



We create chemistry

Group 4A Insecticide

SPECIMEN

Certador®

Insecticide

**For control of listed sucking and chewing insects infesting
cucurbit vegetables, fruiting vegetables, grape, head and stem
Brassica, leafy vegetables, and potato**

For outdoor use only

Active Ingredient:

dinotefuran*, N-methyl-N'-nitro-N'-[(tetrahydro-3-furanyl)methyl]guanidine 10.0%

Other Ingredients: 90.0%

Total: 100.0%

*Equivalent to 0.89 pounds dinotefuran per gallon

EPA Reg. No. 7969-376

EPA Est. No.

**KEEP OUT OF REACH OF CHILDREN
CAUTION/PRECAUCION**

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

See inside for complete **First Aid, Precautionary Statements, Directions For Use, Conditions of Sale and Warranty**, and state-specific crop and/or use site restrictions.

In case of an emergency endangering life or property involving this product, call day or night 1-800-832-HELP (4357).

Net Contents:

BASF Corporation
26 Davis Drive, Research Triangle Park, NC 27709

FIRST AID	
If swallowed	<ul style="list-style-type: none"> • Call poison control center or doctor for treatment advice. • Have person sip a glass of water if able to swallow. • DO NOT induce vomiting unless told to do so by the poison control center or doctor. • DO NOT give anything by mouth to an unconscious person.
If in eyes	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15 to 20 minutes. • Remove contact lenses, if present, after the first 5 minutes; then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 to 20 minutes. • Call a poison control center or doctor for treatment advice.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance; then give artificial respiration, preferably mouth to mouth, if possible. • Call poison control center or doctor for treatment advice.
HOTLINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact BASF Corporation for emergency medical treatment information: 1-800-832-HELP (4357).	

Precautionary Statements

Hazards to Humans and Domestic Animals

CAUTION. Harmful if swallowed or absorbed through skin. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Causes moderate eye irritation. Avoid contact with eyes, skin or clothing. Avoid breathing spray mist. Remove and wash contaminated clothing before use.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

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

User Safety Requirements

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

USER SAFETY RECOMMENDATIONS

Users should:

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

Environmental Hazards

This pesticide is toxic to aquatic invertebrates. **DO NOT** apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. **DO NOT** apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in water adjacent to treated areas. **DO NOT** dispose equipment washwaters or rinsate into a natural drain or water body.

This product is toxic to honey bees. The persistence of residues and potential residual toxicity of dinotefuran in nectar and pollen suggests the possibility of chronic toxic risk to honey bee larvae and the eventual instability of the hive.

- This product is toxic to bees exposed to residue for more than 38 hours following treatment.
- **DO NOT** apply this product to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period, unless the application is made in response to a public health emergency declared by appropriate state or federal authorities.

Groundwater Advisory

Dinotefuran and its degradate, MNG, have the properties and characteristics associated with chemicals detected in groundwater. The high water solubility of dinotefuran, and its degradate MNG, coupled with its very high mobility, and resistance to biodegradation indicates that this compound has a strong potential to leach to the subsurface under certain conditions as a result of label use. Use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in groundwater contamination. Periodic monitoring of shallow groundwater in the use area is recommended.


Spray Drift Advisory

DO NOT apply under conditions involving possible drift to food, forage or other plantings that might be damaged or the crop thereof rendered for sale, use or consumption.

PROTECTION OF POLLINATORS



APPLICATION RESTRICTIONS EXIST FOR THIS PRODUCT BECAUSE OF RISK TO BEES AND OTHER INSECT POLLINATORS. FOLLOW APPLICATION RESTRICTIONS FOUND IN THE DIRECTIONS FOR USE TO PROTECT POLLINATORS.

Look for the bee hazard icon  in the **Directions For Use** for each application site for specific use restrictions and instructions to protect bees and other insect pollinators.

This product can kill bees and other insect pollinators.

Bees and other insect pollinators will forage on plants when they flower, shed pollen, or produce nectar.

Bees and other insect pollinators can be exposed to this pesticide from:

- Direct contact during foliar applications, or contact with residues on plant surfaces after foliar applications.
- Ingestion of residues in nectar and pollen when the pesticide is applied as a seed treatment, soil, tree injection, as well as foliar applications.

When using this product take steps to:

- Minimize exposure of this product to bees and other insect pollinators when they are foraging on pollinator attractive plants around the application site.
- Minimize drift of this product onto beehives or to off-site pollinator attractive habitat. Drift of this product onto beehives or off-site to pollinator attractive habitat can result in bee kills.

Information on protecting bees and other insect pollinators may be found at the Pesticide Environmental Stewardship website at: <http://pesticidestewardship.org/PollinatorProtection/Pages/default.aspx>.

Pesticide incidents (for example, bee kills) should immediately be reported to the state/tribal lead agency. For contact information for your state, go to: www.aapco.org/officials.html. Pesticide incidents should also be reported to the National Pesticide Information Center at: www.npic.orst.edu or directly to EPA at: beekill@epa.gov

Directions For Use

It is a violation of federal law to use this product in a manner inconsistent with its labeling.

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

Read entire label, use strictly in accordance with precautionary statements and directions, and with applicable state and federal regulations.

1. For crops under contracted pollination services:



- **DO NOT** apply this product while bees are foraging. **DO NOT** apply this product until flowering is complete and all petals have fallen unless the following condition has been met.
- If an application must be made when managed bees are at the treatment site, the beekeeper providing the pollination services must be notified no less than **48 hours** prior to the time of the planned application so that the bees can be removed, covered or otherwise protected prior to spraying. Bees must remain removed, covered or otherwise protected for **38 hours** following application.

2. For food crops and commercially grown ornamentals not under contract for pollination services but are attractive to pollinators:



- **DO NOT** apply this product while bees are foraging.
- This product is toxic to bees exposed to residue for more than **38 hours** following treatment.
- **DO NOT** apply this product to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period, unless the application is made in response to a public health emergency declared by appropriate state or federal authorities.

AGRICULTURAL USE REQUIREMENTS

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

DO NOT enter or allow worker entry into treated areas during the restricted entry interval (REI) of **12 hours**.

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

- Coveralls
- Shoes plus socks
- Chemical resistant gloves (made of any waterproof material)

STORAGE AND DISPOSAL

DO NOT contaminate water, food or feed by storage, disposal or cleaning of equipment.

Pesticide Storage

Protect from direct sunlight. Store in cool, dark, and well-ventilated area. Keep container tightly closed.

Pesticide Disposal

Pesticide wastes may be hazardous. Improper disposal of excess pesticide, spray mixture, or rinsate is a violation of federal law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environmental Control Agency or the Hazardous Waste representative of the nearest EPA Regional Office for guidance.

Container Handling

Nonrefillable Container. DO NOT reuse or refill this container. Triple rinse or pressure rinse container (or equivalent) promptly after emptying; then offer for recycling, if available, or reconditioning, if appropriate, or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures approved by state and local authorities.

Triple rinse containers small enough to shake (capacity \leq 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times.

STORAGE AND DISPOSAL *(continued)*

Container Handling *(continued)*

Triple rinse containers too large to shake

(capacity > 5 gallons) as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank, or store rinsate for later use or disposal. Repeat this procedure two more times.

Pressure rinse as follows: Empty the remaining contents into application equipment or 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.

In Case of Emergency

In case of large-scale spillage regarding this product, call:

- CHEMTREC 1-800-424-9300
- BASF Corporation 1-800-832-HELP (4357)

In case of medical emergency regarding this product, call:

- Your local doctor for immediate treatment
- Your local poison control center (hospital)
- BASF Corporation 1-800-832-HELP (4357)

Steps to be taken in case material is released or spilled:

- Dike and contain the spill with inert material (sand, earth, etc.) and transfer liquid and solid diking material to separate containers for disposal.
- Remove contaminated clothing, and wash affected skin areas with soap and water.
- Wash clothing before reuse.
- Keep the spill out of all sewers and open bodies of water.

Application Information

Failure to follow directions and precautions on this label may result in crop injury, poor insect control, and/or illegal residues.

Certador® insecticide (henceforth referred to as **Certador**) is a selective insecticide which should have minimal impact on beneficial arthropods and its use is compatible with integrated pest management (IPM) programs. However, **Certador** is toxic to bees exposed to direct treatment or to residue on blooming crops and weeds.

Certador is taken up into foliage after application. Thorough spray coverage is essential for optimal performance. Apply **Certador** in sufficient water to ensure good coverage.

Certador® insecticide may aid in the suppression of some pests. Suppression can mean either inconsistent control (good to poor), or consistent control at a level below that generally considered acceptable for commercial control.

If the maximum season limit of **Certador** as stated in **Table 1. Restrictions and Limitations Overview** and **Table 2. Crop-specific Application Instructions** has been applied and pest populations require additional treatments, use another registered pesticide that is not in the neonicotinoid class or nitroguanidine subclass of chemistry.

Resistance Management Recommendations

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

To delay insecticide resistance, consider:

- **NOT** using a foliar application of dinotefuran or any insecticide in the neonicotinoid class following an in-furrow or soil application of **Certador**.
- To optimize resistance management practices, no more than 3 applications of **Certador** per growing season are allowed.
- Avoiding the consecutive use of **Certador** or other **Group 4A** insecticides that have a similar target site of action, on the same insect species.
- Using tank-mixtures or premixes with insecticides from a different target site of action Group as long as the involved products are all registered for the same use and have different sites of action.
- Basing insecticide use on a comprehensive IPM program.
- Monitoring treated insect populations for loss of field efficacy.
- Consult your local extension specialist, crop advisor and/or BASF representative for additional IPM Strategies established for your area.

Mixing Instructions

Certador Alone

Add 1/2 of the required amount of water to the mix tank. With the agitator running, add the desired amount of **Certador** to the tank. Continue agitation while adding the remainder of the water. Begin solution application after **Certador** has completely dispersed into the mix water. Maintain agitation until all of the mixture has been applied.

Certador + Tank Mixture

Add 1/2 of the required amount of water to the mix tank. Start the agitator running before adding any tank mix partners. Add tank mix partners in this order: products packaged in water-soluble packaging, wettable powders,

wettable granules (dry flowables), liquid flowables, liquids, emulsifiable concentrates, and surfactants/adjuvants. Always allow each tank mix partner to become fully dispersed before adding the next product. Provide sufficient agitation while adding the remainder of the water. Maintain agitation until all the mixture has been applied.

NOTE: When using **Certador** in tank mixtures, all products in water-soluble packaging should be added to the tank before any other tank mix partner, including **Certador**. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank mix partner to the tank.

If using **Certador** in a tank mixture, observe all directions for use, crop/sites, use rates, dilution ratios, precautions, and limitations that appear on the tank mix product label. No label dosage rate should be exceeded, and the most restrictive label precautions and limitations should be followed. This product should not be mixed with any product that prohibits such mixing. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are labeled.

Compatibility

The crop safety of all potential tank mixes on all crops has not been tested. Before applying any tank mixture not specifically recommended on this label, the safety to the target crop should be confirmed.

Certador is compatible with most commonly used pesticides. However, since it is not possible to test all possible mixtures, the user should pre-test to assure the physical compatibility and lack of phytotoxic effect of any proposed mixtures with **Certador**. To determine the physical compatibility of **Certador** with other products, use a jar test, as described below:

Using a quart jar, add the proportionate amounts of the products to 1 quart of water. Add wettable powders and water-dispersible granular products first, then liquid flowables, and emulsifiable concentrates last. After thoroughly mixing, let stand for at least 5 minutes. If the combination remains mixed or can be remixed readily, it is physically compatible. Once compatibility has been proven, use the same procedure for additional required ingredients to the spray tank.

Application Procedures And Spray Equipment

Apply **Certador** when insect pest populations begin to build, but before populations reach economically damaging levels. Economic thresholds for pests controlled by **Certador** may be available from your local agricultural authorities.

Ground Application

Select spray nozzles which will provide accurate and uniform spray deposition. Use spray nozzles which provide medium-sized droplets and reduce drift. To help ensure accuracy, calibrate sprayer before each use. For information on spray equipment and calibration, consult

nozzle manufacturers and/or state extension service specialists.

Apply **Certador® insecticide** using sufficient water volume to provide thorough and uniform coverage. In situations where a dense canopy exists and/or pest pressure is high, use greater water volumes. The use of a spray adjuvant may improve spray coverage. Avoid making applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

Aerial Application

Apply **Certador** in water, using the minimum spray volume indicated in the **Application Instructions** section of each crop, but not less than 3 gallons/A. Increase spray volume where practical to improve coverage. Avoid making applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

Application Through Irrigation Systems (Chemigation)

Certador, alone or in combination with other products which are registered for application through sprinkler irrigation, may be applied through irrigation systems where so noted in the soil application of each crop. **Certador** may be applied through microirrigation (individual spaghetti tube), overhead irrigation, motorized calibrated irrigation equipment, drip irrigation, or trickle irrigation where so noted in the soil application of each crop, but must NOT be applied through only any other type of irrigation system. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water.

If you have questions about calibration, contact state extension service specialists, equipment manufacturers or other experts. **DO NOT** connect an irrigation system used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place. A person knowledgeable of the chemigation system and responsible for its operation or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Using Water from Public Water Systems

DO NOT apply **Certador** through any irrigation system physically connected to a public water system.

Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days per year. **Certador** may be applied through irrigation systems which may be supplied by a public water system only if the water from the public water system is discharged into a reservoir tank prior to pesticide introduction. There shall be a complete break (air gap) between the outer end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. Before beginning chemigation always make sure that the air gap exists

and that there is no blockage of the overflow of the reservoir tank.

Any irrigation system using water supplied from a public water system must also meet the following **Operating Instructions for All Recommended Types of Irrigation Systems** requirements.

Operating Instructions for All Recommended Types of Irrigation Systems

- The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, contact state extension service specialists, equipment manufacturers, or other experts.
- 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.
- The pesticide injection pipeline must also contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
- The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down.
- The system must contain functional inter-locking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
- The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.
- Systems must use a metering pump such as a positive displacement injection pump (e.g. diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.
- **DO NOT** apply when wind speed favors drift beyond the area intended.

Calibration and Application Instructions

Apply **Certador** under the schedule specified in the specific crop use recommendations, not according to the irrigation schedule unless the events coincide. In general, set the equipment to apply the minimum amount of water per acre. Run the system at 86 to 90% of the manufacturer's maximum rated travel speed.

The following calibration and application techniques are provided for user reference, but **DO NOT** constitute a warranty of fitness for application through sprinkler irrigation equipment. Check with state and local regulatory agencies for potential use restrictions before applying any agricultural chemical through sprinkler irrigation equipment.

Drip or Trickle Irrigation Equipment

1. Determine the acreage covered by the irrigation equipment.
2. Fill injector solution tank with plain water and calibrate the flow rate of the system to deliver the contents of the tank over a 20 to 40 minute time interval.
3. Determine the amount of **Certador® insecticide** required to treat the area covered by the irrigation system.
4. Add the required amount of **Certador**, and any other tank mix partners, into the same quantity of water used to calibrate the injection period. (See "Mixing Instructions" section of this label.)
5. Operate the system at the same pressure and time interval established during the calibration.
6. Inject specified amount of **Certador** per acre for either a 20 to 40 minute period at the end of a regular irrigation set, or as a 20 to 40 minute injection as a separate application not associated with a regular irrigation to maximize retention of the insecticide by the foliage.
7. Stop injection equipment after treatment is completed. Continue to operate the system until the **Certador** solution has cleared the last sprinkler head. To ensure lines are flushed and free from remaining pesticides, a dye indicator may be injected into the lines to mark the end of the application period.

Center Pivot Irrigation Equipment

Use only drive systems that provide uniform water distribution. **DO NOT** use end guns when chemigating **Certador** through center pivot systems because of non-uniform application. Plug the first nozzle closest to the well head to protect the water source.

1. Determine the size of the area to be treated.
2. Determine the time required to apply 0.1 to 0.25 inches of water over the area to be treated when the system and injection equipment are operated at normal pressures as recommended by the equipment manufacturer. Run the system at 80 to 95% of the manufacturer's rated maximum travel speed.
3. Using water, determine the injection pump output when operated at normal line pressure.
4. Determine the amount of **Certador**, and any tank mix partners, required to treat the area covered by the irrigation system.
5. Add the required amount of **Certador**, and any tank mix partners, and sufficient water to meet the injection time requirements to the solution tanks. (See "Mixing Instructions" section of this label.)
6. Make sure the system is fully charged with water before starting injection of the **Certador** solution. Time the injection to last at least as long as it takes to bring the system to full pressure.
7. Maintain constant agitation in the solution tank during the injection period.
8. Inject the specified amount of **Certador** per acre continuously for one complete revolution of the system.

9. Stop the injection equipment after treatment is complete. Continue to operate the system until the **Certador** solution has cleared all of the sprinkler heads.
10. Allow time for all lines to flush the pesticide through all nozzles before turning off irrigation water.

Solid Set, Hand Move, and Moving Wheel Irrigation Equipment

1. Determine the acreage covered by the sprinklers.
2. Fill injector solution tank with plain water and calibrate the flow rate of the system to deliver the contents of the tank over a 20 to 40 minute time interval.
3. Determine the amount of **Certador** required to treat the area covered by the irrigation system.
4. Add the required amount of **Certador**, and any other tank mix partners, into the same quantity of water used to calibrate the injection period. (See "Mixing Instructions" section of this label.)
5. Operate the system at the same pressure and time interval established during the calibration.
6. Inject specified amount of **Certador** per acre for either a 20 to 40 minute period at the end of a regular irrigation set, or as a 20 to 40 minute injection as a separate application not associated with a regular irrigation to maximize retention of the insecticide by the foliage.
7. Stop injection equipment after treatment is completed. Continue to operate the system until the **Certador** solution has cleared the last sprinkler head. To ensure lines are flushed and free from remaining pesticides, a dye indicator may be injected into the lines to mark the end of the application period.

Recommendations To Avoid Spray Drift

Avoiding spray drift at the application site is the responsibility of the applicator. The interaction of many equipment and weather related factors determine the potential for spray drift. The applicator is responsible for considering all of these factors when making decisions. Where states have more stringent regulations, they must be observed. Follow these recommendations to avoid spray drift:

1. Make applications when wind velocity favors on-target product deposition (approximately 3 to 10 mph).
DO NOT apply when wind velocity exceeds 10 mph. Avoid applications when wind gusts approach 10 mph.
2. Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area.
3. **DO NOT** cultivate or plant crops within 25 feet of the aquatic area as to allow growth of a vegetative filter strip.
4. **DO NOT** make applications during temperature inversions. Inversions are characterized by stable air and increasing temperatures with increased height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.

5. Use the largest droplet size consistent with good pest control. Small droplets are more prone to spray drift and can be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding excessive spray boom pressure.
6. Apply as close to target plants as practical to obtain a good spray pattern for adequate coverage. Applications more than 10 ft above the crop canopy should be avoided.
7. For aerial applications, the spray boom should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. Use the minimum practical boom length. **DO NOT** exceed 75% of wing span or rotor diameter.

Air Assisted (Air Blast) Tree and Vine Sprayers (Grape and Potato Only)

Air assisted tree and vine sprayers carry droplets into the canopy of trees and vines via a radially or laterally directed air stream.

In addition to the general drift management principles already described, the following specific practices will further reduce the potential for drift:

- Adjust deflectors and aiming devices so that spray is only directed into the canopy.
- Block off upward pointed nozzles when there is no overhanging canopy.
- Use only enough air volume to penetrate the canopy and provide good coverage. Use a minimum of 50 gallons finished spray per acre.
- **DO NOT** allow spray to go beyond the edge of the cultivated area. Spray the outside row only from outside the planting.

Restrictions

- **DO NOT** graze treated areas or use clippings from treated areas for feed or forage.
- **DO NOT** apply under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.
- Prevent runoff or puddling of irrigation water following application.
- **DO NOT** apply to areas that are water logged or saturated, or frozen, that will not allow penetration into the root zone of the plant.
- **DO NOT** use on house plants grown inside residences.
- **Rotational Crops** - For all crops other than cucurbit vegetables, fruiting vegetables, grape, head and stem *Brassica*, leafy vegetables, and potato, a 120-day plant-back interval must be observed.


Table 1. Crop-Specific Maximum Product Rate and Preharvest Interval*

Crop**	Maximum Product Use Rate Per Application fl ozs/A (lb ai/A)		Maximum Product Rate Per Season fl ozs/A (lb ai/A)		Minimum Time from Application to Harvest (PHI) (days)	
	Foliar	Soil	Foliar	Soil	Foliar	Soil
Cucurbit vegetables	26.0 (0.179)	47.5 (0.33)	39.0 (0.268)	78.0 (0.536)	1	21
Fruiting vegetables	26.0 (0.179)	47.5 (0.33)	39.0 (0.268)	78.0 (0.536)	1	21
Grape	19.0 (0.132)	47.5 (0.33)	38.6 (0.264)	47.5 (0.33)	1	28
Head and stem <i>Brassica</i> subgroup	26.0 (0.179)	47.5 (0.33)	39.0 (0.268)	78.0 (0.536)	1	21
Leafy vegetables group (except <i>Brassica</i>)	19.5 (0.134)	47.5 (0.33)	39.0 (0.268)	78.0 (0.536)	7	21
Potato	9.5 (0.066)	48.0 (0.33)	28.5 (0.198)	48.0 (0.33)	7	See Table 2. Crop-Specific Application Instructions

* See **Table 2. Crop-Specific Application Instructions** for complete directions and limitations. Except for grape: **DO NOT** combine foliar applications with soil applications, or vice versa. Only use one application method.

** For a complete list of crops within a crop group, see **Table 2. Crop-Specific Application Instructions**.

Table 2. Crop-specific Application Instructions

Crop	Pest	Product Use Rate fl ozs/A (lb ai/A)	Special Instructions
<p>Cucurbit vegetables Chayote (fruit) Chinese waxgourd (Chinese preserving melon) Citron melon Cucumber Gherkin Pumpkin Watermelon</p> <p>Edible Gourd Chinese okra</p> <p>Momordica spp. Balsam pear Bitter melon</p> <p>Muskmelon Cantaloupe Casaba Crenshaw melon Honey balls Mango melon Persian melon Winter melon</p> <p>Squash Calabaza Summer squash Spaghetti squash Winter acorn squash</p>	<p>Bagrada bug Cucumber beetle Harlequin bug Leafhoppers Squash bug Stink bugs Thrips Whiteflies</p> <p>Suppression Only: Green peach aphid Leafminers Melon aphid</p>	<p>Foliar 6.5 to 26.0 (0.045 to 0.179 lb ai/A)</p> <p>or</p> <p>Soil 32.5 to 47.5 (0.226 to 0.33 lb ai/A)</p>	<p>Higher water volumes provide improved insect control.</p> <p>Begin applications when first pest activity is noticed or when insects reach threshold levels per University/Extension recommendations and repeat as needed to maintain control, but not more often than every 7 days. For best results, time application before a damaging population becomes established.</p> <p>Under severe pest pressure, use the higher specified rates.</p>
<p>The rate applied affects the length of control. Use the high rate where infestations occur later in crop development, or where pest pressure is continuous.</p> <p>Certador® insecticide may be mixed and/or alternated with commonly used insecticides to comply with local IPM and Resistance Management programs.</p> <p>Foliar Application. Apply with air or ground equipment in adequate water for uniform coverage (3 to 10 gallons/acre by air or 20 to 40 gallons/acre by ground).</p> <div data-bbox="126 1455 267 1564">  </div> <p>Follow application instructions as indicated in Bee Hazard Direction for Use.</p>			

(continued)

Table 2. Crop-specific Application Instructions *(continued)*

Cucurbit vegetables *(continued)*

Soil Application. See **Table 3. Conversion Chart for Linear Application.**

Apply specified dosage in sufficient carrier volume to ensure uniform application and incorporate into the soil using one of the following methods:

1. In a narrow band centered on the plant row in the bedding operation just prior to planting. For best results band width should be 2 inches or less and placed 1 to 2 inches below the seed depth.
2. In-furrow spray at or below seed level or a narrow surface band above the seedline during planting. For surface-banded applications incorporate to a depth of 1-1/2 inches with sufficient irrigation within 24 hours to ensure satisfactory insect control.
3. As a post-seeding drench, transplant drench or hill drench. Applications should be made with sufficient water to ensure incorporation into the root zone.
4. As a sidedress after plants are established. Applications should be placed within 2 to 4 inches to the side of each row and incorporated 1 or more inches deep. Applications should be made to each row if there are two rows per bed.
5. In drip or trickle irrigation water.

Restrictions

DO NOT apply to vegetables grown for seed.

DO NOT combine foliar applications with soil applications, or vice versa. Only use one application method.

For foliar applications, **DO NOT** apply within 1 day of harvest.

For soil applications, **DO NOT** apply within 21 days of harvest.

DO NOT apply more than a total of 39.0 fl ozs of **Certador® insecticide** (0.268 lb ai) per acre per season as foliar sprays.

DO NOT apply more than a total of 78.0 fl ozs of **Certador** (0.536 lb ai) per acre per season as soil applications.

Table 2. Crop-specific Application Instructions *(continued)*

Crop	Pest	Product Use Rate Per Application fl ozs/A (lb ai/A)	Special Instructions
Fruiting vegetables (except cucurbits) Eggplant Groundcherry Pepino Pepper (all varieties) Tomatillo Tomato	Colorado potato beetle Cucumber beetle Flea beetles Harlequin bug Leafhoppers Squash bug Stink bugs Thrips Whiteflies Suppression Only: Green peach aphid Leafminers Potato aphid	Foliar 6.5 to 26.0 (0.045 to 0.179 lb ai/A) or Soil 32.5 to 47.5 (0.226 to 0.33 lb ai/A)	Higher water volumes provide improved insect control. Begin applications when first pest activity is noticed or when insects reach threshold levels per University/Extension recommendations and repeat as needed to maintain control, but not more often than every 7 days. For best results, time application before a damaging population becomes established. Under severe pest pressure, use the higher specified rates.

The rate applied affects the length of control. Use the high rate where infestations occur later in crop development, or where pest pressure is continuous.

Certador® insecticide may be mixed and/or alternated with commonly used insecticides to comply with local IPM and Resistance Management programs.

Foliar Application. Apply with air or ground equipment in adequate water for uniform coverage (3 to 10 gallons/acre by air or 20 to 40 gallons/acre by ground).



Follow application instructions as indicated in Bee Hazard Direction for Use.

Soil Application. See **Table 3. Conversion Chart for Linear Application.**

Apply specified dosage in sufficient carrier volume to ensure uniform application and incorporate into the soil using one of the following methods:

1. In a narrow band centered on the plant row in the bedding operation just prior to planting. For best results band width should be 2 inches or less and placed 1 to 2 inches below the seed depth.
2. In-furrow spray at or below seed level or a narrow surface band above the seedline during planting. For surface-banded applications incorporate to a depth of 1-1/2 inches with sufficient irrigation within 24 hours to ensure satisfactory insect control.
3. As a post-seeding drench, transplant drench or hill drench. Applications should be made with sufficient water to ensure incorporation into the root zone.
4. As a sidedress after plants are established. Applications should be placed within 2 to 4 inches to the side of each row and incorporated 1 or more inches deep. Applications should be made to each row if there are two rows per bed.
5. In drip or trickle irrigation water.

Restrictions

DO NOT apply to vegetables grown for seed.

DO NOT combine foliar applications with soil applications, or vice versa. Only use one application method.

For foliar applications, **DO NOT** apply within 1 day of harvest.

For soil applications, **DO NOT** apply within 21 days of harvest.

DO NOT apply more than a total of 39.0 fl ozs of **Certador** (0.268 lb ai) per acre per season as foliar sprays.

DO NOT apply more than a total of 78.0 fl ozs of **Certador** (0.536 lb ai) per acre per season as soil applications.

Table 2. Crop-specific Application Instructions *(continued)*

Crop	Pest	Product Use Rate fl ozs/A (lb ai/A)	Special Instructions
Grape	Glassy-wing sharpshooter Grape mealybug Leafhoppers Thrips Vine mealybug	Foliar 6.5 to 19.0 (0.045 to 0.132 lb ai/A) Soil 32.5 to 47.5 (0.226 to 0.33 lb ai/A)	Higher water volumes provide improved insect control. Begin foliar applications when first pest activity is noticed or when insects reach threshold levels per University/Extension recommendations and repeat as needed to maintain control, but not more often than every 14 days. For best results, time application before a damaging population becomes established. Under severe pest pressure, use the higher specified rates.

The rate applied affects the length of control. Use the high rate where infestations occur later in crop development, or where pest pressure is continuous.

Certador® insecticide may be mixed and/or alternated with commonly used insecticides to comply with local IPM and Resistance Management programs.

Foliar Application. Apply with air or ground equipment in adequate water for uniform coverage (3 to 10 gallons/acre by air or 10 to 50 gallons/acre by ground). Use a minimum of 50 gallons finished spray per acre for air blast application.



Follow application instructions as indicated in Bee Hazard Direction for Use.

Soil Application. See **Table 3. Conversion Chart for Linear Application.**

Apply specified dosage in sufficient carrier volume to ensure uniform application and incorporate into the soil using the following method:

- In drip or trickle irrigation water

Make only one soil application.

Restrictions

For foliar applications, **DO NOT** apply within 1 day of harvest.

For soil applications, **DO NOT** apply within 28 days of harvest.

DO NOT apply more than a total of 38.6 fl ozs of **Certador** (0.264 lb ai) per acre per season as foliar sprays.

DO NOT apply more than a total of 47.5 fl ozs of **Certador** (0.33 lb ai) per acre per season as soil applications.

NOTE: Regardless of application method, **DO NOT** apply more than a total of 77.3 fl ozs of **Certador** (0.529 lb ai) per acre per season.

Table 2. Crop-specific Application Instructions *(continued)*

Crop	Pest	Product Use Rate fl ozs/A (lb ai/A)	Special Instructions
Head and stem <i>Brassica</i> subgroup Broccoli Broccoli, Chinese Brussels sprouts Cabbage Cabbage, Chinese Cabbage, Chinese mustard Cauliflower Cavalo broccolo Kohlrabi	Bagrada bug Cucumber beetle Flea beetles Harlequin bug Squash bug Stink bugs Whiteflies <u>Suppression Only:</u> Cabbage aphid Green peach aphid Leafminers	Foliar 6.5 to 26.0 <i>(0.045 to 0.179 lb ai/A)</i> or Soil 32.5 to 47.5 <i>(0.226 to 0.33 lb ai/A)</i>	Higher water volumes provide improved insect control. Begin applications when first pest activity is noticed or when insects reach threshold levels per University/Extension recommendations and repeat as needed to maintain control, but not more often than every 7 days. For best results, time application before a damaging population becomes established. Under severe pest pressure, use the higher specified rates.

The rate applied affects the length of control. Use the high rate where infestations occur later in crop development, or where pest pressure is continuous.

Certador® insecticide may be mixed and/or alternated with commonly used insecticides to comply with local IPM and Resistance Management programs.

Foliar Application. Apply with air or ground equipment in adequate water for uniform coverage (3 to 10 gallons/acre by air or 20 to 40 gallons/acre by ground).



Follow application instructions as indicated in Bee Hazard Direction for Use.

Soil Application. See **Table 3. Conversion Chart for Linear Application.**

Apply specified dosage in sufficient carrier volume to ensure uniform application and incorporate into the soil using one of the following methods:

1. In a narrow band centered on the plant row in the bedding operation just prior to planting. For best results band width should be 2 inches or less and placed 1 to 2 inches below the seed depth.
2. In-furrow spray at or below seed level or a narrow surface band above the seedline during planting. For surface-banded applications incorporate to a depth of 1-1/2 inches with sufficient irrigation within 24 hours to ensure satisfactory insect control.
3. As a post-seeding drench, transplant drench or hill drench. Applications should be made with sufficient water to ensure incorporation into the root zone.
4. As a sidedress after plants are established. Applications should be placed within 2 to 4 inches to the side of each row and incorporated 1 or more inches deep. Applications should be made to each row if there are two rows per bed.
5. In drip or trickle irrigation water.

Restrictions

DO NOT apply to vegetables grown for seed.

DO NOT combine foliar applications with soil applications, or vice versa. Only use one application method.

For foliar applications, **DO NOT** apply within 1 day of harvest.

For soil applications, **DO NOT** apply within 21 days of harvest.

DO NOT apply more than a total of 39.0 fl ozs of **Certador** (0.268 lb ai) per acre per season as foliar sprays.

DO NOT apply more than a total of 78.0 fl ozs of **Certador** (0.536 lb ai) per acre per season as soil applications.

Table 2. Crop-specific Application Instructions *(continued)*

Crop	Pest	Product Use Rate Per Application fl ozs/A (lb ai/A)	Special Instructions
Leafy vegetables group (except Brassica) Amaranth Arugula Cardoon Celery Celery, Chinese Celtuce Chervil Chrysanthemum (edible-leaved and garland) Corn Salad Cress (garden and upland) Dandelion Dock Endive Fennel, Florence Lettuce (head and leaf) Orach Parsley Purslane (garden and winter) Radicchio (red chicory) Rhubarb Spinach Spinach (New Zealand and vine) Swiss chard	Cucumber beetle Flea beetles Harlequin bug Leafhoppers Squash bug Stink bugs Whiteflies Suppression Only: Green peach aphid Leafminers Potato aphid	Foliar 6.5 to 19.5 (0.045 to 0.134 lb ai/A) or Soil 32.5 to 47.5 (0.226 to 0.33 lb ai/A)	Higher water volumes provide improved insect control. Begin applications when first pest activity is noticed or when insects reach threshold levels per University/Extension recommendations and repeat as needed to maintain control, but not more often than every 7 days. For best results, time application before a damaging population becomes established. Under severe pest pressure, use the higher specified rates.

The rate applied affects the length of control. Use the high rate where infestations occur later in crop development, or where pest pressure is continuous.

Certador® insecticide may be mixed and/or alternated with commonly used insecticides to comply with local IPM and Resistance Management programs.

Foliar Application. Apply with air or ground equipment in adequate water for uniform coverage (3 to 10 gallons/acre by air or 20 to 40 gallons/acre by ground).



Follow application instructions as indicated in Bee Hazard Direction for Use.

Soil Application. See **Table 3. Conversion Chart for Linear Application.**

Apply specified dosage in sufficient carrier volume to ensure uniform application and incorporate into the soil using one of the following methods:

1. In a narrow band centered on the plant row in the bedding operation just prior to planting. For best results band width should be 2 inches or less and placed 1 to 2 inches below the seed depth.
2. In-furrow spray at or below seed level or a narrow surface band above the seedline during planting. For surface-banded applications incorporate to a depth of 1-1/2 inches with sufficient irrigation within 24 hours to ensure satisfactory insect control.
3. As a post-seeding drench, transplant drench or hill drench. Applications should be made with sufficient water to ensure incorporation into the root zone.
4. As a sidedress after plants are established. Applications should be placed within 2 to 4 inches to the side of each row and incorporated 1 or more inches deep. Applications should be made to each row if there are two rows per bed.
5. In drip or trickle irrigation water.

(continued)

Table 2. Crop-specific Application Instructions *(continued)*

<p>Leafy vegetables group (except <i>Brassica</i>) <i>(continued)</i></p> <p>Restrictions</p> <p>DO NOT apply to vegetables grown for seed.</p> <p>DO NOT combine foliar applications with soil applications, or vice versa. Only use one application method.</p> <p>For foliar applications, DO NOT apply within 7 days of harvest (19.5 fl ozs/A foliar only).</p> <p>For soil applications, DO NOT apply within 21 days of harvest.</p> <p>DO NOT apply more than a total of 39.0 fl ozs of Certador® insecticide (0.268 lb ai) per acre per season as foliar sprays.</p> <p>DO NOT apply more than a total of 78.0 fl ozs of Certador (0.536 lb ai) per acre per season as soil applications.</p>

Table 2. Crop-specific Application Instructions *(continued)*

Crop	Pest	Product Use Rate Per Application fl ozs/A (lb ai/A)	Special Instructions
Potato	Colorado potato beetle Flea beetles Leafhoppers Psyllids <u>Suppression Only:</u> Green peach aphid Potato aphid	Foliar 7.5 to 9.5 (0.050 to 0.066 lb ai/A) or Soil 41.0 to 48.0 (0.28 to 0.33 lb ai/A)	Higher water volumes provide improved insect control. Begin foliar applications when first pest activity is noticed or when insects reach threshold levels per University/Extension recommendations and repeat as needed to maintain control, but not more often than every 14 days. For best results, time application before a damaging population becomes established. Under severe pest pressure, use the higher specified rates.

The rate applied affects the length of control. Use the high rate where infestations occur later in crop development, or where pest pressure is continuous.

Certador® insecticide may be mixed and/or alternated with commonly used insecticides to comply with local IPM and Resistance Management programs.

Foliar Application. Apply with air or ground equipment in adequate water for uniform coverage (3 to 10 gallons/acre by air or 10 to 50 gallons/acre by ground). Use a minimum of 50 gallons finished spray per acre for air blast application.



Follow application instructions as indicated in Bee Hazard Direction for Use.

Soil Application. See **Table 3. Conversion Chart for Linear Application.**

Apply **once** at pre-plant, pre-emergence, or at ground crack as directed below.

Apply specified dosage in sufficient carrier volume to ensure uniform application and incorporate into the soil using one of the following methods:

1. In a narrow band centered on the plant row in the bedding operation just prior to planting.
2. In-furrow spray at planting. Direct spray in the furrow on the seed pieces or potatoes.
3. As a sidedress to both sides of the row or as a spray at ground crack directly over the row during hilling. Cover immediately with soil.

Restrictions

DO NOT combine foliar applications with soil applications, or vice versa. Only use one application method.

For foliar applications, **DO NOT** apply within 7 days of harvest.

DO NOT apply more than a total of 28.5 fl ozs of **Certador** (0.198 lb ai) per acre per season as foliar sprays.

DO NOT apply more than a total of 48.0 fl ozs of **Certador** (0.33 lb ai) per acre per season as soil applications.

Table 3. Conversion Chart for Linear Application

	Fluid ounces product/1000 row feet							
Row width	20-inch	24-inch	28-inch	30-inch	32-inch	34-inch	36-inch	40-inch
(fl ozs/A)								
33.0	1.2	1.5	1.7	1.9	2.0	2.1	2.2	2.5
35.0	1.3	1.6	1.8	2.0	2.1	2.2	2.4	2.6
37.0	1.4	1.7	2.0	2.1	2.2	2.4	2.5	2.8
39.0	1.5	1.8	2.1	2.2	2.3	2.5	2.6	2.9
41.0	1.6	1.9	2.2	2.3	2.5	2.7	2.8	3.1
43.0	1.6	2.0	2.3	2.5	2.6	2.8	3.0	3.3
45.0	1.7	2.1	2.4	2.6	2.8	2.9	3.1	3.4
47.0	1.8	2.1	2.5	2.7	2.9	3.1	3.2	3.6
48.0	1.8	2.2	2.6	2.8	2.9	3.1	3.3	3.7

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