

66222-143

07/16/2007

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U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs  
Registration Division (H7505C)  
401 "M" St., S.W.  
Washington, D.C. 20460

EPA Reg. Number:  
66222-143

Date of Issuance:  
JUL 16 2007

Term of Issuance: Conditional

Name of Pesticide Product:  
Alias 4F Insecticide

NOTICE OF PESTICIDE:

Registration  
 Reregistration

(under FIFRA, as amended)

Name and Address of Registrant (include ZIP Code):

Ms. Jane Rothwell  
Makhteshim Agan of North America, Inc.  
4515 Falls of Neuse Road, Suite 300  
Raleigh, NC 27609


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

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

This product is conditionally registered in accordance with FIFRA sec. 3(c)(7)(A). Once a pesticide is registered, however, it is not regarded as permanently acceptable. Registration does not eliminate the need for continual reassessment of pesticides. If the Agency determines that, at any time, additional data are required to maintain in effect an existing registration, the Agency will require submission of such data under FIFRA section (3)(c)(2)(B).

- 1. Revise the EPA Registration Number to read, EPA Reg. No. "66222-143".

Signature of Approving Official:

  
Dani Daniel  
Insecticide-Rodenticide Branch  
Registration Division (7505P)

Date:

JUL 16 2007

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2. Separate each item of First Aid statement with enough space between the bullets so as not to run the statements together.

3. Reorder the First Aid statement in the same order as the parent label as follows: If swallowed...

If on skin or clothing...

If inhaled...

4. Page five under the section entitled "Rotational Crops" remove the following crops from the "Immediate Plant Back section of the label: Chinese celery, celtuce, cranberry, cucurbits, Florence fennel, leafy petioles, mustard seed, and swiss chard. This is in keeping the label consistence with the other flowable labels.

5. Submit to the Agency the required one year storage stability (830.6317) and Corrosion characteristics study (830.6320) with eighteen months of the date of the proposed product registration. It is recommended that the observations are made at 0, 3, 6, 9 and 12 months intervals.

6. Submit two copies of your final printed labeling before you release the product for shipment. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA sect. 6(e). Your release for shipment of the product constitute acceptance of these conditions.

A stamped copy of the label is enclosed for your records. If you have any questions regarding this notice, please contact me at (703) 305-5409.

Enclosure:

ACCEPTED  
with COMMENTS  
In EPA Letter Dated:

JUL 16 2007

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Under the Federal Insecticide,  
Fungicide, and Rodenticide Act,  
as amended, for the pesticide  
registered under EPA Reg. No.  
60222-143

# ALIAS™ 4F

Flowable Insecticide

ACTIVE INGREDIENT	% BY WT.
Imidacloprid; 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine .....	42.3%
OTHER INGREDIENTS: .....	57.7%
	TOTAL 100.0%

Contains 4 lbs. of active ingredient per gallon

## KEEP OUT OF REACH OF CHILDREN CAUTION

### FIRST AID

- |                                |  |
|--------------------------------|--|
| <b>IF SWALLOWED:</b>           | <ul style="list-style-type: none"> <li>• Call a poison control center or doctor immediately for treatment advice.</li> <li>• Have person sip a glass of water if able to swallow.</li> <li>• Do not induce vomiting unless told to do so by a poison control center or doctor.</li> <li>• Do not give anything by mouth to an unconscious person.</li> </ul> |
| <b>IF IN EYES:</b>             | <ul style="list-style-type: none"> <li>• Hold eye open and rinse slowly and gently with water for 15-20 minutes.</li> <li>• Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>  |
| <b>IF ON SKIN OR CLOTHING:</b> | <ul style="list-style-type: none"> <li>• Take off contaminated clothing.</li> <li>• Rinse skin immediately with plenty of water for 15-20 minutes.</li> <li>• Call a poison control center or doctor for treatment advice.</li> </ul>  |
| <b>IF INHALED:</b>             | <ul style="list-style-type: none"> <li>• Move person to fresh air.</li> <li>• If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible.</li> <li>• Call a poison control center or doctor for further treatment advice.</li> </ul>  |

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact PROSAR at 1-877-250-9291 for emergency medical treatment information.

**Note to Physician:** No specific antidote is available. Treat the patient symptomatically.

### PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS CAUTION

Harmful if swallowed, absorbed through skin, or inhaled. Avoid breathing vapor or spray mist. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

### PERSONAL PROTECTIVE EQUIPMENT (PPE)

#### Applicators and other handlers must wear:

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

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC), or Viton
- Shoes plus socks

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

NET CONTENTS: \_\_\_\_\_ GALLON(S)

EPA Reg. No. 66222-xx  
EPA Est. No.



Manufactured for:  
Makhteshim Agan of North America, Inc.  
4515 Falls of Neuse Rd., Suite 300  
Raleigh, NC 27609

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### ENGINEERING CONTROLS STATEMENT

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

### USER SAFETY RECOMMENDATIONS

**Users should:**

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

### ENVIRONMENTAL HAZARDS

Do not apply directly to water, to areas where surface water is present, or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters.

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. This product is toxic to wildlife and highly toxic to aquatic invertebrates.

This chemical demonstrates the properties and characteristics associated with chemicals detected in ground water. The use of this chemical in areas where soils are permeable, particularly where the water table is shallow, may result in ground water contamination.

**OBSERVE THE FOLLOWING PRECAUTIONS WHEN MIXING AND APPLYING IN THE VICINITY OF AQUATIC AREAS SUCH AS LAKES, RESERVOIRS, RIVERS, PERMANENT STREAMS, MARSHES OR NATURAL PONDS, ESTUARIES, AND COMMERCIAL FISH FARM PONDS.**

### SPRAY DRIFT MANAGEMENT

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 application decisions. Avoiding spray drift is the responsibility of the applicator.

**Importance of Droplet Size**

An important factor influencing drift is droplet size. Small droplets (<150-200 microns) drift to a greater extent than large droplets. Within typical equipment specifications, applications should be made to deliver the largest droplet spectrum that provides sufficient control and coverage. Formation of very small droplets may be minimized by appropriate nozzle selection.

**Wind Speed Restrictions**

Drift potential increases at wind speeds of less than 3 mph (due to inversion potential) or more than 10 mph. However, many factors, including droplet size, canopy, and equipment specifications determine drift potential at any given wind speed. Do not apply when winds are greater than 15 mph and avoid gusty and windless conditions. Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area.

**Restrictions During Temperature Inversions**

Do not make aerial or ground applications during temperature inversions. Drift potential is high during temperature inversions. Temperature inversions restrict vertical air mixing, which causes small suspended droplets to remain close to the ground and move laterally in a concentrated cloud. Temperature inversions are characterized by increasing temperature 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. 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 mixing.

**No-Spray Zone Requirements for Soil and Foliar Applications**

Do not apply by ground within 25 feet of lakes, reservoirs, rivers, permanent streams, marshes or natural ponds, estuaries, and commercial fish farm ponds.

**Runoff Management**

Do not cultivate within 10 feet of the aquatic areas to allow growth of a vegetative filter strip. When using Alias 4F on erodible soils, Best Management Practice for minimizing runoff should be employed. Consult your local Natural Resources Conservation Service for recommendations in your use area.

### ENDANGERED SPECIES NOTICE

Under the Endangered Species Act, it is a federal offense to use any pesticide in a manner that results in the death of a member of an endangered species. Consult your local county bulletin, County Extension Agent, or Pesticide State Lead Agency for information concerning endangered species in your area.

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### RESISTANCE MANAGEMENT

Some insects may develop resistance to insecticides after repeated use. As with any insecticide, the use of this product should conform to resistance management strategies established for the use area.

Alias 4F contains a Group 4A insecticide. Insect biotypes with acquired or inherent tolerance to Group 4A insecticides may eventually dominate the insect population if Group 4A insecticides are used repeatedly as the predominant method of control for targeted species. This may eventually result in partial or total loss of control of those species by Alias 4F and to other Group 4A insecticides.

The active ingredient in Alias 4F is imidacloprid and is a member of the neonicotinoid chemical class. Insect pests resistant to other chemical classes have not shown cross-resistance to imidacloprid. In order to maintain susceptibility to this class of chemistry in insect species with high resistance development potential, it is recommended that for each crop season: 1) only a single, soil application of imidacloprid be made; 2) foliar applications of products from the same class not be made following a long residual, soil application of imidacloprid, or other neonicotinoid products.

If a soil application of imidacloprid has not been made during a crop season and foliar applications are to be made, avoid using a block of more than three consecutive applications of imidacloprid and/or other Group 4A products having the same or similar mode of action. Following a neonicotinoid block of treatments, MANA strongly encourages the rotation to a block of applications with effective products with a different mode of action before using additional applications of neonicotinoid products. Using a block rotation or windowed approach, along with other IPM practices, is considered an effective use strategy for preventing or delaying an insect's ability to develop resistance to this class of chemistry.

Foliar applications of imidacloprid or other Group 4A products from the neonicotinoid chemical class should not be used on crops previously treated with a long-residual, soil-applied products from the neonicotinoid chemical class.

Other Group 4A, neonicotinoid products used as foliar treatments include: Actara, Assail, Calypso, Centric, Clutch, Couraze, Galian, Impulse, Intruder, Leverage, Nuprid, Pasada, Provado, Trimax Pro, and Venom.

Other Group 4A, neonicotinoid products used as soil/seed treatments include Admire Pro, Advise, Alias, Belay, Couraze, Cruiser, Gaucho, Macho, Macho Max, Nuprid, Platinum, Venom, and Widow.

Contact your Cooperative Extension specialist, certified crop advisor, and/or product manufacturer for additional insect resistance management recommendations. Also, for more information on Insect Resistance Management (IRM), visit the Insecticide Resistance Action Committee (IRAC) on the web at <http://www.irac-online.org/>.

### DIRECTIONS FOR USE

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

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

### AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 12 hours. 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.

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
- Chemical resistant gloves made of any waterproof material such as barrier laminate, butyl rubber, nitrile rubber, neoprene rubber, natural rubber, polyethylene, polyvinylchloride (PVC), or Viton.
- Shoes plus socks

### APPLICATION RECOMMENDATIONS

For soil applications of Alias 4F, direct product into the seed or root-zone of crop. Failure to place Alias 4F into root-zone may result in loss of control or delay in onset of activity. Alias 4F may be applied with properly calibrated ground or chemigation application equipment.

Broadcast foliar application is only recommended to seedling flats or trays, or where product is intended to be washed from foliage to soil prior to drying on foliage.

Optimum activity of Alias 4F results from applications to the root-zone of plants to be protected. The earlier Alias 4F is available to a developing plant, the earlier the protection begins. Alias 4F is continuously taken into the roots over a long period

of time and the systemic nature of Alias 4F allows movement from roots through the xylem tissue to all vegetative parts of the plant. This results in extended residual activity of Alias 4F, the control of insects, and the prevention and/or reduction of virus transmission or symptom expression, and plant health benefits. The rate of Alias 4F applied affects the length of the plant protection period. Higher rates are recommended when infestations occur later in crop development or where pest pressure is continuous. Alias 4F will generally not control insects infesting flowers, blooms, or fruit. Additional crop protection may be required for insects feeding in, or on these plant parts, and for insects not listed in the crop-specific, pests-controlled sections of this label. Additional, specific Alias 4F application recommendations are also provided in the crop-specific sections of this label.

Suppression, or less than complete control of certain diseases and insect pests including reduced feeding may also result from an Alias 4F application. Complete control of these pests/diseases may require supplemental control measures.

Alias 4F use on crops grown for production of true seed intended for private or commercial planting is generally not recommended but may be allowed under state specific, supplemental labeling. As with any insecticide, care should be taken to minimize exposure of Alias 4F to honey bees and other pollinators. Consult Cooperative Extension Service, PCAs, consultants, or local Makhteshim Agan of North America, Inc. representatives for application on these types of crops.

Do not apply more than 0.5 lb. active ingredient per acre per crop season regardless of formulation or method of application, unless specified within a crop-specific, recommended application section for a given crop.

**MIXING INSTRUCTIONS**

To prepare the application mixture, add a portion of the required amount of water to the spray tank and with agitation, add Alias 4F. Complete filling tank with balance of water needed. Maintain sufficient agitation during both mixing and application. Alias 4F may also be used with other pesticides and/or fertilizer solutions. Please see "Compatibility" section of this label. When tank mixtures of Alias 4F and other pesticides are involved, prepare the tank mixture as recommended above and follow suggested "Mixing Order" below.

**Mixing Order**

When pesticide mixtures are needed, add wettable powders or wettable granules first, Alias 4F and other suspension concentrate (flowable) products second, and emulsifiable concentrates last. Ensure good agitation as each component is added. Do not add an additional component until the previous is thoroughly mixed. If a fertilizer solution is added, a fertilizer/pesticide compatibility agent may be needed. Maintain constant agitation during both mixing and application to ensure uniformity of spray mixture.

**Compatibility**

Test compatibility of the intended mixture before adding Alias 4F to the spray or mix tank. Add proportionate amounts of each ingredient in the appropriate order to a pint or quart jar, cap, shake for 5 minutes, and let set for 5 minutes. Poor mixing or formation of precipitates that do not readily redisperse indicates an incompatible mixture that should not be used.

**CHEMIGATION**

**Types of Irrigation Systems:** Chemigation applications of Alias 4F may be made to crops through chemigation systems if specified in crop-specific application sections. Applications of Alias 4F may only be made to crops through low-pressure systems. Do not apply Alias 4F through any other type of irrigation system.

**Uniform Water Distribution and System Calibration:** The irrigation system must provide uniform distribution of treated water. Crop injury, lack of effectiveness, or illegal pesticide residues in the crop can result from non-uniform distribution of treated water. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, you should contact Cooperative Extension Service specialists, equipment manufacturers, or other experts.

**Chemigation Monitoring:** 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.

**Drift:** Do not apply when wind speed favors drift beyond the area intended for treatment.

**Required System Safety Devices:** 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 backflow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch 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.

**Using Water from Public Water Systems:** Public water systems 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 an average of at least 25 individuals daily at least 60 days out of the year. Chemigation systems connected to public water systems must contain a

functional reduced-pressure zone, back flow preventer (RPZ), or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet 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. The pesticide injection pipeline must contain a functional automatic quick-closing check valve to prevent the flow of fluid back toward the injection. The pesticide injection pipeline must contain a functional normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, 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.

**ROTATIONAL CROPS\***

Treated areas may be replanted with any crop specified on an imidacloprid label, or any crop for which a tolerance exists for the active ingredient, as soon as practical following the last application. For crops not listed on an imidacloprid label, or for crops for which no tolerances for the active ingredient have been established, a 12-month plant-back interval should be observed.
<b>IMMEDIATE PLANT-BACK:</b> All crops on this label plus the following crops not on this label: barley, canola, cardoon, Chinese celery, corn (field, pop, and sweet), celuce, cranberry*, cucurbits, Florence fennel, leafy petioles*, mustard seed*, rapeseed, rhubarb, sorghum, sugarbeet, Swiss chard, and wheat
<b>30-DAY PLANT-BACK:</b> Cereals (including buckwheat, millet, oats, rice, rye, and triticale), soybeans, and safflower
<b>12-MONTH PLANT-BACK:</b> All Other Crops
* Cover crops for soil building or erosion control may be planted any time, but do not graze or harvest for food or feed.

**FIELD CROPS**

**COTTON-soil treatment**

Pests Controlled	Rate: Fluid ounces per 1000 row-feet	Rate: Fluid ounces per acre
Cotton aphid, Plant bugs, Thrips, Whiteflies	0.65	8.5-10.55 (depending on row-spacing)
<b>Notes and Restrictions:</b>		
<ul style="list-style-type: none"> <li>Maximum Alias 4F allowed per crop season when making soil applications: 10.55 fluid ounces per acre (0.33 lb active ingredient per acre).</li> <li>Regardless of formulation or method of application, apply no more than 0.5 lb. active ingredient per acre per season, including seed treatment, soil, and foliar uses.</li> <li>Do not apply more than a total of 6 applications of the active ingredient per season.</li> <li>Do not graze treated fields after any application of Alias 4F. See Resistance Management Section of this label.</li> </ul>		
<b>Applications: Apply specified dosage in one of the following methods:</b>		
<ul style="list-style-type: none"> <li>In-furrow spray during planting directed on or below seed.</li> <li>In a narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting.</li> <li>Chemigation into root-zone through low-pressure drip or trickle irrigation.</li> </ul>		

**POTATO-soil treatment**

Pests Controlled	Rate: Fluid ounces per 1000 row-feet	Rate: Fluid ounces per acre
Aphids, Colorado potato beetle, Flea beetles, Leafhoppers, Potato psyllid	0.45-0.65	6.5-10.0 (depending on row-spacing)
Pests/Diseases Suppressed	Rate: Fluid ounces per 1000 row-feet	Rate: Fluid ounces per acre
Symptoms of: Potato leaf roll virus (PLRV), Potato yellows, Net necrosis, Wireworms (with in-furrow spray at-planting)	0.45-0.65	6.5-10.0 (depending on row-spacing)
<b>Notes and Restrictions:</b>		
<ul style="list-style-type: none"> <li>Maximum Alias 4F allowed per crop season when making soil applications: 10.0 fluid ounces per acre (0.31 lb. active ingredient per acre)</li> </ul>		
<b>Applications: Apply specified dosage in one of the following methods:</b>		
<ul style="list-style-type: none"> <li>In-furrow spray during planting directed on seed pieces or seed potatoes.</li> <li>Subsurface side-dress on both sides of the row covered with 3 or more inches of soil.</li> <li>Narrow band spray at ground cracking directly over the row during hilling covered with 3 or more inches of soil.</li> <li>Narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting. For effective pest control or suppression, Alias 4F applications must be placed below soil-surface and in contact with seed piece or within root-zone. For potatoes grown on highly permeable soils with shallow water table, at-plant applications of Alias 4F may be made in a 2 to 4 inch band (width of planter shoe opening) and completely covered.</li> </ul>		

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**POTATO-seed piece treatment**

<b>Pests Controlled</b>	<b>Rate: Fluid ounces per 100 lbs. of seed</b>	<b>Rate: Fluid ounces per acre*</b>
Aphids, Colorado potato beetle, Flea beetles, Leafhoppers, Potato psyllid, Wireworms (seed-piece protection)	0.2-0.4	4.0-8.0 (depending on row-spacing)
<b>Pests/Diseases Suppressed</b>	<b>Rate: Fluid ounces per 1000 row-feet</b>	<b>Rate: Fluid ounces per acre</b>
Symptoms of: Potato leaf roll virus (PLRV), Potato yellows, Net necrosis	0.4	8.0 (depending on row-spacing)
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Maximum Alias 4F allowed per crop season when making seed piece treatment applications: 10.0 fluid ounces per acre (0.31 lb. active ingredient per acre)</li> <li>• Do not use treated seed-pieces for food, feed, or fodder.</li> <li>• Do not apply any subsequent application of Alias 4F (in-furrow), Gaucho, Leverage, or Provado following an Alias 4F seed-piece treatment.</li> <li>• Use not permitted in California unless otherwise directed by supplemental labeling.</li> </ul> <b>Application:</b> Apply specified dosage as a diluted spray onto seed-pieces using a shielded spray system. Dilute with 3 parts water, or less, to 1 part Alias 4F. Agitate or stir spray solution as needed. Fungicidal or inert absorbent dusts may be applied after Alias 4F application. Apply only in areas with adequate ventilation or in areas that are equipped to remove spray mist or dust. Plant seed pieces as soon as possible after treating avoiding prolonged exposure of Alias 4F treated seed-pieces to sunlight and in accordance with the recommendation of your local Extension service. * Based on a seeding rate of 2000 lbs. per acre.		

**TOBACCO-soil treatment**

<b>Pests Controlled</b>	<b>Rate: Fluid ounces per 1000 plants (as seedling tray drench)</b>	<b>Rate: Fluid ounces per 1000 plants (in-furrow or transplant-water)</b>
Aphids, Flea beetles	0.5	0.7
Mole crickets, Whiteflies, Wireworms	0.7-1.4	0.9-1.4
<b>Pests/Disease Suppressed</b>		
Cutworms Symptoms of: Tomato spotted wilt virus (TSWV)	0.7-1.4	0.9-1.4
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Maximum Alias 4F allowed per crop season when making soil applications or foliar sprays to seedlings: 16.0 fluid ounces per acre (0.5 lb. active ingredient per acre)</li> <li>• Pre-Harvest Interval (PHI): 14 days</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>• Uniform, broadcast foliar spray to seedlings in trays (tray drench) not more than 7 days prior to transplanting followed immediately by overhead irrigation to wash Alias 4F from foliage into potting media. Failure to wash Alias 4F from foliage may result in a reduction in pest control. Transplants should be handled carefully during setting to avoid dislodging treated potting media from roots.</li> <li>• In-furrow spray or transplant-water drench during setting.</li> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> </ul> <b>Important Note:</b> Proper tray drench applications of Alias 4F have been shown to be the most efficacious method of application. However, the specified rate of Alias 4F may be applied as combination of the tray drench in the planthouse and/or transplant-water drench in field. Adverse growing conditions may cause a delay in uptake of Alias 4F into the plant and a delay in control.		



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**VEGETABLE AND SMALL FRUIT CROPS****CUCURBIT VEGETABLES<sup>1</sup>-soil treatment**

**Crops of Crop Group 9 Including:** Chayote (fruit), Chinese waxgourd (Chinese preserving melon), Citron melon, Cuban pumpkin, Cucumber, Gherkin, Gourd (edible, includes hyotan, cucuzza, hechima, Chinese okra), *Momordica* spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), Muskmelon (hybrids and/or cultivars of *Cucumis melo* including true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, snake melon, and Winter melon), Pumpkin, Squash (includes summer squash types such as: butternut squash, calabaza, crookneck squash, Hubbard squash, scallop squash, straightneck squash, vegetable marrow and zucchini, and winter squash types such as acorn squash and spaghetti squash), Watermelon (includes hybrids and/or varieties of *Citrullus lanatus*)

<b>Field Application Recommendations. See details below for additional planthouse recommendations.</b>	
<b>Pests Controlled</b>	<b>Rate: Fluid ounces per acre</b>
Aphids, Cucumber beetles, Leafhoppers, Thrips (foliage feeding thrips only), Whiteflies	8.0-12.0
<b>Pests/ Diseases Suppressed</b>	
Bacterial wilt (as vectored by various cucumber beetles), Leaf silvering resulting from whitefly feeding	8.0-12.0
<b>Notes and Restrictions:</b>	
<ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 21days</li> <li>• Maximum Alias 4F allowed per application when making soil applications: 12.0 fluid ounces per acre (0.38 lb/active ingredient per acre)</li> <li>• Not for use on crops grown for seed unless allowed by state specific supplemental labeling.</li> </ul>	
<b>Applications:</b> Apply the specified dosage in one of the following methods:	
<ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> <li>• In-furrow spray directed on or below seed.</li> <li>• Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1½ inches with sufficient irrigation within 24 hours of application.</li> <li>• Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting.</li> <li>• Post-seeding drench, transplant-water drench, or hill drench.</li> <li>• Subsurface side-dress on both sides of each row. Alias 4F must be incorporated into root-zone.</li> </ul>	
<b>Planthouse Application Recommendations*</b>	
<b>Pest Controlled</b>	<b>Rate: Fluid ounces per 1000 plants</b>
Aphids, Whiteflies	0.05
<b>Notes and Restrictions:</b>	
<ul style="list-style-type: none"> <li>• Maximum amount Alias 4F applied in the planthouse: 0.05 fluid ounces (0.00156 lb. active ingredient per 1,000 plants)</li> <li>• Maximum number Alias 4F applications in planthouse: 1</li> </ul>	
<b>Applications:</b> Apply specified dosage to seedlings in trays in the planthouse, targeting soil media (tray drench), not more than 7 days prior to transplanting, in one of the following methods:	
<ul style="list-style-type: none"> <li>• Uniform, broadcast high-volume foliar spray, followed immediately by sufficient overhead irrigation to wash Alias 4F from foliage into potting media without loss of gravitational liquid from the bottom of the tray. Failure to wash Alias 4F from foliage may result in reduced pest control.</li> <li>• Injection into overhead irrigation system, using adequate volume to thoroughly saturate soil media without loss of gravitational solution from the bottom of the tray.</li> </ul>	
The application made in the planthouse will only provide short-term protection and is not intended as a substitution for a field application. An additional field application must be made within 2 weeks following transplanting to provide continuous protection. Applications of higher rates or increased number of applications in planthouse may result in significant plant injury. Transplants should be handled carefully during setting to avoid dislodging treated potting media from roots.	
<b>Important Note:</b> Not all varieties of cucurbit vegetables have been tested for tolerance to Alias 4F applied to seedling flats. It is therefore recommended to treat a small number of plants and confirm tolerance for 7 days prior to treating entire planthouse.	
<sup>1</sup> Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	
* Use not permitted in CA unless otherwise directed by supplemental labeling.	

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**GREENHOUSE VEGETABLES<sup>1</sup>-soil treatment**

(Mature plants in production greenhouses): Cucumber, Tomato only

<b>Pests Controlled</b>	<b>Rate: Fluid ounces per 1000 plants</b>
Aphids, whiteflies	0.7
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 0 day</li> <li>• Maximum number Alias 4F applications per crop season when making soil applications: 1</li> </ul> <b>Applications:</b> Apply specified dosage in a minimum of 16 gallons of water for tomatoes and 21 gallons of water for cucumbers using soil drenches, micro-irrigation, drip irrigation, or hand-held or motorized calibrated irrigation equipment. Application should be made only to plants grown in field-type soils, potting media, or mixtures thereof. Do not apply to plants grown in non-soil medias such as perlite, vermiculite, rock wool or other soil-less media, or plants growing hydroponically. Do not apply to immature plants since phytotoxicity may occur. Applications should be made when infestation pressure surpasses threshold and beneficials are not able to maintain pest populations below damage thresholds. Repellency of bumble bee pollinators and negative effects on some beneficials ( <i>Orius</i> spp.) can occur when Alias 4F is applied. Many varieties of vegetables have been tested for tolerance to Alias 4F and show good safety. However, certain varieties may show more sensitivity to Alias 4F. Therefore, treatment of a few plants is recommended before treating the whole greenhouse. <sup>1</sup> Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

**FRUITING VEGETABLES<sup>1</sup>-soil treatment**

Crops of Crop Group 8 plus Okra including: Eggplant, Ground cherry, Okra, Pepper (including bell, chili, cooking, pimento, and sweet) Tomato, Pepinos, Tomatillo

<b>Field Application Recommendations. See details below for additional planthouse recommendations.</b>	
<b>Pests Controlled</b>	<b>Rate: Fluid ounces per Acre</b>
Aphids, Colorado potato beetle, Flea beetles, Leafhoppers, Thrips (foliage feeding thrips, only), Whiteflies	Okra and Pepper; 8.0-16.0 Other Crops; 8.0-12.0
<b>Diseases Suppressed</b>	
Symptoms of: Tomato mottle virus, Tomato spotted wilt virus, Tomato yellow leaf curl virus	Okra and Pepper; 8.0-16.0 Other Crops; 8.0-12.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 21 days</li> <li>• Maximum Alias 4F allowed on pepper and okra crops per application when making soil applications: 16.0 fluid ounces/Acre (0.5 lb active ingredient per acre)</li> <li>• Maximum Alias 4F allowed on other fruiting vegetable crops per application when making soil applications: 12.0 fluid ounces/Acre (0.38 lb active ingredient per acre)</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> <li>• In-furrow spray directed on or below seed.</li> <li>• Narrow (2" or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 ½ inches with sufficient irrigation within 24 hours of application.</li> <li>• Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting.</li> <li>• Post-seeding drench, transplant-water drench, or hill drench.</li> <li>• Subsurface side-dress on both sides of each row. Alias 4F must be incorporated into root-zone.</li> </ul>	
<b>Planthouse Application Recommendations*</b>	
<b>Pests Controlled</b>	<b>Rate: Fluid ounces per 1000 plants</b>
Aphids, Whiteflies	0.05
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Maximum amount Alias 4F applied in the planthouse: 0.05 fluid ounces (0.00156 lb active ingredient) per 1000 plants.</li> <li>• Maximum number Alias 4F applications in planthouse: 1</li> </ul> <b>Applications:</b> Apply specified dosage to seedlings in trays in the planthouse, targeting soil media (tray drench), not more than 7 days prior to transplanting, in one of the following manners: <ul style="list-style-type: none"> <li>• Uniform, broadcast high-volume foliar spray, followed immediately by sufficient overhead irrigation to wash Alias 4F from foliage into potting media without loss of gravitational liquid from the bottom of the tray. Failure to wash Alias 4F from foliage may result in reduced pest control.</li> <li>• Injection into overhead irrigation system, using adequate volume to thoroughly saturate soil media without loss of gravitational solution from the bottom of the tray.</li> </ul> The application made in the planthouse will only provide short-term protection and is not intended as a substitution for a field application. An additional field application must be made within 2 weeks following transplanting to provide continuous protection. Applications of higher rates or increased number of applications in planthouse may result in significant plant injury. Transplants should be handled carefully during setting to avoid dislodging treated potting media from roots. <b>Important Note:</b> Not all varieties of fruiting vegetables have been tested for tolerance to Alias 4F applied to seedling flats. It is therefore recommended to treat a small number of plants and confirm tolerance for 7 days prior to treating entire planthouse. <sup>1</sup> Not for use on crops grown for seed unless allowed by state-specific supplemental labeling. *Use not permitted in CA unless otherwise directed by supplemental labeling.	

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**HEAD and STEM BRASSICA VEGETABLES<sup>1</sup>- soil treatment**

**Crops of Crop Group 5 including:** Broccoli, Broccoli raab (rapini), Brussels sprouts, Cabbage, Cauliflower, Cavalo broccoli, Chinese (gai lon) broccoli, Chinese (bok choy) cabbage, Chinese (napa) cabbage, Chinese mustard (gai choy) cabbage, Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, Turnip tops (leaves)

**LEAFY VEGETABLES<sup>1</sup>-soil treatment**

**Crops of Crop Subgroup 4A plus Watercress including:** Amaranth (leafy amaranth, Chinese spinach, tampala), Arugula (Roquette), Chervil, Chrysanthemum (edible leaved and garland), Cilantro, Corn salad, Cress (garden), Cress (upland, yellow rocket, winter cress), Dandelion, Dock (sorrel), Endive (escarole), Lettuce (head and leaf), Orach, Parsley, Purslane (garden and winter), Radicchio (red chicory), Spinach (including New Zealand and vine (Malabar spinach, Indian spinach)), Watercress (commercial production only, applications must not be made to native cress growing in streams or other bodies of water), Watercress (upland)

Pests Controlled	Rate: Fluid ounces per acre (on 36 inch rows)
Aphids, Leafhoppers, Thrips (foliage feeding thrips only), Whiteflies	5.0-12.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>Pre-Harvest Interval (PHI): 21 days</li> <li>Maximum Alias 4F allowed per application when making soil applications: 12.0 fluid ounces/Acre (0.38 lb active ingredient per acre)</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> <li>In-furrow spray directed on or below seed.</li> <li>Narrow (2 inches or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 ½ inches with sufficient irrigation within 24 hours of application.</li> <li>Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting.</li> <li>Post-seeding drench, transplant-water drench, or hill drench.</li> <li>Subsurface side-dress on both sides of each row. Alias 4F must be incorporated into root-zone.</li> </ul> <sup>1</sup> Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

**LEAFY PETIOLE VEGETABLES<sup>1</sup>-soil treatment**

**Crops of Crop Subgroup 4B including:** Cardoon, Celery, Celtuce, Chinese celery (fresh leaves and stalk only), Florence fennel (including sweet anise, sweet fennel, Finocchio), Rhubarb, Swiss chard

Pests Controlled	Rate: Fluid ounces per acre
Aphids, Leafhoppers, Thrips (foliage feeding thrips only), Whiteflies	5.0-12.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>Pre-Harvest Interval (PHI): 45 days</li> <li>Maximum Alias 4F allowed per application when making soil applications: 12.0 fluid ounces/Acre (0.38 lb active ingredient per acre)</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> <li>In-furrow spray directed on or below seed.</li> <li>Narrow (2 inches or less) surface band spray over seed-line during planting incorporated to a depth of 1 to 1 ½ inches with sufficient irrigation within 24 hours of application.</li> <li>Narrow band spray directly below eventual seed row in bedding operation 14 or fewer days before planting.</li> <li>Post-seeding drench, transplant-water drench, or hill drench.</li> <li>Subsurface side-dress on both sides of each row. Alias 4F must be incorporated into root-zone.</li> </ul> <sup>1</sup> Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

**LEGUME VEGETABLES<sup>1</sup> except soybean, dry-soil treatment**

**Crops of Crops Group 6 including: Edible Podded and Succulent Shelled Pea and Bean and Dried Shelled Pea and Bean**

**Bean** (*Lupinus* spp., includes grain lupin, sweet lupin, white lupin, and white sweet lupin)

**Bean** (*Phaseolus* spp., includes field bean, kidney bean, lima bean, navy bean, pinto bean, runner bean, snap bean, tepary bean, wax bean)

**Bean** (*Vigna* spp., includes adzuki bean, asparagus bean, blackeyed pea, catjang, Chinese longbean, cowpea, Crowder pea, moth bean, mung bean, rice bean, Southern pea, urd bean, yardlong bean)

**Pea** (*Pisum* spp., includes dwarf pea, edible-pod pea, English pea, field pea, garden pea, green pea, snow pea, sugar snap pea)

**Other Beans and Peas** [Broad bean (fava), Chickpea (garbanzo bean), Guar, Jackbean, Lablab bean (hyacinth bean), Lentil, Pigeon pea, Soybean (immature seed), Sword bean]

Pests Controlled	Rate: Fluid ounces per acre
Aphids, Leafhoppers, Thrips (foliage feeding thrips only), Whiteflies	8.0-12.0
<b>Diseases Suppressed</b>	

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Symptoms of: Bean common mosaic virus (BCMV), Bean golden mosaic virus (BGMV), Beet curly top hybrigeminivirus (BCTV)	8.0-12.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 21 days</li> <li>• Maximum Alias 4F allowed per crop season when making soil applications: 12.0 fluid ounces/Acre (0.38 lb AI per acre)</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> <li>• In-furrow spray at planting directed on or below seed.</li> <li>• In a narrow (2 inches or less) surface band over seed-line during planting incorporated to a depth of 1 to 1 ½ inches with sufficient irrigation with 24 hours following application.</li> <li>• In a narrow band directly below the eventual seed row in a bedding operation 7 or fewer days before planting.</li> <li>• As a post-seeding drench, transplant drench, or hill drench.</li> </ul> <sup>1</sup> Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.	

**ROOT VEGETABLES<sup>1</sup>-soil treatment**

**Crops of Crop Subgroup 1B except Sugarbeet including:** Beet (garden)<sup>2</sup>, Burdock (edible)<sup>2</sup>, Carrot<sup>2</sup>, Celeriac<sup>2</sup>, Chervil (turnip-rooted)<sup>2</sup>, Chicory<sup>2</sup>, Gingseng, Horseradish, Parsley (turnip-rooted), Parsnip<sup>2</sup>, Radish<sup>2</sup>, Oriental radish (diakon)<sup>2</sup>, Rutabaga<sup>2</sup>, Salsify (oyster plant), Salsify (black)<sup>2</sup>, Salsify (Spanish), Skirret, and Turnip<sup>2</sup>

Pests Controlled	Rate: Fluid ounces per 1000 row-feet	Rate: Fluid ounces per acre
Aphids, Flea beetles, Leafhoppers, Thrips (foliage feeding thrips only), Whiteflies	0.35-0.85	5.0-12.0 (depending on row spacing)

**Notes and Restrictions:**

- Pre-Harvest Interval (PHI): 21 days
- Maximum Alias 4F allowed per crop season when making soil applications: 12.0 fluid ounces/Acre (0.38 lb AI per acre)
- Maximum Alias 4F soil applications per crop season: 1

**Application:** Apply specified dosage in one of the following methods:

- Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.
- In-furrow spray (rate specified per 1000 row-feet) or, shanked-in 1 to 2 inches below seed depth during planting.
- In a narrow (2 inches or less) band directly (1 to 2 inches) below the eventual seed row in a bedding operation 14 or fewer days before planting.

**Important Note:** The rate applied affects the length of control. Use higher rates where infestations occur later in crop development, or where pest pressure is continuous. Alias 4F rates less than 0.35 fluid ounces/1000 row-feet will not provide adequate residual pest control. Alias 4F treated crops grown on very high organic matter soils (muck) may also require additional pest management control.

<sup>1</sup>Not for use on crops grown for seed unless allowed by a state-specific supplemental labeling.

<sup>2</sup>Tops or greens from these crops may be utilized for food or feed.

**TUBEROUS and CORM VEGETABLES<sup>1</sup>-soil treatment**

**Crops of Crop Subgroup 1C including:** Arracacha, Arrowroot, Artichoke (Chinese and Jerusalem), Canna (edible, Queensland arrowroot), Cassava (bitter and sweet)<sup>2</sup>, Chayote (root), Chufa, Dasheen (taro)<sup>2</sup>, Ginger, Leren, Sweet potato, Tanier (cocoyam)<sup>2</sup>, Turmeric, Yam bean (jicama, manioc pea), Yam (true)<sup>2</sup> (For recommended applications on potato see Field Crops section)

Pests Controlled	Rate: Fluid ounces per 1000 row-feet	Rate: Fluid ounces per acre
Aphids, Flea beetles, Leafhoppers Thrips (foliage feeding thrips only), Whiteflies	0.35-0.85	5.0-12.0 (depending on row spacing)

**Notes and Restrictions:**

- Pre-Harvest Interval (PHI) from planting application: 3 days (leaves); 125 days (corms)
- Maximum Alias 4F allowed per crop season when making soil applications: 12.0 fluid ounces/Acre (0.38 lb AI per acre)
- Maximum Alias 4F soil applications per crop season: 1

**Application:** Apply specified dosage in one of the following methods:

- In-furrow spray (rate specified per 1000 row-feet) over planting materials (hulis) or shanked-in 1 to 2 inches below hulis depth at planting.
- Side-dress not more than 0.3 fluid ounces/1000 row-feet no later than 45 days after planting. Observe the same PHI as above.

**Important Note:** The rate applied affects the length of control. Use higher rates where infestations occur late in crop development, or where pest pressure is continuous. Alias 4F rates less than 0.35 fluid ounces/1000 row-feet may not provide adequate residual pest control. Alias 4F treated crops grown on very high organic matter soils (muck) may also require additional pest management control.

<sup>1</sup>Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.

<sup>2</sup>Tops or greens from these crops may be utilized for food or feed.

**STRAWBERRY<sup>1</sup>-soil treatment**

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<b>Annual And Perennial Crops</b>	
<b>Pests Controlled</b>	<b>Rate: Fluid ounces per acre</b>
Aphids, Whiteflies	12.0-16.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 14 days</li> <li>• Maximum Alias 4F allowed per crop season when making soil applications: 16.0 fluid ounces/Acre (0.50 lb AI per acre)</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment after plants are established or on perennial crops in early spring prior to bud opening.</li> <li>• As a plant material or plant hole treatment just prior to, or during transplanting.</li> <li>• As a band spray over-the-row in a minimum of 20 gallons of water per acre, followed immediately by overhead irrigation to incorporate product into root-zone. Plastic or other mulches that limit movement of Alias 4F into root zone are not recommended.</li> </ul> <p>The rate applied affects the length of control. Use higher rates where infestations may occur later in crop development or where pest pressure is continuous.</p>	
<b>Post-harvest Use on Perennial Crops</b>	
<b>Pests Controlled</b>	<b>Rate fluid ounces per acre</b>
White grub complex (grubs of Asiatic garden beetle, European and Masked chafer, Japanese beetle, Oriental beetle)	8.0-12.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 14 days</li> <li>• Maximum Alias 4F allowed per season when making soil applications: 12.0 fluid ounces per acre (0.38 lb A.I. per acre)</li> <li>• Do not use on crops grown for seed unless allowed by state-specific supplemental labeling.</li> </ul> <b>Applications:</b> Apply a single application post harvest to coincide with renovation of strawberry fields and during active egg-laying period of beetles. Apply specified dosage of Alias 4F in one of the following methods: <ul style="list-style-type: none"> <li>• As a ground spray via boom or backpack sprayer in a minimum of 20 gallons of water per acre.</li> <li>• As a row-band spray using an adjusted amount of product based on the treated row band area in proportion to the amount required per full acre. The bandwidth should be equivalent to the width of the anticipated fruiting bed.</li> <li>• As a chemigation application with 600 to 1000 gallons of water followed by 0.1 to 0.25 inches irrigation.</li> </ul> <b>Important Note:</b> All soil-surface applications must be followed by 0.25 inches of rainfall or overhead irrigation water per acre within 2 hours of application. Failure to adequately incorporate Alias 4F into egg-deposition zone may result in decreased activity. <p><sup>1</sup>Do not use both application methods on the same crop in the same season.</p>	

**SUGARBEET<sup>1</sup>-soil treatment**

For use only in CA

<b>Pests Controlled</b>	<b>Rate: Fluid ounces per acre</b>
Aphids, Leafhoppers, Whiteflies, Flea beetles	3.0-6.0
<b>Diseases Suppressed</b>	
Symptoms of: Western yellows/Beet curly top hybrigeminiavirus (BCTV)	3.0-6.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Maximum Alias 4F allowed per crop season when making soil applications: 6.0 fluid ounces/Acre (0.18 lb AI per acre)</li> <li>• The maximum imidacloprid allowed per season: 6.0 fl. ounces (0.18 lb. IA) per acre (from any formulation) on any row spacing.</li> <li>• Do not apply immediately prior to bud opening or during bloom or when bees are actively foraging.</li> </ul> <b>Applications:</b> Apply specified dosage in the following method: <ul style="list-style-type: none"> <li>• Apply specified dosage in sufficient carrier volume to insure uniform application. Apply directly below each seed furrow either during the bedding operation immediately prior to planting or at the time of planting.</li> </ul> <p>The low rate may be applied to aid establishment of stands in whitefly areas, or for early season control of the other pests listed.</p> <p><sup>1</sup>Not for use on crops grown for seed unless allowed by state-specific supplemental labeling.</p>	

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RATE fluid ounces/Acre	RATE fluid ounces/1000 row-feet Based on <u>average</u> row spacing (in inches):							
	10	15	20	25	30	35	40	45
5	0.0475	0.07125	0.095	0.11875	0.1425	0.16625	0.19	0.21375
6	0.057	0.0855	0.114	0.1425	0.171	0.1995	0.228	0.2565
7	0.0665	0.09975	0.133	0.16625	0.1995	0.23275	0.266	0.29925
8	0.076	0.114	0.152	0.19	0.228	0.266	0.304	0.342
9	0.0855	0.12825	0.171	0.21375	0.2565	0.29925	0.342	0.38475
10	0.095	0.145	0.19	0.24	0.285	0.335	0.38	0.43
12	0.115	0.17	0.23	0.285	0.345	0.4	0.46	0.515
14	0.135	0.202	0.27	0.335	0.4	0.47	0.535	0.605
16	0.155	0.23	0.305	0.385	0.46	0.535	0.61	0.69
18	0.17	0.26	0.345	0.43	0.515	0.605	0.69	0.775
20	0.19	0.285	0.38	0.48	0.575	0.67	0.765	0.86
22	0.21	0.315	0.42	0.525	0.63	0.735	0.84	0.945
24	0.23	0.345	0.46	0.575	0.69	0.805	0.92	1.035
26	0.25	0.375	0.495	0.62	0.745	0.87	0.995	1.12
28	0.27	0.4	0.535	0.67	0.805	0.935	1.07	1.205
30	0.285	0.43	0.575	0.715	0.86	1.005	1.145	1.29
32	0.305	0.46	0.61	0.76	0.92	1.07	1.225	1.375

**TREE, BUSH, and VINE CROPS**

**BUSHBERRY-soil treatment**

**Crops of Crop Subgroup 13B Including:** Blueberry, Currant, Elderberry, Gooseberry, Huckleberry, Juneberry, Ligonberry, Salal

Pests Controlled	Rate: Fluid ounces per acre
Japanese beetle: (adults, feeding on foliage) White grub complex: (grubs of Asiatic garden beetle, European and Masked chafer, Japanese beetle and Oriental beetle)	8.0-16.0
<b>Notes and Restrictions:</b>	
<ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 7 days</li> <li>• Maximum Alias 4F allowed per season when making soil applications: 16.0 fluid ounces/Acre (0.5 lb AI per acre)</li> <li>• Do not apply pre-bloom or during bloom or when bees are actively foraging.</li> </ul>	
<b>Applications:</b> Apply specified dosage in one of the following methods:	
<ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> <li>• 18-inch band on each side of the row followed by irrigation immediately after application.</li> </ul>	
For optimal grub control, apply Alias 4F to control 1 <sup>st</sup> or 2 <sup>nd</sup> instar larvae. Application may be made post-bloom up to 7 days prior to harvest, or post-harvest until October 1 <sup>st</sup> . For optimum control of Japanese beetle larvae, make applications from June 1 to July 15.	
Application to grass covered rows, row middles, drive lanes, headlands, and other grassy areas in and around the berry field will control resident grub populations. Applications directed to the root-zone will help protect berry plant roots from grub feeding.	
Apply Alias 4F to moist soil. If necessary, apply one hour of irrigation water immediately before application of Alias 4F. To ensure maximum efficacy of soil surface spray, ½ to 1 inch of irrigation water or rainfall should be applied or received within 24 hours of application of Alias 4F to facilitate movement into the soil and into the root-zone.	

**CITRUS (Containerized)- soil treatment**

**Crops of Crop Group 10 Including:** Calamondin, Citrus citron, Citrus hybrids (includes chironja, tangelo, and tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Pummelo, Orange (sweet and sour), Satsuma mandarin, Tangelo, White sapote (*Casimiroa* spp), and other cultivars and/or hybrids of these.

Pests Controlled	Rate mL/ft <sup>3</sup> container media
Aphid, Asian citrus psyllidm, Blackfly, Citrus leafminer, Leafhoppers/Sharpshooters, Mealybugs, Scales, Whiteflies	0.37
Citrus root weevil (larval complex)	0.62-1.2
<b>Pests Suppressed</b>	
Citrus thrips (foliage feeding thrips only)	1.25
<b>Application:</b> Determine volume of container and calculate dosage necessary to treat container. Apply calculated dosage of	

Alias 4F per container as a soil drench or through low-pressure drip or trickle irrigation water. Use sufficient carrier volume to ensure thorough uniform distribution throughout the media without loss of gravitational water from the container. For optimal results, treatment should be made at planting prior to insect infestation. Retreat if necessary. For control of larvae of the citrus root weevil complex, application should be made prior to neonate larvae entering potting media. Utilize higher dosage for heavy infestations.

**CITRUS (Field)- soil treatment**

**Crops of Crop Group 10 Including:** Calamondin, Citrus citron, Citrus hybrids (includes chironja, tangelo, and tangor), Grapefruit, Kumquat, Lemon, Lime, Mandarin (tangerine), Pummelo, Orange (sweet and sour), Satsuma mandarin, Tangelo, White sapote (*Casimiroa* spp), and other cultivars and/or hybrids of these.

Pests Controlled	Rate: Fluid ounces per acre
Aphids, Asian citrus psyllid, Blackfly, Citrus leafminer, Leafhoppers/Sharpshooters, Mealybugs, Scales, Whiteflies	8.0-16.0
<b>Pests/Diseases Suppressed</b>	
Citrus nematode, Symptoms of: Citrus tristeza virus (CTV) through vector control, Citrus yellows, Thrips (foliage feeding thrips only)	16.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 0 day</li> <li>• Maximum Alias 4F allowed per season when making soil applications: 16.0 fluid ounces/Acre (0.5 lb AI per Acre)</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment. For optimum results, apply to newly planted trees or those previously trained to drip, trickle or micro-sprinkler irrigation. Soil should be lightly pre-wetted to break soil surface tension prior to applications of Alias 4F. Chemigation application can be made separate to normal irrigation but followed by 10 to 20 minutes of additional watering to move Alias 4F into root-zone. Allowed 24 hours before initiating subsequent irrigations.</li> <li>• Soil surface band spray on both sides of the tree. Bands should overlap at the tree base to create a continuous band within the drip-line area of the tree, to be followed immediately with light sprinkler irrigation sufficient to move the product into the upper portion of the root-zone. This method is suitable for very coarse soils with 0.75% organic matter or less.</li> <li>• Drench to base of tree not exceeding one-quart total solution per tree immediately around trunk of tree and extending outward covering the entire fibrous root system of the tree. Only recommended for trees up to 8 feet tall.</li> <li>• For suppression of citrus nematode, apply specified dosage through low-pressure chemigation or soil surface band spray only, ensuring complete coverage of the root system and utilizing application directions stated above for the respective application method. Repeated and regular use of Alias 4F over several consecutive growing seasons provides the greatest degree of nematode suppression and yields the greatest plant response.</li> </ul>	

**GRAPE- soil treatment**

Including: American bunch grape, Muscadine grape, and Vinifera grape

Pests Controlled	Rate: Fluid ounces per acre
European fruit lecanium, Leafhoppers/Sharpshooters, Mealybugs, <i>Phylloxera</i> * spp.	8.0-16.0
<b>Pest/Disease Suppressed</b>	
Grapeleaf skeletonizer, Pierce's disease	12.0-16.0
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 30 days</li> <li>• Maximum Alias 4F allowed per season when making soil applications: 16.0 fluid ounces/Acre (0.5 lb AI/Acre)</li> </ul> <b>Applications:</b> Apply specified dosage in one of the following methods: <ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> <li>• Subsurface side-dress shanked into the root-zone on both sides of the plants followed by irrigation.</li> <li>• Hill drench in sufficient water to insure incorporation into the root-zone followed by irrigation.</li> </ul> For optimum results, make application(s) between bud-break and the pea-berry stage. A total of 14.7 fluid ounces/Acre is recommended under any of the following conditions: <ol style="list-style-type: none"> <li>1. Where vigorous vine growth is expected;</li> <li>2. In warmer growing areas;</li> <li>3. Where mealybug and European fruit lecanium populations are expected to be heavy;</li> <li>4. Where vine populations exceed 600 per acre.</li> </ol> *Repeated and regular use of Alias 4F over several, consecutive growing seasons controls existing <i>Phylloxera</i> infestations over time or prevents <i>Phylloxera</i> from becoming established.	

**HOPS<sup>1</sup>-soil treatment**

Pest Controlled	Rate: Fluid ounces per acre
Aphids	9.6
<b>Notes and Restrictions:</b> <ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 60 days</li> </ul>	

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- Maximum Alias 4F allowed per season when making soil applications: 9.6 fluid ounces/Acre (0.3 lb AI/Acre)

**Applications:** Apply specified dosage in one of the following methods:

- Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.
- Subsurface side-dress shanked into the root-zone on both sides of the plants followed by irrigation.
- Hill drench in sufficient water to insure incorporation into the root-zone followed by irrigation.

Higher dosage is recommended where extended residual control is desired or for treating larger vines or vines with dense foliage volume.

<sup>1</sup>Use not permitted in California unless otherwise directed by supplemental labeling.

**POME FRUIT<sup>1</sup>-soil treatment**

**Crops of Crop Group 11 Including:** Apple, Crabapple, Loquat, Mayhaw, Pear (including Oriental pear), Quince

Pests Controlled	Rate: Fluid ounces per acre
Aphids (including Woolly apple aphid), Leafhoppers	8.0-12.0
<b>Notes and Restrictions:</b> Pre-Harvest Interval (PHI): 21 days	
<ul style="list-style-type: none"> <li>• Maximum Alias 4F allowed per season when making soil applications: 12.0 fluid ounces/Acre (0.38 lb AI/Acre)</li> <li>• Do not apply pre-bloom or during bloom or when bees are actively foraging</li> </ul>	
<b>Applications:</b> Apply specified dosage in the following method:	
<ul style="list-style-type: none"> <li>• Chemigation into the root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> </ul>	
<sup>1</sup> Use not permitted in California unless otherwise directed by supplemental labeling.	

**STONE FRUIT<sup>1</sup>- soil treatment**

**Crops of Crop Group 12 Including:** Apricot, Cherry (including sweet and tart), Nectarine, Peach, Plum (including Chickasaw, Damson, and Japanese), Plumcot, Prune (fresh and dried)

In-field, Soil Application	
Pests Controlled	Rate: Fluid ounces per acre
Aphids (including Woolly apple aphid), Leafhoppers	8.0-12.0
<b>Notes and Restrictions:</b>	
<ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 21 days</li> <li>• Maximum Alias 4F allowed per season when making soil applications: 12.0 fluid ounces/Acre (0.38 lb AI/Acre)</li> </ul>	
<b>Applications:</b> Apply specified dosage in the following method:	
<ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> </ul>	
<sup>1</sup> Use not permitted in California unless otherwise directed by supplemental labeling.	
Pre-plant, Root Dip Application	
Pest Controlled	Rate fluid ounce per 10 gallons root-dip solution
Black peach aphid (infesting roots)	1.0
Mix Alias 4F at 1.0 fluid ounce per 10 gallons of water. Thoroughly wet bare-root transplant to slightly above the graft union by soaking roots in the Alias 4F solution for up to 5 minutes. Allow solution to dry on roots and transplant trees as soon as possible following treatment.	

**PECAN**

Pests Controlled	Rate: Fluid ounces per acre
Aphids, Twolined Spittlebugs	8.0-16.0
Pests/Diseases Suppressed	
Pecan scab (from reduction in honeydew deposition)	8.0-16.0
<b>Notes and Restrictions:</b>	
<ul style="list-style-type: none"> <li>• Pre-Harvest Interval (PHI): 7 days</li> <li>• Maximum Alias 4F allowed per season when making soil applications: 16.0 fluid ounces/Acre (0.5 lb AI/Acre)</li> <li>• Applications can be made from May 15 up to July 15. Applications made alter in the season may result in reduced efficacy.</li> <li>• Apply product to slightly moist soil and allow soil to dry prior to additional irrigation.</li> </ul>	
<b>Applications:</b> Apply specified dosage prior to or at onset of pest infestation in one of the following methods:	
<ul style="list-style-type: none"> <li>• Chemigation into root-zone through low-pressure drip, trickle, micro-sprinkler, or equivalent irrigation equipment. Emitter or spot application in a minimum of 4 fluid ounces of mixture per emitter site.</li> <li>• Subsurface side-dress shanked into the the root zone on both sides of the plants followed by irrigation.</li> </ul>	

**TROPICAL FRUIT- soil treatment**

Including: Acerola, Atemoya<sup>1</sup>, Avocado, Black sapote, Canistel, Cherimoya<sup>1</sup>, Custard apple<sup>1</sup>, Feijoa, Jaboticaba, Guava, Llama<sup>1</sup>, Longan, Lychee, Mamey sapote, Mango, Papaya, Passionfruit, Persimmon, Pulasan, Rambutan, Sapodilla, Soursop<sup>1</sup>, Spanish lime, Star apple, Starfruit, Sugar apple<sup>1</sup>, Wax jambu



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Pests Controlled	Rate: Fluid ounces per acre
Aphids, Avocado lacebug, Leafhoppers, Whiteflies	12.0-16.0
Pests Suppressed	
Scales	16.0
<b>Notes and Restrictions:</b>	
<ul style="list-style-type: none"> <li>Pre-Harvest Interval (PHI): 6 days</li> <li>Maximum Alias 4F allowed per season when making soil applications: 16.0 fluid ounces/Acre (0.5 lb AI/A).</li> </ul>	
<b>Applications:</b> Apply specified dosage in the following method:	
<ul style="list-style-type: none"> <li>Chemigation into root zone through low-pressure drip, trickle, micro-sprinkler, or equivalent equipment.</li> </ul>	
<sup>1</sup> Use not permitted in California unless otherwise directed by supplemental labeling.	

**OTHER CROPS****POPLAR/COTTONWOOD<sup>1</sup> - soil treatment**(includes members of the genus *Populus* grown for pulp or timber)

Pests Controlled	Rate: Fluid ounces per acre
Aphids, Cottonwood leaf beetle	8.0-16.0
Pest Suppressed	
<i>Phylloxera popularia</i>	8.0-16.0
<b>Notes and Restrictions:</b>	
<ul style="list-style-type: none"> <li>Maximum Alias 4F allowed at-plant per crop season: 16.0 fluid ounces/Acre (0.5 lb AI/Acre)</li> </ul>	
<b>Applications:</b> Apply specified dosage in the following method:	
<ul style="list-style-type: none"> <li>Chemigation through low-pressure drip irrigation.</li> <li>For narrow-row, cutting orchards/nurseries used for plant propagation, shank into root-zone followed by adequate irrigation to promote uptake. (Adequate irrigation depends on soil moisture level at application. Under dry conditions, 0.25 inches/Acre is recommended).</li> </ul>	
For Cottonwood leaf beetle, protection against damage will occur when application is made early-season, when the beetles first begin feeding. Larger trees may require earlier treatment as a result of slower uptake.	
For <i>Phylloxera</i> , apply early in the year from break of dormancy through May.	
<sup>1</sup> Use not permitted in California unless otherwise directed by supplemental labeling.	

**STORAGE AND DISPOSAL**

Do not contaminate water, food, or feed by storage or disposal or cleaning of equipment. Open dumping is prohibited.

**PESTICIDE STORAGE:** Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Store in cool, dry place. Do not store diluted spray.**PESTICIDE DISPOSAL:** Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.**CONTAINER DISPOSAL:** Triple rinse (or equivalent). Do not reuse container. Offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.**FOR 24-HOUR EMERGENCY ASSISTANCE (SPILL, LEAK, OR FIRE), CALL INFOTRAC AT (800) 535-5053.****LIMITATION OF WARRANTY AND LIABILITY**

Read the entire Directions for Use, Conditions of Warranties and Limitations of Liability before using this product. If terms are not acceptable, return the unopened product container at once.

By using this product, user or buyer accepts the following Conditions, Disclaimer of Warranties and Limitations of Liability.

**CONDITIONS:** The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Makhteshim Agan of North America, Inc. All such risks shall be assumed by the user or buyer.**DISCLAIMER OF WARRANTIES:** To the extent consistent with applicable law, Makhteshim Agan of North America, Inc. makes no other warranties, express or implied, of merchantability or of fitness for a particular purpose or otherwise, that extend beyond the statements made on this label. No agent of Makhteshim Agan of North America, Inc. is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. To the extent consistent with applicable law, Makhteshim Agan of North America, Inc. disclaims any liability whatsoever for special, incidental or consequential damages resulting from the use or handling of this product.**LIMITATIONS OF LIABILITY:** To the extent consistent with applicable law, the exclusive remedy of the user or buyer for any and all losses, injuries or damages resulting from the use or handling of this product, whether in contract, warranty, tort, negligence, strict liability or otherwise, shall not exceed the purchase price paid or at Makhteshim Agan of North America, Inc.'s election, the replacement of product.