 3 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.
- 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 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 on 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

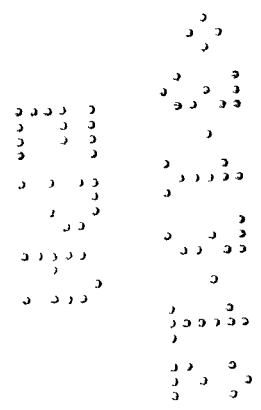
Foliar Application Including Chemigation

Apply as a broadcast foliar spray using aircraft or ground spray equipment in all states except Arizona 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

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 Mirids</i>) saltmarsh caterpillar thrips spp yellowstripped armyworm	13-23
beet armyworm boll weevil pink bollworm stink bug spp	18-23



bandedwing whitefly sweetpotato whitefly tobacco whitefly	23-31
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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

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

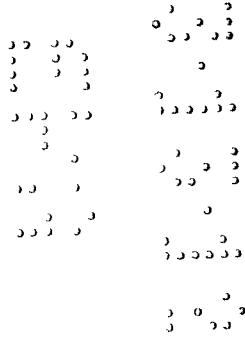
- **Preharvest Interval** Do not apply within 21 days before harvest
Do not apply more than 153 fl oz BOLTON™ per acre per season
Do not make more than 3 applications of BOLTON or other products containing chlorpyrifos per crop season
- Do not make a second application of BOLTON or other product containing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



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

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

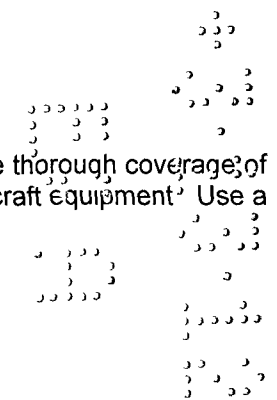
- Do not allow meat or dairy animals to graze in treated areas or otherwise feed treated soybean forage hay and straw to meat or dairy animals

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 leaffooted 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 leaf-tier 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 leaffooted bug 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

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

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

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 Specialists for proper application timing for your area

CROPS	TARGET PESTS	BOLTON (fl oz/100 gal)
cherry	American plum borer	54-122

	greater peach tree borer lesser peach tree borer	
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

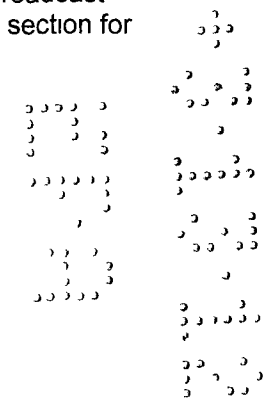
WHEAT

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

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



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