

81943-21

10/24/2007

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U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs
Registration Division (7505C)
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

EPA Reg. Number:

81943-21

Date of Issuance:

OCT 24 2007

NOTICE OF PESTICIDE:

☒ Registration
☐ Reregistration

(under FIFRA, as amended)

Term of Issuance:

Conditional

Name of Pesticide Product:

Hawk-I N/O 2L

Name and Address of Registrant (include ZIP Code):

Phoenix Environmental Care, LLC
P.O. Box 370
Valdosta, GA 31603-0370

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 section 3(c)(7)(A) provided that you:

1. Submit and/or cite all data required for registration/reregistration of your product when the Agency requires all registrants of similar products to submit such data.
2. Make the following label changes before you release the product for shipment:
 - a. Revise the EPA Registration Number to read, "EPA Reg. No. 81943-21".
 - b. On page one of the label, revise the statement "Systemic and foliar insect control in turfgrass, on fruit and nut..." to read "Systemic and foliar insect control in grassy areas in nurseries, on fruit and nut..."
 - c. Within the **CONDITION OF SALE AND LIMITATION OF WARRANTY AND LIABILITY** section of the label, revise the sentence "The Directions for Use of this product should be followed carefully." to read "The Directions for Use of this product must be followed carefully."

Signature of Approving Official:

Kable Bo Davis, Entomologist
Insecticide-Rodenticide Branch, Registration Division (7505P)

Date:

OCT 24 2007

2/16

- d. Within the **CONDITION OF SALE AND LIMITATION OF WARRANTY AND LIABILITY** section of the label, revise the sentence "*PHOENIX ENVIRONMENTAL CARE, LLC MAKES NO WARRANTIES OF MERCHANTABILITY...*" to read "*TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, PHOENIX ENVIRONMENTAL CARE, LLC MAKES NO WARRANTIES OF MERCHANTABILITY...*"
3. The data requirements for storage stability (830-6317) and corrosion characteristics (830- 6320) have not been satisfied, and must be submitted within eighteen months of the date of this letter.
4. Submit one copy of the revised final printed label for the record before you release the product for shipment.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6(e). Your release for shipment of the product constitutes acceptance of these conditions.

A stamped copy of the label is enclosed for your records.

Kable Bo Davis
Entomologist
Insecticide-Rodenticide Branch
Registration Division (7505P)

Enclosure

3116
8/31/2007

Hawk-I™ N/O 2L

Systemic and foliar insect control in turfgrass, on fruit and nut trees, on ornamental and vegetable plants in greenhouses, nurseries and interior landscapes

ACTIVE INGREDIENT:

Imidacloprid: 1-[(6-Chloro-3-pyridinyl)methyl]-N-nitro-2-imidazolidinimine..... 21.4%

OTHER INGREDIENTS: 78.6%

TOTAL: 100.0%

Contains 2 pounds of imidacloprid per gallon.

KEEP OUT OF REACH OF CHILDREN CAUTION

FIRST AID	
If swallowed:	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
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 by mouth-to-mouth, if possible.
If on skin or clothing:	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for treatment advice.
If in eyes:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-888-875-1724 for emergency medical treatment information.	
NOTE TO PHYSICIAN	
No specific antidote is available. Treat the patient symptomatically.	

Net Contents: ____

Phoenix Environmental Care, LLC
P.O. Box 370 • Valdosta, GA 31603-0370

EPA Reg. No. 81943-____
EPA Est. No.: _____

ACCEPTED
with COMMENTS
In EPA Letter Dated: OCT 24 2007
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
as amended, for the pesticide
registered under EPA Reg. No.
81943-21

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

Harmful if swallowed, inhaled, or absorbed through skin. Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse. Keep children or pets away from treated area until dry.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- 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
- Protective eyewear when working in a non-ventilated space.

Follow manufacturer's instructions for cleaning/maintaining PPE. If instructions for washables do not exist, use detergent and hot water. Keep and wash PPE separately from other laundry.

ENGINEERING CONTROLS STATEMENTS

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

USER SAFETY RECOMMENDATIONS

Users should:

- Wash hands 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 product is highly 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 contaminate water when disposing of equipment washwaters.

This product is highly toxic to bees exposed to direct treatment or residues on the foliage of 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.

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

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.

Do NOT formulate this product into other end-use products

AGRICULTURAL USE REQUIREMENTS

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

Do not enter or allow worker entry into treated areas during the restricted entry interval (REI) 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

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries and greenhouses.

Keep children and pets off treated areas until dry.

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 PONDS.

RUNOFF MANAGEMENT

Do not cultivate within 10 feet of the aquatic areas to allow growth of vegetative filter strip. When used on erodible soils, best management practices 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.

RESISTANCE MANAGEMENT

Some insects are known to 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.

Hawk-I N/O 2L contains a Group 4A insecticide called imidacloprid. Insect biotypes with acquired or inherent tolerance to group 4A products may eventually dominate the insect population if Group 4A products 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 Hawk-I N/O 2L and to other Group 4A products.

The active ingredient in Hawk-I N/O 2L is a member of the neonicotinoid chemical group. Avoid using a block of more than three consecutive applications of Hawk-I N/O 2L and/or other Group 4A products having the same or similar mode of action. Following a neonicotinoid block of treatments, Phoenix Environmental Care, LLC strongly encourages the rotation to a block of applications with effective products of a different mode 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 pest's ability to develop resistance to this class of chemistry.

Foliar applications of Hawk-I N/O 2L or other Group 4A products from the neonicotinoid chemical class should not be used on crops previously treated with long-residual, soil-applied products from the neonicotinoid chemical class.

Other Group 4A, neonicotinoid products used as foliar treatments include: Actara®, Assail®, Calypso®, Centric®, Intruder™, Leverage® and Trimax™. Other 4A Group, neonicotinoid products used as soil treatment include: Admire® and Platinum®.

Contact your local 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://irac-online.org/>.

GENERAL INFORMATION

Thorough uniform coverage is necessary to achieve optimal control. A spray adjuvant may be used to improve coverage. Hawk-I N/O 2L may not knockdown established and heavy insect populations. Two applications may be required to achieve control; retreat if needed and as directed on this label. Hawk-I N/O 2L may be tank mixed with other insecticides as recommended for knockdown of pests or for improved control of other pests.

Applying Hawk-I N/O 2L to crops grown for production of true seed intended for private or commercial planting may be allowed under State specific supplemental labeling *but is generally not recommended*. As with any insecticide, care should be taken to minimize exposure of Hawk-I N/O 2L to honey bees and other pollinators. Use of Hawk-I N/O 2L on crops requiring bee pollination should be avoided during bloom and a minimum of 10 days prior to bloom. Additional information on Hawk-I N/O 2L uses for these crops and other questions may be obtained from the Cooperative Extension Service, PCA's, consultants or local Phoenix Environmental Care, LLC representative.

Rotational Crops

As soon as practical following the last application, 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. 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. NOTE: Cover crops for soil building or erosion control may be planted at any time, but do not graze or harvest for food or feed.

Immediate Plant-back:

All crops on this label plus the following crops not on this label: barley, canola, corn (field, sweet and pop), rapeseed, sorghum, sugar beet and wheat.

30-Day Plant-back:

Cereals (including buckwheat, millet, oats, rice, rye and triticale), soybeans and safflower

12- Month Plant-back:

All other crops

MIXING INSTRUCTIONS

To prepare the application mixture, add a portion of the required amount of water to the spray tank, begin agitation, and add the Hawk-I N/O 2L. Complete filling tank with the balance of water needed. Be sure to maintain agitation during both mixing and application.

Hawk-I N/O 2L may also be used with other pesticides and/or fertilizer solutions; refer to the **Compatibility Note** below. When tank mixtures of Hawk-I N/O 2L and other pesticides are involved, prepare the tank mixture as recommended above and follow the suggested Mixing Order below.

Mixing Order

When pesticide mixtures are needed, add wettable powders first, Hawk-I N/O 2L or other flowables second, and emulsifiable concentrates last. Ensure good agitation as each component is added and do not add an additional component until the previous is thoroughly mixed. A fertilizer / pesticide compatibility agent may be needed if a fertilizer solution is to be added to the mixture. Be sure to maintain constant agitation during both mixing and application to ensure uniformity of spray mixture.

Compatibility Note

Before adding Hawk-I N/O 2L to the spray or mix tank, the compatibility of the intended tank mixture should be checked using the following test:

- 1) Add proportionate amount of each ingredient in the appropriate order to a pint or a quart jar;
- 2) Cap and shake for 5 minutes;
- 3) Let set for 5 minutes.

Poor mixing or formation of precipitates that do not readily re-disperse indicates an incompatible mixture that should not be used. For further information, contact your local Phoenix Environmental Care, LLC representative.

APPLICATION INSTRUCTIONS

Hawk-I N/O 2L should be applied as a directed or broadcast foliar spray using properly calibrated ground application equipment as allowed in the specific recommended application section. For optimum insecticidal efficacy, thorough coverage of all target foliage *without runoff* is necessary. To obtain thorough coverage use adequate spray volumes, properly calibrated application equipment and a spray adjuvant if necessary. Failure to provide adequate coverage and retention of Hawk-I N/O 2L on leaves and fruit, if present, may result in loss of insect control or delay in onset of activity. Minimum recommended spray volumes unless otherwise specified on crop specific recommended application sections are 10 gallons/acre by ground application. Hawk-I N/O 2L may also be applied by chemigation (see APPLICATION THROUGH IRRIGATION SYSTEMS (CHEMIGATION) section below) if allowed in the specific recommended application section.

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.

Mixing and Loading Requirements

To avoid potential contamination of groundwater, the use of a properly designed and maintained containment pad for mixing and loading of any pesticide into application equipment is recommended. If containment pad is not used, maintain a minimum distance of 25 feet between mixing and loading areas and potential surface to groundwater conduits such as field sumps, uncased well heads, sinkholes, or field drains.

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

Because the potential for spray drift is high during temperature inversions, do NOT make ground applications 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 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.

APPLICATION THROUGH IRRIGATION SYSTEMS (CHEMIGATION)

Hawk-I N/O 2L may be applied at rates recommended on this label either alone or in tank mixture with other pesticides and chemicals registered for application through irrigation systems. The normal dilution ratio is 1:100 to 1:200, depending on the system. Always meter the product into the irrigation water during the first part of the irrigation cycle. The product may be mixed separately prior to injection. Agitation may be necessary if the mixture is allowed to stand more than 24 hours.

- Do NOT connect an irrigation system (including greenhouse systems) used for pesticide application to a public water system unless the pesticide label-prescribed safety devices for public water systems are in place.
- Apply Hawk-I N/O 2L only through micro-irrigation (individual spaghetti tube), drip irrigation, overhead irrigation, and ebb and flood or hand-held or motorized calibrated irrigation equipment and only as recommended in the specific directions. **Do not apply this product through any other type of irrigation system.** Crop injury or lack of effectiveness can result from non-uniform distribution of treated water.
- Be sure to remove scale, pesticide residue and other foreign matter from the tank and entire irrigation system prior to application.
- A person knowledgeable of the chemigation system and responsible for its operation, or a person who is under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.
- If you have any questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

SAFETY DEVICES FOR IRRIGATION SYSTEMS CONNECTED TO PUBLIC WATER SUPPLIES:

If the source of water for your irrigation system is a public water supply, follow the instructions below.

1. 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 an average of at least 25 individuals daily at least 60 days out of the year.
2. Chemigation systems connected to public water systems must contain a functional, reduced-pressure zone, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, 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 the top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe.

3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. 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.
5. 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.
6. 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.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

SAFETY DEVICES FOR IRRIGATION SYSTEMS NOT CONNECTED TO A PUBLIC WATER SUPPLY:

1. 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.
2. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
3. 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.
4. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
5. 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 the pesticide distribution is adversely affected.
6. 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.
7. Do not apply when wind speed favors drift beyond the area intended for treatment.

Water Volume

Hawk-I N/O 2L chemigation application should be made as concentrated as possible. Retention of Hawk-I N/O 2L on target site of insect infestation is necessary for optimum activity. Chemigation of Hawk-I N/O 2L in water volumes exceeding 0.10 inches/acre are not recommended.

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 State 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 the wind favors drift beyond the area intended for treatment.

APPLICATION TO GRASSY AREAS IN NURSERIES

Hawk-I N/O 2L will control soil-inhabiting pests in grassy areas in or around nurseries such as under or around field or container grown plants, on roadways or other grassy areas. The need for an application can be based on historical monitoring of the site, previous records or experiences, current season adult trapping or other methods. Applications may be made preceding the egg laying activity of the target pests and high levels of control may be achieved when applications are made proceeding or during the egg laying period. For best results, make applications prior to egg hatch of the target pests, followed by sufficient irrigation or rainfall to move the active ingredient through the thatch.

Use Precautions:

- Applications must NOT exceed a total of 1.6 pt. (0.4 lb of active ingredient) per acre per year.
- Applications should NOT be made when grassy areas are waterlogged or the soil is saturated with water because adequate distribution of the active ingredient cannot be achieved when these conditions exist.
- The treated grassy area must be in such a condition that the rainfall or irrigation will penetrate vertically in the soil profile.
- Avoid mowing treated areas until after sufficient rainfall or irrigation has occurred in order to maintain the uniformity of the application.
- Do NOT graze treated areas or use clippings from treated areas for feed or forage.
- Do NOT apply Hawk-I N/O 2L to soils that are waterlogged or saturated and avoid runoff or puddling of irrigation water following application.
- Do NOT allow leachate to run out for the first 10 days after application or reduced efficacy may result.

Application Instructions:

Apply Hawk-I N/O 2L in sufficient water to provide adequate distribution in the treated area. Use of accurately calibrated equipment normally used for soil application of insecticides is required. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off-target drift. Check calibration periodically to ensure that equipment is working properly.

Pest	Fluid ounces per 1000 sq. ft.	Fluid ounces per Acre	Specific Instructions
Annual bluegrass weevil Asiatic garden beetle Billbugs Black turfgrass ataenius Cutworms† European Chafer Green June beetle Japanese beetle Northern masked chafer Oriental beetle Phyllophaga spp. Southern masked chafer	0.45 – 0.6 (13 to 17 mL)	19.2 – 25.6	Billbugs and annual bluegrass weevil: For best results make applications prior to egg hatch of the target pest. Cinchbugs: Make applications prior to the hatching of the first instar nymphs. Mole Crickets: Make applications prior to or during the peak egg hatching period. When adults or large nymphs are present and actively tunneling, Hawk-I N/O 2L should be accompanied by a curative insecticide. NOTE: For best results, the active ingredient must be moved through the thatch by irrigation or rainfall occurring within 24 hours after application.
Cinchbugs† Mole Crickets	0.57 (17 mL)	25.6	
† Suppression only.			

APPLICATION TO ORNAMENTALS AND VEGETABLE PLANTS

Hawk-I N/O 2L is a systemic insecticide that may be applied to ornamental and vegetable plants and interior landscapes. The insecticide is translocated upward into the plant system and for best results must be placed

where the growing portions of the target plant can absorb the active ingredient. When applicable, adding a fertilizer containing nitrogen into the spray solution may enhance plant uptake of Hawk-I N/O 2L.

Woody Perennials:

Protection in woody perennials is slower than in herbaceous species and a delay of 2 or more weeks should be expected, with longer delays for larger plants. Because of this, applications to woody perennials should be made well in advance of expected insect activity.

Bark Media:

Hawk-I N/O 2L treatments to media with 30 - 50% or more bark content may confer a shorter period of protection.

Use Precautions:

- Cover crops for soil building or erosion control may be planted at any time, but DO NOT graze or harvest for food or feed. DO NOT graze treated areas or use clippings from treated areas for feed or forage.
- Do NOT apply Hawk-I N/O 2L to soils that are waterlogged or saturated and avoid runoff or puddling of irrigation water following application.
- Do NOT allow lechate to run out for the first 10 days after application or reduced efficacy may result.
- Do NOT exceed a total of 1.6 pt. / Acre per year (0.4 lb. AI/A).

FOLIAR AND BROADCAST APPLICATIONS

Hawk-I N/O 2L may be applied as a broadcast or foliar application to trees (including non-bearing fruit and nut trees), shrubs, evergreens, flowers, foliage plants, ground covers, interior landscapes and vegetable plants intended for resale.

***For use on vegetable plants intended for resale only** including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage Cauliflower, Collards, Eggplant, Ground Cherry, Kale Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo and Tomato.

Application Instructions:

Apply Hawk-I N/O 2L in sufficient water to provide adequate distribution in the treated area. Use of accurately calibrated equipment normally used for soil application of insecticides is required. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off-target drift. Check calibration periodically to ensure that equipment is working properly.

NOTE: When making foliar applications to plants with hard-to-wet foliage such as holly, pine or ivy, use of a spreader / sticker is recommended.

Pest	Application Method	Application Rate	Specific Instructions
Adelgids Aphids Japanese beetle (adult) Lacebugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Sawfly larvae Thrips† Whiteflies	Foliar	1.7 fl. oz. (50 mL) per 100 gal. of water	Make applications prior to establishment of large pest populations and retreat as necessary. NOTE: Applying Hawk-I N/O 2L foliarly after a soil application in the same crop is not recommended for resistance management purposes.

White grub larvae (such as Japanese beetle larvae, chafer, Phyllophaga spp., Asiatic garden beetle and Oriental beetle)	Broadcast	0.45 – 0.60 fl. oz. (13 to 17 mL) per 1000 sq. ft.	Mix the recommended amount of Hawk-I N/O 2L in sufficient water to uniformly cover the area being treated using at least 2 gallons of water per 1000 sq. ft. For best results, incorporate the Hawk-I N/O 2L into the upper soil profile by irrigating after the application is made.
† Suppression only.			

IRRIGATION AND DRENCH APPLICATIONS

Hawk-I N/O 2L may be applied to ornamental and vegetable plants in greenhouses, nurseries and interior landscapes using soil drenches, micro-irrigation, drip irrigation, overhead irrigation, ebb and flood irrigation, or hand-held or motorized calibrated irrigation equipment.

Use Precautions:

- On plants with a production cycle of less than one year, application is not to exceed a frequency of more than once each 16 weeks for a particular plant. On stock plants and woody crops with a production cycle of greater than one year, application may not exceed once a year.

RECOMMENDED RATES AND INSTRUCTIONS FOR IRRIGATION AND DRENCH APPLICATIONS				
Application Site	Recommended Rate		Application Instructions	Pests Controlled
Plants in Containers	Herbaceous Species including Vegetables ⁵ (one or two plants per pot)	Container Size (inches) 2 3 4 5 6 7 8 9 10 11 12	# of pots treated with 1.7 fl. oz. (50 mL) 3000 2000 1500 1200 1000 850 750 675 600 550 500	Use sufficient water volume to wet most of the potting medium without loss of liquid through leaching. Irrigate moderately after application. To avoid loss of active ingredient due to leaching, do NOT allow leaching or runoff to occur for 10 days after application.
	Woody Perennial Species or Herbaceous Species including Vegetables ⁵ (three or more plants per pot)	2 3 4 5 6 7 8 9 10 11 12	2000 1350 1000 800 650 550 500 450 400 350 300	
Ornamental and Vegetable ⁵ plants grown in flats, benches, or beds	1.7 fl. oz. (50 mL) per 3000 sq. ft. Do NOT use less than 2 gallons of mixture per 1000 sq. ft.		Apply as a broadcast treatment and incorporate into the medium before planting or apply after plants are established. If application is made to established plants, optimum control will be attained if area is lightly irrigated after application. Do NOT allow leaching or runoff to occur for 10 days after application.	Adelgids Aphids Armored Scale (suppression) Fungus gnat (larvae only) ¹ Japanese beetles (adults) Lacebugs Leaf beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Mealybugs Psyllids Root mealybugs ² Root weevil complex (such as Black Vine Weevil, Apopka Weevil, Citrus Root Weevil ³) Soft scale Thrips (suppression) ⁴ White Grub Larvae (Such as Japanese beetle, Masked Chafers, European Chafer, Oriental Beetle, Asiatic

RECOMMENDED RATES AND INSTRUCTIONS FOR IRRIGATION AND DRENCH APPLICATIONS				
Application Site	Recommended Rate		Application Instructions	Pests Controlled
Containerized Plants	Container Size (gallons)	# of pots treated with 1.7 fl. oz. (50 mL)	For best results, make applications prior to egg hatch of the target pest. Apply in sufficient water to wet the potting medium. Irrigate moderately after application to move the active ingredient into the root zone.	Garden Beetle) Whiteflies
	1	340 to 244		
	2	280 to 210		
	3	220 to 165		
	5	160 to 110		
	7	100 to 75		
	10	60 to 45		
	15	40 to 30		
	20	20 to 15		
Field and Forest Nurseries	1.7 fl. oz. (50 mL) per 1000 ft of row or 3000 sq. ft. in a minimum spray volume of 2 gallons per 1000 square feet. In areas of turf, apply as a broadcast application using 1.35 – 1.7 fl. oz. (40 to 50 mL) per 3000 sq. ft. in a minimum spray volume of 2 gallons per 1000 square feet.		Vegetation in the area to be treated should be mowed to a height of 3 inches or less prior to application. Mowing to the lowest possible height will ensure greater consistency of control. Apply May through July. For best results, treatment should be followed by rainfall or irrigation.	White grub larvae (such as Japanese beetle, Masked chafers, European chafer, Oriental beetle, Asiatic garden beetle)
1	Fungus Gnat larvae in the soil will be controlled by drench or incorporation; Hawk-I N/O 2L does not control adult Fungus Gnats. Other foliar insect control is achieved translocating the active ingredient up into the plant via the root system.			
2	To control root mealybug, a thorough drenching of the containerized media is necessary. Use a rate of 1.7 fl. oz. (50 mL) in 150 gallons of water and be sure to obtain complete coverage while minimizing the amount of leachate.			
3	For control of citrus root weevil on non-bearing citrus nursery stock ONLY.			
4	Thrips on foliage only are suppressed, not in buds and flowers.			
5	For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage Cauliflower, Collards, Eggplant, Ground Cherry, Kale Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo and Tomato.			

RECOMMENDED RATES AND INSTRUCTIONS FOR NURSERY, GREENHOUSE AND INTERIORESCAPE PLANTS			
Application Site	Recommended Rate	Application Instructions	Pests Controlled
Trees NOTE: Application to trees already heavily infested may not prevent the eventual loss of the trees due to existing pest damage and tree stress.	0.1 – 0.2 fl. oz. (3 to 6 mL) per inch of trunk diameter (DBH)	SOIL INJECTION – No Soil Injection Application allowed in Nassau or Suffolk counties of New York. GRID SYSTEM: Holes should be spaced on 2.5 ft centers, in a grid pattern, extending to the drip line of the tree. CIRCLE SYSTEM: Apply in holes evenly spaced in circles, (use more than one circle dependent upon the size of the tree) extending in from the drip line of the tree. BASAL SYSTEM: Space injection holes evenly around the base of the tree trunk no more than 6 to 12 inches out from the base. Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Maintain a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. For optimum control, keep the treated area moist for 7 to 10 days. Do not use less than 4 holes per tree.	Adelgids Aphids Armored Scale† Black vine weevil larvae Eucalyptus Longhorned Borers Flatheaded Borers (including bronze birch and alder borers) Japanese Beetles (adults) Lacebugs Leaf Beetles (including elm and viburnum leaf beetles) Leafhoppers (including glassy-winged sharpshooter) Leafminers Mealybugs Pine Tip Moth larvae Psyllids Royal Palm Bugs Sawfly larvae Soft Scales Thrips† White grub larvae Whiteflies
		SOIL DRENCH: Remove plastic or any other barrier that will stop solution from reaching the root zone. Uniformly apply around the base of the tree, direct to the root zone as a drench in no less than 10 gallons of water per 1000 square feet.	
Shrubs	0.1 – 0.2 fl. oz. (3 to 6 mL) per foot of shrub height	SOIL INJECTION – No Soil Injection Application allowed in Nassau or Suffolk counties of New York. Mix required dosage in sufficient water to inject an equal amount of solution in each hole. Using a minimum of 4 holes per shrub, apply to individual plants maintaining a low pressure and use sufficient solution for distribution of the liquid into the treatment zone. Keep the treated area moist for 7 to 10 days. SOIL DRENCH: Remove plastic or any other barrier that will stop solution from reaching the root zone. Uniformly apply around the base of the tree, direct to the root zone as a drench in no less than 10 gallons of water per 1000 square feet.	
Flowers and Ground Cover	0.45 - 0.60 fl. oz. (13 to 17 mL) per 1000 sq. ft.	Apply as a broadcast treatment and incorporate into the soil before planting or apply after plants are established. If application is made to established plants, optimum control will be attained if area is irrigated thoroughly after application.	
† Suppression only of these species.			

EBB AND FLOOD APPLICATIONS

Hawk-I N/O 2L insecticide may be applied through Ebb and Flood applications. To assure accurate uptake it is recommended that prior to treatment, a minimum of 10 plants be brought up to a known field capacity and allowed to dry out for one or two days. Re-wet these plants to determine how much water on average each plant will absorb to return it to field capacity.

RECOMMENDED RATES AND INSTRUCTIONS FOR EBB AND FLOOD APPLICATIONS					
Application Site		Recommended Rate		Application Instructions	Pests Controlled
Plants in Containers	Herbaceous species including vegetable plants ⁵ (one or two plants per pot)	Container Size (inches)	mL per 100 Plants	To minimize the return back to the storage tank, keeping pot sizes uniform use the volume absorbed per plant (see test above) multiplied by the number of pots being treated. Add to this volume a required minimum to flood your smallest treatment area. Re-use the returned volume with subsequent irrigation or nutrients on the same plants.	Adelgids
		2	1.6		Aphids
		3	2.5		Armored scales (suppression)
		4	3.3		Fungus Gnats (larvae only) ¹
		5	4.2		Japanese Beetles (adults)
		6	5.0		Lacebugs
		7	5.9		Leaf beetles (including elm and viburnum leaf beetles)
		8	6.6		Leafhoppers (including glassy-winged sharpshooter)
		9	7.4		Leafminers
		10	8.3		Mealybugs
		11	9.0		Psyllids
		12	10.0		Root mealybugs ²
	Woody perennials, herbaceous species including vegetable plants ⁵ (3 or more per pot)	Container Size (inches)	mL per 100 Plants		Root Weevil
		2	2.5		Complex: (such as Apopka Weevil, Black Vine Weevil, Citrus Root Weevil ³)
		3	3.7		Soft Scales
		4	5.0		Thrips (suppression) ⁴
		5	6.3		Whiteflies
		6	7.7		White Grub larvae (such as Japanese Beetle, Masked Chafer, European Chafer, Oriental Beetle, Asiatic Garden Beetle)
		7	9.1		
		8	10.0		
		9	11.1		
		10	12.5		
		11	14.3		
		12	16.7		
1 Fungus Gnat larvae in the soil will be controlled by drench or incorporation; Hawk-I N/O 2L does not control adult Fungus Gnats. Other foliar insect control is achieved translocating the active ingredient up into the plant via the root system.					
2 To control root mealybug, a thorough drenching of the containerized media is necessary. Use a rate of 1.7 fl. oz. (50 mL) in 150 gallons of water and be sure to obtain complete coverage while minimizing the amount of leachate.					
3 For control of citrus root weevil on non-bearing citrus nursery stock ONLY.					
4 Thrips on foliage only are suppressed, not in buds and flowers.					
5 For use on vegetable plants intended for resale only including: Broccoli, Chinese Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Cabbage, Cauliflower, Collards, Eggplant, Ground Cherry, Kale, Kohlrabi, Lettuce, Mustard Greens, Pepinos, Peppers, Potatoes, Rape Greens, Sorghum, Sugarbeets, Tomatillo and Tomato.					

STORAGE AND DISPOSAL

Do not contaminate water, food, or feed by storage or disposal.

PESTICIDE STORAGE: Store in cool, dry place and in such a manner as to prevent cross contamination with other pesticides, fertilizers, food and feed. Store in original container and out of the reach of children, preferably in a locked storage area.

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). Then 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.

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