



U.S. ENVIRONMENTAL PROTECTION AGENCY

Office of Pesticide Programs  
Registration Division (7505T)  
1200 Pennsylvania Ave., N.W.  
Washington, D.C. 20460-0001

EPA Reg. Number:

74530-101

Date of Issuance:

1/26/23

NOTICE OF PESTICIDE:

Registration  
 Reregistration  
(under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

HAI-D

Name and Address of Registrant (include ZIP Code):

Matthew Granahan  
U.S. Regulatory Leader  
HELM Agro US, Inc.  
4105 East Jackson Street, Suite 1400  
Tampa, FL 33602

**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 under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

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 unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you:

1. Submit and/or cite all data required for registration/reregistration/registration review 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:
  - Revise the EPA Registration Number to read, "EPA Reg. No. 74530-101."

*Continues page 2*

Signature of Approving Official:

Tamica L. Cain, Product Manager 10  
Invertebrate-Vertebrate Branch 2  
Registration Division (7505T)

Date:

1/26/23

3. Submit one copy of the final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Compliance.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records.

The record for this product currently contains the following CSFs:

- Basic CSF dated 3/8/22
- Alternate CSF 1 dated 3/22/22
- Alternate CSF 2 dated 3/22/22

If you have any questions, please contact Mr. Carmen J. Rodia, Jr. via e-mail at [Rodia.Carmen@epa.gov](mailto:Rodia.Carmen@epa.gov).

*Enclosures: Stamped "Accepted" Master Label, dated 1/26/23  
Acute Toxicity Review, dated 1/13/23  
Product Chemistry Review, dated 7/8/22*



**RESTRICTED USE PESTICIDE**  
**DUE TO TOXICITY TO AQUATIC INVERTEBRATE ANIMALS.**  
 For retail sale to and use only by Certified Applicators, or persons under their direct supervision, and only for those uses covered by the Certified Applicator's certification.

**DIFLUBENZURON    GROUP    15    INSECTICIDE**

# HAI-D

## Insect Growth Regulator

For use on alfalfa (grown for seed purposes only); barley; carrot (not grown for seed); citrus crop group 10-10[\*]; cottonseed, subgroup 20C; leafy brassica, subgroup 5B (including turnip greens); oats; peach, subgroup 12-12B; plum, subgroup 12-12C; peanuts; pears; peppers/eggplant, subgroup 8-10B; rice; soybeans; tree nuts, crop group 14-12; triticale; wheat; non-crop uses (grassland, livestock / poultry premises and non-crop areas); and turfgrass (for use on sod farms only).

[\*In California – only approved for use on orange, grapefruit, tangerine, pummelo and their hybrids.]

**Active Ingredient:**

Diflubenzuron  
 N-[[[(4-Chlorophenyl)amino]carbonyl]-2,6-difluorobenzamide\* ..... 22%

**Other Ingredients:** ..... 78%

**TOTAL** ..... 100%

\*Contains 2 lbs. diflubenzuron per gallon.

**KEEP OUT OF REACH OF CHILDREN**  
**CAUTION**

Si usted no entiende la etiqueta, busque a alguien para que se la explique a usted detalle.  
 (If you do not understand the label, find someone to explain it to you in detail.)  
**SEE [BACK PANEL] [NEXT PAGE] [INSIDE LABEL] [INSIDE BOOKLET] [BELOW] FOR ADDITIONAL PRECAUTIONARY STATEMENTS [STORAGE AND DISPOSAL] [AND] [DIRECTIONS FOR USE]**

**FIRST AID**

<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>
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**HOT LINE NUMBER**

Have the product container or label with you when calling a poison control center or doctor or going for treatment. For additional information on this pesticide product (including health concerns, medical emergencies or pesticide incidents), you may call CHEMTREC at 1-800-424-9300, 24 hours per day, 7 days per week.

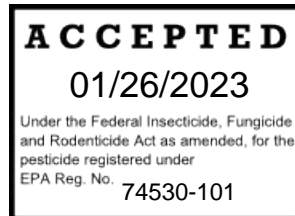
EPA Reg. No. 74530-RNR

EPA Est No. \_\_\_\_\_

NET [WEIGHT] [CONTENTS] \_\_\_\_\_ LBS. ( \_\_\_\_\_ Kg)

[Designation as "NONREFILLABLE" or "REFILLABLE" for containers > 50 Lbs.]

**Manufactured for:**  
 HELM Agro US, Inc.  
 401 E. Jackson St., Suite 1400  
 Tampa, FL 33602



## **PRECAUTIONARY STATEMENTS**

### **HAZARDS TO HUMANS AND DOMESTIC ANIMALS**

**CAUTION:** Harmful if absorbed through skin. Avoid contact with skin, eyes or clothing. Wash hands thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

### **PERSONAL PROTECTIVE EQUIPMENT**

Some materials that are chemical-resistant to this product are listed below.

#### **Applicators and Other Handlers Must Wear:**

- Long-sleeved shirt & long pants;
- Shoes plus socks;
- Chemical-resistant gloves, made of barrier laminate, butyl rubber ≥14 mils , nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, natural rubber ≥14 mils, polyethylene, polyvinyl chloride (PVC) ≥14 mils or Viton ≥14 mils, when mixing and loading and also when using hand-held equipment.

#### **Mixers and Loaders Using Fixed-Wing Aircraft Must Wear:**

- Long-sleeved shirt & long pants;
- Shoes plus socks;
- Chemical-resistant gloves, made of barrier laminate, butyl rubber ≥14 mils , nitrile rubber ≥14 mils, neoprene rubber ≥14 mils, natural rubber ≥14 mils, polyethylene, polyvinyl chloride (PVC) ≥14 mils or Viton ≥14 mils, when mixing and loading and also when using hand-held equipment.
- a minimum of a NIOSH-approved particulate filtering facepiece respirator with any R or P filter;  
OR  
a NIOSH-approved elastomeric particulate respirator with any R or P filter;  
OR  
a NIOSH-approved powered air purifying respirator with HE filters.

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

When handlers use closed systems (including water soluble bags), 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/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**

This pesticide is toxic to terrestrial juvenile insects and aquatic invertebrates/mollusks/insects. DO NOT apply directly to water or to areas where surface water is present or to intertidal areas below the mean high water mark. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas. DO NOT contaminate water when disposing of equipment washwaters or rinsate.

This product may contaminate water through spray drift or runoff. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product. A level, well-maintained vegetative buffer strip between areas to which this product is applied and surface water features such as ponds, streams, and springs will

reduce the potential for contamination or water from rainfall-runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

**Pollinator Advisory:** Because of its mode of action as an insect growth regulator, and since it is not systemic, HAI-D has no direct effect on fully developed adult stages, such as bees and other beneficial pollinators. However, in order to minimize the possibility of transient effects on honeybee brood development, DO NOT use HAI-D on blooming crops when bees are actively foraging. Additionally, minimize drift of this product on to beehives or to off-site pollinator attractive habitat.

### **PHYSICAL OR CHEMICAL HAZARDS**

DO NOT mix or allow this product to come in contact with oxidizing agents including such as potassium permanganate. Hazardous chemical reaction may occur.

### **DIRECTIONS FOR USE**

#### **Restricted Use Pesticide**

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

#### **USE RESTRICTIONS:**

- Apply this product only as specified the EPA approved label 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.
- DO NOT apply this product to bodies of water where swimming is likely to occur.
- DO NOT apply through irrigation systems (chemigation) in the state of California.
- DO NOT connect any 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.
- For any requirements specific to your State or Tribe, consult the agency responsible for pesticide regulation.

#### **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.

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 over long-sleeved shirt and long pants;
- Chemical-resistant gloves, made of barrier laminate, butyl rubber  $\geq 14$  mils, nitrile rubber  $\geq 14$  mils, neoprene rubber  $\geq 14$  mils, natural rubber  $\geq 14$  mils, polyethylene, polyvinyl chloride (PVC)  $\geq 14$  mils or Viton  $\geq 14$  mils; and
- Shoes plus socks.

## **INSTRUCTIONS AND INFORMATION SPRAY DRIFT MANAGEMENT**

**RUNOFF:** This product may contaminate water through spray drift or runoff. This product has a potential for runoff for several months or more after application. Poorly draining soils and soils with shallow water tables are more prone to produce runoff that contains this product.

The following practices will decrease the likelihood of runoff:

A level, well maintained vegetative buffer strip between areas to which this product is applied and surface water (i.e., ponds, streams, and springs) will reduce the potential for contamination of water from rainfall runoff. Runoff of this product will be reduced by avoiding applications when rainfall is forecasted to occur within 48 hours. Sound erosion control practices will reduce this product's contribution to surface water contamination.

### **MANDATORY SPRAY DRIFT**

#### **Aerial Applications\*:**

- Do not release spray at a height greater than 10 ft above the ground or vegetative canopy, unless a greater application height is necessary for pilot safety.
- Applicators are required to use a fine or coarser droplet size (ASABE S572.1).
- Applicators must use ½ swath displacement upwind at the downwind edge of the field.
- Do not apply when wind speeds exceed 15 mph at the application site. If the wind speed is greater than 10 mph, the boom length must be 65% or less of the wingspan for fixed-wing aircraft and 75% or less of the rotor diameter for helicopters. Otherwise, the boom length must be 75% or less of the wingspan for fixed-wing aircraft and 90% or less of the rotor diameter for helicopters.
- Do not apply during temperature inversions.

#### **Airblast Applications\*:**

- Sprays must be directed into the canopy.
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- User must turn off outward pointing nozzles at row ends and when spraying outer rows.
- Do not apply during temperature inversions.

#### **Ground Boom Applications\*:**

- User must only apply with the release height recommended by the manufacturer, but no more than 3 feet above the ground or crop canopy.
- Applicators are required to use a fine or coarser droplet size (ASABE S572.1).
- Do not apply when wind speeds exceed 15 miles per hour at the application site.
- Do not apply during temperature inversions.

\*EPA is exempting USDA's Gypsy Moth Program and the Rangeland Grasshoppers and Mormon Cricket Suppression Programs from this mandatory spray drift management requirement.

### **SPRAY DRIFT ADVISORIES**

THE APPLICATOR IS RESPONSIBLE FOR AVOIDING OFF-SITE SPRAY DRIFT. BE AWARE OF NEARBY NON-TARGET SITES AND ENVIRONMENTAL CONDITIONS.

#### **IMPORTANCE OF DROPLET SIZE**

An effective way to reduce spray drift is to apply large droplets. Use the largest droplets that provide target pest control. While applying larger droplets will reduce spray drift, the potential for drift will be greater if applications are made improperly or under unfavorable environmental conditions.

#### **Controlling Droplet Size – Ground Boom**

- Volume - Increasing the spray volume so that larger droplets are produced will reduce spray drift. Use the highest practical spray volume for the application. If a greater spray volume is needed, consider using a nozzle with a higher flow rate.
- Pressure - Use the lowest spray pressure recommended for the nozzle to produce the target spray volume and droplet size.
- Spray Nozzle - Use a spray nozzle that is designed for the intended application. Consider using nozzles designed to reduce drift.

#### **Controlling Droplet Size – Aircraft**

- Adjust Nozzles - Follow nozzle manufacturers' recommendations for setting up nozzles. Generally, to reduce fine droplets, nozzles should be oriented parallel with the airflow in flight.

#### **BOOM HEIGHT - Ground Boom**

For ground equipment, the boom should remain level with the crop and have minimal bounce.

#### **RELEASE HEIGHT - Aircraft**

Higher release heights increase the potential for spray drift.

#### **SHIELDED SPRAYERS**

Shielding the boom or individual nozzles can reduce spray drift. Consider using shielded sprayers. Verify that the shields are not interfering with the uniform deposition of the spray on the target area.

#### **TEMPERATURE AND HUMIDITY**

When making applications in hot and dry conditions, use larger droplets to reduce effects of evaporation.

#### **TEMPERATURE INVERSIONS**

Drift potential is high during a temperature inversion. Temperature inversions are characterized by increasing temperature with altitude and are common on nights with limited cloud cover and light to no wind. The presence of an inversion can be indicated by ground fog or by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing. Avoid applications during temperature inversions.

#### **WIND**

Drift potential generally increases with wind speed. AVOID APPLICATIONS DURING GUSTY WIND CONDITIONS. Applicators need to be familiar with local wind patterns and terrain that could affect spray drift.

#### **HANDHELD TECHNOLOGY APPLICATIONS**

Take precautions to minimize spray drift.

#### **SENSITIVE AREAS**

The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g., residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g., when wind is blowing away from the sensitive areas).

### **PRODUCT INFORMATION**

HAI-D is an insect growth regulator (IGR) which is effective on a number of important insect pests from the Diptera and Lepidoptera families. With HAI-D being an IGR, its mode of action results in a disruption of the normal molting process of insect larvae. The action of HAI-D is slow and several days (up to 5 to 7 days) may elapse before the full effect is seen. HAI-D is an aqueous flowable formulation which is easy to mix and spray.

## PESTICIDE RESISTANCE MANAGEMENT

For resistance-management, HAI-D contains a Group 15 insecticide. Any insect population may contain individuals naturally resistant to HAI-D and other Group 15 insecticides. The resistant individuals may dominate the insect population if this group of insecticides are used repeatedly in the same fields. Appropriate resistance management strategies should be followed.

To delay insecticide resistance, take the following steps:

- Rotate the use of HAI-D or other Group 15 insecticides within a growing season, or among growing seasons, with different groups that control the same pests. Avoid application of more than the maximum labeled rate or the total number of consecutive sprays of HAI-D.
- Use tank mixtures with insecticides from a different group that are equally effective on the target pest when such use is permitted. Do not rely on the same mixture repeatedly for the same pest population. Consider any known cross-resistance issues (for the targeted pests) between the individual components of a mixture. In addition, consider the following recommendations provided by the Insecticide Resistance Action Committee (IRAC):
  - Individual insecticides selected for use in mixtures should be highly effective and be applied at the rates at which they are individually registered for use against the target species.
  - Mixtures with components having the same IRAC mode of action classification are not recommended for insect resistance management.
  - When using mixtures, consider any known cross-resistance issues between the individual components for the targeted pest(s).
  - Mixtures become less effective if resistance is already developing to one or both active ingredients, but they may still provide pest management benefits.
  - The insect resistance management benefits of an insecticide mixture are greatest if the two components have similar periods of residual insecticidal activity. Mixtures of insecticides with unequal periods of residual insecticide activity may offer an insect resistance management benefit only for the period where both insecticides are active.
- Adopt an integrated pest management program for insecticide/acaricides use that includes scouting, uses historical information related to pesticide use, crop rotation, record keeping, and which considers cultural, biological and other chemical control practices.
- Monitor after application for unexpected target pest survival. If the level of survival suggests the presence of resistance, consult with your local university specialist or certified pest control advisor.
  - Contact your local extension specialist or certified crop advisors for any additional pesticide resistance management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance, contact HELM Agro US, Inc. You can also contact your pesticide distributor or university extension specialist to report resistance.

**For Field Crops, Row Crops, Orchard Uses, Grassland and Non-Crop Areas:** DO NOT apply within 25 feet by ground or 150 feet by air of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries. All applications must include a 25 foot vegetative buffer strip within the buffer zone to decrease runoff.

**USE RESTRICTIONS ON ROTATIONAL CROPS:** Unless HA-D is labeled for use on a crop, DO NOT plant food or feed crops in HAI-D treated soils within 1 month following last application.

## APPLICATION INSTRUCTIONS

### USE AND MIXING DIRECTIONS IF USED WITH WATER:

1. Fill tank with half of the required amount of water.
2. Begin agitation.
3. Add required amount of HAI-D.
4. Continue agitation.
5. Add remainder of water.



6. If the use of oil is specified for use on any particular use site, add proper quantity of oil slowly. To avoid formation of an invert emulsion, use at least 2 parts of water for each part of oil.

#### **USE AND MIXING DIRECTIONS IF USED WITHOUT WATER:**

Always evaluate any potential mixture for compatibility and sprayability. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture. Thoroughly mix HAI-D with tank mix partners in a nurse tank prior to being transferred to aerial or ground ULV application equipment. If nurse tank is not available, or unable to simultaneously mix:

1. Fill tank with the required amount of oil and/or oil based insecticide.
2. Begin agitation.
3. Add required amount of HAI-D.
4. After the contents of the tank have been thoroughly agitated, drain a volume of carrier sufficient to fill the booms and piping system and add back to the tank.

Compatibility – when combining HAI-D with other pesticides, additives or adjuvants, test for compatibility and sprayability. In a lidded glass jar (~1 quart size), add all mix partners, in their relative proportions. Invert, shake or mix the jar thoroughly. Observe mixture for approximately 30 minutes (though signs of incompatibility will often be seen within 5 minutes).

Read and follow the label of each tank mix HAI-D used for precautionary statements, directions for use, rates and timings, and other restrictions. It is the pesticide user's responsibility to ensure that all products are registered for the intended use. Read and follow the applicable restrictions and limitations and directions for use on all product labels involved in tank mixing. Users must follow the most restrictive directions for use and precautionary statements of each product in the tank mixture.

**Aerial or ground application:** Apply spray with aerial or ground equipment designed to insure full uniform coverage of the entire plant. Adjust equipment to provide droplets with a diameter of 150 to 220 microns. Provide continuous agitation prior to, during, and after blending and while applying.

#### **APPLICATION THROUGH IRRIGATION SYSTEMS – CHEMIGATION [\*]**

[\*DO NOT APPLY VIA CHEMIGATION IN THE STATE OF CALIFORNIA]

HAI-D may be applied through chemigation systems for insect control in grassland and row crops. Apply HAI-D only through sprinkler (including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move) irrigation systems. DO NOT apply this product through any other type of irrigation system.

Non-uniform distribution of treated water may result in crop injury, lack of effectiveness, or illegal pesticide residues in the crop.

In order to calibrate the irrigation system and injector to apply the mixture, determine the following:

- 1) Calculate the number of acres irrigated by the system
- 2) Set the irrigation rate and determine the number of minutes for the system to cover the intended treatment area.
- 3) Calculate the total gallons of the mixture needed to cover the desired acreage.
- 4) Divide the total gallons of mixture needed by the number of minutes to cover the treated area. This value equals the gallons per minute that the injector must deliver. Convert the gallons per minute to ounces per minute.
- 5) Calibrate the injector pump with the system in operation at the desired irrigation rate. Calibrate the injector pump at least twice before operation, and monitor the system during operation.

If you have questions about calibration, contact State Extension Service specialists, equipment manufacturers, or other experts.

DO NOT connect any 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.

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.

### **CHEMIGATION SYSTEMS CONNECTED TO PUBLIC WATER SYSTEMS**

If the chemigation system is connected to a public water supply, the following conditions must also be met:

- 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, backflow preventer (RPZ) or the functional equivalent in the water supply line upstream from a 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 flow 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.
- 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.
- The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection.
- Upon completion of insecticide application, remove scale, pesticide residues, and other foreign matter from the supply tank and entire injector system. Flush thoroughly with clean water.
- DO NOT apply when wind speed favors drift beyond the area intended for treatment

### **SPRINKLER CHEMIGATION**

For continuously moving systems, mixtures containing HAI-D must be injected continuously and uniformly into the irrigation water line as the sprinkler is moving. When using continuously moving irrigation equipment, apply in no more than 0.25 inch of water. For sprinkler systems that DO NOT move during operation, apply in no more than 0.25 inch of irrigation immediately before the end of the irrigation cycle.

Always maintain continuous agitation of the pesticide supply tank for the duration of the application period.

To apply a pesticide using sprinkler chemigation, the chemigation system must meet the following specifications:

- 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.
- DO NOT apply when wind speed favors drift beyond the area intended for treatment.

## Field Crops

<b>ALFALFA GROWN FOR SEED PURPOSES ONLY [*], [**] For Use West of the Mississippi River</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
Grasshopper Mormon cricket	2 (0.031)	Applications may be made any time after eggs begin to hatch. For optimum results, applications should be made when the majority of nymphs have reached the 2 <sup>nd</sup> and 4 <sup>th</sup> instar stage of growth. If seed crops are actively growing, make repeat applications every 10 to 14 days for more complete coverage of new foliage during the period of rapid vegetative growth. HAI-D remains active on the foliage and will continue to control grasshoppers that hatch later in the season.  HAI-D does not control adult grasshoppers. If a large number of adults are present in the infestation, tank mix with a knockdown insecticide to control the adults.
<b>Application:</b> Ground – 2 to 15 GPA; Aerial – 2 to 5 GPA Use adequate spray volume to assure adequate coverage. Include 1 pt. per acre of emulsified vegetable or paraffinic crop oil to aid in canopy penetration and minimize water evaporation.		
<b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 3 to 10 days following application.		
<b>USE RESTRICTIONS FOR ALFALFA:</b> <ul style="list-style-type: none"> <li>• DO NOT apply more than 3 applications per calendar year.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 6 fl. ozs. of HAI-D (0.09375 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• DO NOT apply more than the maximum single application rate of 2 fl. ozs. (0.031 lb. of a.i.) per acre per cutting.</li> <li>• <b>Preharvest Interval (PHI):</b> Allow at least 1 day after treatment before cutting forage or hay. Allow at least 1 day after the final treatment before harvest of alfalfa seed.</li> </ul>		
[*Not registered for use in California]		
[**Not registered for use in New York]		

<b>BARLEY, OATS, TRITICALE, WHEAT</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Grasshopper</b>	1 to 2 (0.016 to 0.031)	For optimum results against immature grasshoppers apply when the majority have reached the 2 <sup>nd</sup> to 3 <sup>rd</sup> nymphal stage of development. If a large number of adults are present in the infestation or if a heavy migration from nearby fields is anticipated, tank mix with a knockdown insecticide to control the infestation to minimize foliar feeding. HAI-D does not control adult grasshoppers.
<b>Cereal leaf beetle</b>	4 (0.0625)	For optimum results, make application at first sign of egg laying. DO NOT apply HAI-D if late instar larvae make up the majority of the infestation.
<b>Application:</b> Ground - 5 to 15 GPA; Aerial – 2 to 5 GPA Use adequate spray volume to assure adequate coverage.		

**NOTE:** Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.

**USE RESTRICTIONS FOR BARLEY, OATS, TRITICALE & WHEAT:**

- **Pre-harvest Interval:** DO NOT harvest grain and straw within 50 days of application. DO NOT harvest forage within 3 days of application. DO NOT harvest hay within 15 days of application.
- DO NOT apply more than 1 application per calendar year.
- DO NOT apply more than the maximum seasonal application rate of 4 fl. ozs. of HAI-D (0.0625 lb. of diflubenzuron a.i.) per acre per calendar year.
- DO NOT apply after boot stage of growth.
- For use in the following states only: AK, CO, ID, MT, NV, OR, UT, WA, WY, western ND & SD and western NE (West of Route 281 in ND, SD & NE).

**COTTONSEED SUBGROUP 20C**  
**Cultivar, varieties and/or hybrids of these**

PEST	Application Rate Fl. Ozs./A (lbs. a.i./A)	COMMENTS
<b>Beet armyworm –</b> Early season before first bloom	2 to 4 (0.031 to 0.0625)	Apply HAI-D at the first sign of beet armyworm activity (2 egg masses or hatch outs/100 feet of row) in multiple applications, as a directed spray or a broadcast spray. Repeat applications at 5 to 7 day interval until 8 fl. ozs. per acre has been applied. Multiple applications of HAI-D will provide acceptable beet armyworm control with little activity on beneficial insects (parasites and predators) and with good persistence. These applications will help prevent populations of beet armyworm from building up later in the growing season. Using HAI-D in this way allows for more complete coverage of new foliage during the period of rapid vegetative growth.
<b>Beet armyworm –</b> Mid season	4 to 8 (0.0625 to 0.125)	Start applications around first bloom and through mid-bloom. Repeat applications until 8 fl. ozs. per acre has been applied at 5 to 7 day interval between applications. Use higher application rate on larger cotton and/or under conditions of high larval pressure. Apply first application when peak beet armyworm moth catches are observed in pheromone traps, indicating another generation of larvae is expected. HAI-D is more effective on early stages of larval development, therefore treat cotton before populations become established.
<b>Beet armyworm –</b> Late season	6 to 8 (0.09375 to 0.125)	Apply starting after mid-bloom but 14 days before harvest. Use higher application rate on larger cotton and/or under conditions of high larval pressure. Apply when beet armyworm moth catches in pheromone traps peak. If larval pressure continues, additional applications may be needed.
<b>Fall armyworm</b> <b>Yellow striped armyworm</b> <b>Southern armyworm</b> <b>Soybean looper *</b> <b>Cabbage looper *</b> <b>Saltmarsh caterpillar *</b> <b>*suppression</b>	4 to 8 (0.0625 to 0.125)	Apply during early stages of larval development. Repeat applications until at least 8 fl. ozs. per acre have been applied using a 5 to 7-day interval.

<b>Boll Weevil</b> Early season (before first bloom)	4 to 8 (0.0625 to 0.125)	<p>HAI-D controls boll weevil by suppressing reproduction. Apply HAI-D with 2 to 4 qts. of emulsified cottonseed oil, vegetable oil, or paraffinic crop oil. A compatibility agent may be needed if a non-emulsified cotton-seed oil is used.</p> <p>Consult your supplier or Helm Agro representative for oil specifications. For optimum suppression of boll weevil reproduction, begin applications at pinhead square stage of cotton growth as overwintering boll weevils start entering cotton fields. Repeat applications at a minimum of 7 days between applications. HAI-D will not kill adult boll weevil, however, eggs deposited by affected female weevils will not hatch, thus limiting reproduction. The control of egg hatch and larval development within the square decreases shedding and will allow normal boll development. After initial treatment of the female weevil, 7 to 10 days are required before non-hatching eggs are laid. Once affected, non-hatching eggs will be laid for approximately 10 days, and longer if the female encounters more HAI-D. Treat early and use multiple applications.</p>
<b>Boll Weevil</b> Late season (weevils entering diapause)	2 to 4 (0.031 to 0.0625)	<p>HAI-D will reduce the number of weevils that emerge the following spring if applications are made when adult weevils are entering diapause to overwinter. Apply when cotton plants reach full vegetative growth or when it starts blooming out the top. Use LV applications in combination with 2 to 4 qts. of an emulsifiable vegetable or paraffinic oil per acre. A compatibility agent may be needed if a non-emulsified cottonseed oil is used. Apply at least 2, but no more than 3, applications at 7 to 14 day intervals.</p>
<b>Grasshopper</b>	2 (0.031)	<p>For optimum results against immature grasshoppers apply when the majority have reached the 2<sup>nd</sup> to 3<sup>rd</sup> nymphal stage of development. If a large number of adults are present in the infestation or if a heavy migration from nearby fields is anticipated, tank mix with a knockdown insecticide to control the infestation to minimize foliar feeding. HAI-D does not control adult grasshoppers.</p>
<p><b>Tankmixes:</b> HAI-D may be mixed with other insecticides being applied for other cotton insects. When emulsifiable concentrate insecticide formulations are used with oil and HAI-D in tank mixes, they may result in phytotoxicity. Care must be taken where such mixture is used.</p>		
<p><b>Adjuvant usage:</b> Under conditions of rapid water evaporation (i.e., high air temperature and/or low humidity) use oil (1 to 2 qt. per acre) with HAI-D. For ground or aerial LV application, use 1 pt. to 2 qt. per acre of emulsified vegetable or paraffinic crop oil. This will enhance canopy penetration reduce spray droplet evaporation and subsequent drift. A compatibility agent may be needed if non-emulsified cottonseed oil is used. Consult your supplier or Helm Agro representative for oil specifications. Use sufficient application volume to assure adequate coverage.</p>		
<p><b>Application:</b> Ground - 10 to 20 GPA; Aerial – 3 to 5 GPA; Use adequate spray volume to assure adequate coverage.</p>		
<p><b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.</p>		
<p><b>USE RESTRICTIONS FOR COTTONSEED SUBGROUP 20C:</b></p> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 14 days of application.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 24 fl. ozs. of HAI-D (0.375 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• DO NOT apply more than 6 applications per calendar year.</li> <li>• DO NOT apply more than 3 applications or 12 fl. ozs. of HAI-D (0.188 lb. of diflubenzuron a.i.) per acre per calendar year post boll opening.</li> </ul>		

<b>PEANUTS[**]</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Grasshopper</b>	2 (0.031)	For optimum results against immature grasshoppers apply when the majority have reached the 2 <sup>nd</sup> to 3 <sup>rd</sup> nymphal stage of development. Reapply at 7 day intervals if re-infestation of the crop continues. Use the higher when infestations are heavy, there is dense foliage, or if greater residual control is desired.  If a large number of adults are present in the infestation or if a heavy migration from nearby fields is anticipated, tank mix with a knockdown insecticide to control the infestation to minimize foliar feeding.  HAI-D does not control adult grasshoppers.
<b>Velvet bean caterpillar</b>  <b>Mexican bean beetle</b>  <b>Green cloverworm</b>	2 to 4 (0.031 to 0.0625)	Apply HAI-D when larvae are small (<0.5 inches) to optimize control while minimizing insect damage to leaves. Repeat applications as necessary to maintain control but not before the minimum reapplication interval of 14 days. Use the higher when infestations are heavy, there is dense foliage, or if greater residual control is desired.
<b>Armyworms such as:</b> <b>Beet armyworm</b>  <b>Fall armyworm</b>  <b>Southern armyworm</b>  <b>Yellow-striped armyworm</b>  <b>Lesser cornstalk borer</b>  <b>Soybean looper (suppression)</b>	4 to 8 (0.0625 to 0.125)	Apply HAI-D when larvae are small (< 0.5 inches) to optimize control while minimizing insect damage to leaves. Repeat applications as necessary to maintain control but not before the minimum reapplication interval of 14 days. Use the higher when infestations are heavy, there is dense foliage, or if greater residual control is desired.
<b>Adjuvant usage:</b> Under conditions of rapid water evaporation (i.e., high air temperature and/or low humidity) use oil (1 to 2 qts. per acre) with HAI-D. For ground or aerial LV application, use 1 pt. to 2 qts. per acre of emulsified vegetable or paraffinic crop oil. This will enhance canopy penetration reduce spray droplet evaporation and subsequent drift. A compatibility agent may be needed if non-emulsified cottonseed oil is used. Consult your supplier or Helm Agro representative for oil specifications. Use sufficient application volume to assure adequate coverage.		
<b>Application:</b> Ground - 9 to 35 GPA; Aerial – 3 to 5 GPA Use adequate spray volume to assure adequate coverage.		
<b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application. HAI-D is an insect growth regulator - thus larvae/nymphs must ingest treated plant material and then molt before populations are reduced.		
<b>USE RESTRICTIONS FOR PEANUTS:</b> <ul style="list-style-type: none"> <li>• Pre-harvest interval: DO NOT harvest within 28 days of application.</li> <li>• DO NOT apply more than 3 applications per calendar year.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 24 fl. ozs. of HAI-D (0.375 lb. of diflubenzuron a.i.) per acre per calendar year.</li> </ul> <b>[**Not registered for use in New York]</b>		

<b>RICE[*]</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Rice water weevil</b> (Southern U.S. Rice Belt) -for drill seeded; dry seeded; or water seeded, delayed flood rice	12 to 16 (0.188 to 0.25)	<b>Southern U.S. - Single Application</b> Apply a single application of HAI-D per acre per calendar year to control larvae when adult infestations reach economic threshold and/or at initial oviposition, usually within 2 to 5 days after permanent flood establishment. Use the higher listed application rate if adult weevil infestations are high or if migration into rice fields is prolonged.
<b>Rice water weevil</b> (Southern U.S. Rice Belt) water seeded, pinpoint flood, or continuous flood rice	8 + 8* (0.125 + 0.125)  *Use 8 fl. ozs. plus another 8 fl. ozs., a total of 2 applications.	<b>Southern U.S. - Split Application</b> Split applications can effectively control larvae. Apply the first application of 8 fl. ozs. per acre of HAI-D after the permanent flood when adult infestations reach economic threshold and/or at initial oviposition. This usually occurs when rice leaves are exposed above the water surface. A 2 <sup>nd</sup> application of 8 fl. ozs. per acre must be made 5 to 7 days after the 1 <sup>st</sup> application. Failure to make the second application within this timeframe may result in inadequate control of rice water weevil larvae.
<b>Rice water weevil</b> (California)	8 to 16 (0.125 to 0.25)	<b>California</b> To control larvae, apply HAI-D one time per calendar year at the initiation of adult oviposition – usually 2 to 8 days after rice emerges above the water. Target the application for 2 to 5 days after rice emergence above the water (2 to 4 leaf stage). Use 12 to 16 fl. ozs. of HAI-D if infestations have been historically high.
HAI-D does not control adult weevils. It controls rice water weevil by preventing larval emergence from the egg. Eggs laid under the surface of treated water are controlled. Additionally, adults feeding on treated plant surfaces, DO NOT lay viable eggs.		
<p><b>Application:</b> Aerial – at least 5 GPA Use adequate spray volume to assure adequate coverage.</p> <p><b>Application precautions:</b></p> <ol style="list-style-type: none"> <li>(1) Consult your local extension service for determination of economic threshold and/or determination of oviposition.</li> <li>(2) DO NOT apply HAI-D if flooding is in progress as activity will be reduced.</li> <li>(3) HAI-D is water active so the entire field must be treated.</li> <li>(4) DO NOT disturb a flooded field after a single application for at least 7 days.</li> <li>(4) With split applications in water seeded, pinpoint or continuous flood rice, DO NOT disturb the flood for a minimum of 4 days following the 1st treatment and 7 days following the 2nd application.</li> <li>(5) Hold treated water at least 14 days to allow dissipation of HAI-D.</li> </ol> <p>HAI-D can be safely applied in combination with post permanent flood herbicides such as FACET®, GRANDSTAND®, and LONDAX®. Before using such a tank-mix combination, read each product label carefully and follow Precautionary Statements on each label.</p> <p>®Facet is a registered trademark of BASF AG          ®Grandstand is a registered trademark of Dow AgroSciences          ®Londax is a registered trademark of E.I. DuPont de Nemours and Company</p>		
<p><b>USE RESTRICTIONS FOR RICE:</b></p> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 80 days of application.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 16 fl. ozs. of HAI-D (0.375 lb. of diflubenuron a.i.) per acre per calendar year.</li> <li>• DO NOT use on rice fields in which crayfish (crawfish) farming is included in the cultural practice.</li> <li>• DO NOT drain treated water into fields where crayfish farming is intended.</li> <li>• DO NOT apply to rice immediately adjacent to sites of crayfish aquaculture.</li> <li>• DO NOT use treated rice flood waters for irrigated crops except for crops on this label.</li> <li>• DO NOT impregnate on granular materials.</li> <li>• DO NOT use on wild rice (<i>Zizania</i> spp.).</li> </ul> <p><b>[*Not registered for use in California]</b></p>		

<b>SOYBEANS [*]</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Grasshopper</b>	2 (0.031)	<p>For optimum results against immature grasshoppers apply when the majority have reached the 2<sup>nd</sup> to 3<sup>rd</sup> nymphal stage of development. Reapply at 7 day intervals if re-infestation of the crop continues. Use the higher when infestations are heavy, there is dense foliage, or if greater residual control is desired.</p> <p>If a large number of adults are present in the infestation or if a heavy migration from nearby fields is anticipated, tank mix with a knockdown insecticide to control the infestation to minimize foliar feeding.</p> <p>HAI-D does not control adult grasshoppers.</p>
<b>Velvet bean caterpillar</b>  <b>Mexican bean beetle</b>  <b>Green clover-worm</b>	2 to 4 (0.031 to 0.0625)	Apply HAI-D when larvae are small (<0.5 inches) to provide greater control. Repeat application if damaging numbers reappear but no sooner than the minimum reapplication interval of 30 days. HAI-D may be applied at the lower listed rate to prevent velvet bean caterpillar build-up when the vegetative growth of soybeans is completed and as pod formation begins. Consult local Extension Service regarding infestation levels requiring treatment.
<b>Beet armyworm</b>  <b>Fall armyworm</b>  <b>Soybean looper (suppression)</b>	4 (0.0625)	Application must be made when worms are small (2 <sup>nd</sup> instar or earlier) before populations build.
<p><b>Adjuvant usage:</b> Under conditions of rapid water evaporation (i.e., high air temperature and/or low humidity) use oil (1 to 2 qts. per acre) with HAI-D. For ground or aerial LV application, use 1 pt. to 2 qts. per acre of emulsified vegetable or paraffinic crop oil. This will enhance canopy penetration reduce spray droplet evaporation and subsequent drift. A compatibility agent may be needed if non-emulsified cottonseed oil is used. Consult your supplier or Helm Agro representative for oil specifications. Use sufficient application volume to assure adequate coverage.</p>		
<p><b>Application:</b> Ground - 9 to 35 GPA; Aerial – 3 to 5 GPA. Use adequate spray volume to assure adequate coverage.</p>		
<p><b>Note:</b> HAI-D is an insect growth regulator - thus larvae/nymphs must feed on it and then molt before populations are reduced. Thus initial signs of control may not be seen until several days after treatment.</p>		
<p><b>Soybean Yield Enhancement:</b> Under certain growing conditions, and in the absence of significant insect pressure, an increase in soybean seed yield has been demonstrated with HAI-D under field conditions on determinate and indeterminate cultivars. Application of 2 to 4 fl. ozs. per acre to high yield potential soybeans plants at the R3 to R3.5 growth stage period has been more consistent in increasing yields than applications at other reproductive stages of the soybean plant. This reproductive timing represents, beginning pod growth (pod 3/16 inch long at one of the uppermost nodes on the main stem with a fully developed leaf) to just prior to full pod elongation (pod 3/4 inch long at one of the 4 uppermost nodes on the main stem with a fully developed leaf).</p>		
<p><b>USE RESTRICTIONS FOR SOYBEANS:</b></p> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 21 days of application.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 8 fl. ozs. of HAI-D (0.125 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• DO NOT apply more than 2 applications per calendar year.</li> </ul> <p><b>[*Not registered for use in California]</b></p>		



<b>TURFGRASS (FOR USE IN SOD FARMS ONLY) [**]</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Lepidopteran foliage feeding caterpillars such as:</b> <b>Sod webworm</b>  <b>Armyworms Including Fall, True, Southern, Beet, Yellow-striped</b>  <b>Striped Grass Looper</b>  <b>Granulate cutworm</b>	2 (0.031)	Apply HAI-D at first sign of egg hatch and prior to larvae reaching 4 <sup>th</sup> instars (>1/2 inch). HAI-D must be ingested and larvae must molt before populations are reduced.  Repeat applications at 14 day intervals or as needed to protect new foliage growth.
<b>Application:</b> Ground - 20 to 50 GPA Use adequate spray volume to assure adequate coverage.		
<b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.		
<b>USE RESTRICTIONS FOR TURFGRASS (FOR USE IN SOD FARMS ONLY):</b> <ul style="list-style-type: none"> <li>• Allow at least 1 day after treatment before cutting turf.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 8 fl. ozs. of HAI-D (0.125 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• DO NOT apply more than a total of 4 applications per calendar year.</li> </ul> <b>[**Not registered for use in New York]</b>		

## Vegetable Crops

<b>CARROTS (NOT GROWN FOR SEED) [*], [**]</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Carrot weevil*</b>	8 (0.125)	Apply at initial sign of larval infestation.
<b>Application:</b> Ground – 20 to 50 GPA Use adequate spray volume to assure adequate coverage.		
<b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application. HAI-D is an insect growth regulator - thus larvae must ingest treated plant material and then molt before populations are reduced.		
<b>USE RESTRICTIONS FOR CARROTS (NOT GROWN FOR SEED):</b> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 7 days of application</li> <li>• DO NOT apply this product to carrots grown for seed.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 16 fl. ozs. of HAI-D (0.25 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• DO NOT apply more than 2 applications per calendar year.</li> <li>• Allow a minimum of 7 days between treatments.</li> </ul> <b>[* Not registered for use in California]</b> <b>[**Not registered for use in New York]</b>		

<b>LEAFY BRASSICA – SUBGROUP 5B [**]</b>		
Leafy Brassica group includes Broccoli raab, Cabbage, Chinese (bok choy), Collards, Kale, Mizuna, Mustard greens, Mustard spinach, Rape greens and Turnip greens		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Grasshopper</b>	2 to 4 (0.031 to 0.0625)	For optimum results against immature grasshoppers apply when the majority have reached the 2 <sup>nd</sup> to 3 <sup>rd</sup> nymphal stage of development. Reapply at 7 day intervals if reinfestation of the crop continues. Use the higher rate where there is a history of heavy infestations, dense foliage, or greater residual control is desired. Repeat applications at 7 day intervals or as needed to protect new foliage growth. These additional applications allow for more complete coverage of newly expanding foliage.  If a large number of adults are present in the infestation or if a heavy migration from nearby fields is anticipated, tank mix with a knockdown insecticide to control the infestation to minimize foliar feeding.  HAI-D does not control adult grasshoppers.
<b>Application:</b> Ground – Minimum of 30 GPA Use adequate spray volume to assure adequate coverage.		
<b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application. HAI-D is an insect growth regulator - thus larvae/nymphs must ingest treated plant material and then molt before populations are reduced.		
<b>USE RESTRICTIONS FOR LEAFY BRASSICA - SUBGROUP 5B:</b>		
<ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 7 days of application.</li> <li>• DO NOT use on turnip cultivars or varieties which produce a harvestable root.</li> <li>• DO NOT apply more than 4 applications per calendar year.</li> <li>• DO NOT apply more than the maximum seasonal application rate of 16 fl. ozs. of HAI-D (0.25 lb. of diflubenzuron a.i.) per acre per calendar year.</li> </ul>		
<b>[**Not registered for use in New York]</b>		

<b>PEPPER/EGGPLANT SUBGROUP 8-10B [**]</b>		
Includes African Eggplant, Bell Pepper, Eggplant, Matynia, Nonbell Pepper, Okra, Pea Eggplant, Pepino, Roselle, Scarlet Eggplant – Cultivars, varieties, and/or hybrids of these		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Pepper weevil</b>	4 to 8 (0.0625 to 0.125)	Apply HAI-D at 4 to 8 fl. ozs. per acre starting at initiation of flowering. If the adult infestation is moderate to heavy use the high listed rate. Make additional applications as needed to maintain control but no sooner than a minimum retreatment interval of 7 days. Additional applications allow for more complete coverage of new foliage and expanding fruit. HAI-D will not control adults, but eggs laid by adults will exhibit reduced hatching in fruits once adults have consumed or contacted residues of HAI-D on pepper tissue.
<b>Beet armyworm</b> <b>Fall armyworm</b> <b>Southern armyworm</b> <b>Other foliage feeding Lepidopteran insects</b>	4 to 8 (0.0625 to 0.125)	Apply HAI-D at 4 to 8 fl. ozs. per acre when larvae are small to avoid damage to leaves and/or fruit. Use a higher listed rate if the infestation is heavy and/or HAI-D is being applied alone. If late instar larvae are present, a knockdown tank-mix partner should be used. Additional applications allow for more complete coverage of new foliage and expanding fruit, however DO NOT make applications any sooner than a minimum retreatment interval of 7 days.

<p><b>Adjuvant usage:</b> Under conditions of rapid water evaporation (i.e., high air temperature and/or low humidity) use oil (1 to 2 qts. per acre) with HAI-D. For ground or aerial LV application, use 1 pt. to 2 qts. per acre of emulsified vegetable or paraffinic crop oil. This will enhance canopy penetration reduce spray droplet evaporation and subsequent drift. A compatibility agent may be needed if non-emulsified cottonseed oil is used. Consult your supplier or Helm Agro representative for oil specifications. Use sufficient application volume to assure adequate coverage.</p>
<p><b>Application:</b> Ground – Minimum of 30 GPA; Aerial – 3 to 10 GPA Use adequate spray volume to assure uniform coverage.</p>
<p><b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application. HAI-D is an insect growth regulator – thus larvae/nymphs must ingest treated plant material and then molt before populations are reduced.</p>
<p><b>USE RESTRICTIONS FOR PEPPER/EGGPLANT SUBGROUP 8-10B:</b></p> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT apply within 7 days of harvest.</li> <li>• DO NOT apply more than the maximum application rate of 24 fl. ozs. of HAI-D (0.375 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• DO NOT make more than 5 applications per calendar year at the lower application rate and DO NOT make more than 3 applications per calendar year at the higher application rate.</li> <li>• Allow a minimum of 7 days between applications.</li> </ul> <p><b>[**Not registered for use in New York]</b></p>

## Citrus Crops

<p><b>CITRUS FRUIT GROUP 10-10</b> Australian desert lime, Australian finger-lime, Australian round lime, Brown River finger lime, calamondin, citron, citrus hybrids, grapefruit, Japanese summer grapefruit, kumquat, lemon, lime, Mediterranean mandarin, mount white lime, New Guinea wild lime, orange, sour orange, sweet pummelo, Russell River lime, satsuma mandarin, sweet lime, tachibana orange, Tahiti lime, tangelo, tangerine (mandarin), tangor, trifoliate orange, unique fruit - cultivars, varieties, and/or hybrids of these.</p>		
<p>HAI-D may be applied to citrus any time of the season. However, the greatest impact on the largest number of citrus pests will occur when new flush is present or emerging.</p>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<p><b>Asian Citrus Psyllid</b> (ACP = Diaphorina citri)</p>	<p><b>Single Application</b> 20 (0.31)</p>	<p>Apply HAI-D when early-feather leaf flush is present, or oviposition by Asian citrus psyllid (ACP) is seen or expected, or if leaf distortion is evident.</p>
	<p><b>Split Application</b> 10 + 10 (0.15 + 0.15)</p>	<p>To optimize control, apply split applications of HAI-D to maximize spray coverage of the entire citrus leaf flush. Make first application of 10 fluid ounces per acre when early-feather leaf flush is present, or oviposition by ACP is seen or expected, or if leaf distortion is evident. Make second application of HAI-D at 10 fluid ounces per acre as needed to protect new flushes of growth. DO NOT apply subsequent applications of HAI-D for at least 30 days</p> <p>The activity of HAI-D on ACP is through contact, ingestion and/or absorption. It has activity on eggs and nymphs of ACP. HAI-D prevents eggs from hatching and nymphs from molting when exposed to treated surfaces. Adult female ACP feeding on or in contact with treated surfaces produce fewer hatchable eggs. HAI-D reduces the reproductive potential of existing ACP population. <b>HAI-D does not control adult ACP.</b></p> <p>Low Volume Application: Apply in 3.0 to 5.0 gallons of finished spray solution per acre by ground using air-blast or air-assisted spray equipment. Use spray nozzles that produce a droplet size with a volume median diameter of 90 microns or larger.</p> <p>In California, DO NOT apply in a volume of less than 10 GPA.</p>

		<p>The addition of petroleum spray oil, such as FC435-66, enhances spray coverage and penetration of HAI-D into ACP eggs, nymphs, and adults - improving activity on these life stage.</p>
<p><b>Citrus rust mite</b> (CRM = Phyllocoptruta oleivora)</p>	<p>20 (0.31)</p>	<p>Apply HAI-D when rust mites first appear. HAI-D has activity only on immature stages of CRM, not adults or eggs. HAI-D prevents immature CRM from molting and the full effect of treatment may not be evident for up to 14 days after application. Rotate with a product with a different mode of action before reapplying HAI-D in a CRM control program.</p> <p>The addition of petroleum spray oil, such as FC435-66, enhances spray coverage and penetration of HAI-D into immature CRM - improving activity. Petroleum spray oil will also aid in knocking down CRM populations present at application.</p>
<p><b>Lepidopterous miners:</b> <b>Citrus leafminer</b> (CLM = Phyllocnistis citrella)</p>	<p><b>Single Application</b> 20 (0.31)</p> <p><b>Split Application</b> 10 + 10 (0.15 + 0.15)</p>	<p><b>Citrus leafminer</b> Apply HAI-D when leaf flush has started and the oldest leaf is approximately one quarter expanded, when oviposition is observed or expected or when leaf mining is observed.</p> <p><b>Split Application:</b> Making a split application of HAI-D will maximize spray coverage of the entire citrus leaf flush. Apply first application when leaf flush has started and the oldest leaf is approximately one quarter expanded; when oviposition is observed or expected or when leaf mining is observed. Apply the second application as needed to protect new flushes of growth. DO NOT apply subsequent applications of HAI-D for at least 30 days.</p> <p>HAI-D is active on CLM is through contact, ingestion and/or absorption. It has activity on eggs, larvae and pupae of CLM by preventing eggs from hatching, larvae from molting, and adults from emerging from pupae exposed to treated surfaces. Additionally, it reduces the reproductive potential of an existing CLM population.</p> <p>HAI-D does not control CLM adults.</p> <p>Low Volume Application: Apply in 3.0 to 5.0 gallons of finished spray solution per acre by ground using air-blast or air-assisted spray equipment. Use spray nozzles that produce a droplet size with a volume median diameter of 90 microns or larger.</p> <p>In California, DO NOT apply in a volume of less than 10 GPA.</p> <p>The addition of petroleum spray oil, such as FC435-66, enhances spray coverage and penetration of HAI-D into CLM mines, eggs, larvae, and pupae - improving activity against CLM.</p>
<p><b>Citrus peelminer</b> (CPM = Marmara spp.)</p>	<p><b>Single Application</b> 20 (0.31)</p> <p><b>Split Application</b> 10 + 10 (0.15 + 0.15)</p>	<p>Apply HAI-D when oviposition is expected or begins on citrus peel surface. Peelminer eggs oviposited on protected/treated fruit do not hatch. Fruit protection may last several weeks however since fruit is rapidly expanding, protection from HAI-D will decrease with time.</p> <p>HAI-D does not control Citrus peelminer moths.</p> <p><b>Split Application:</b> Making a split application of HAI-D will maximize spray coverage of the surface of citrus fruit. Apply first application when oviposition first begins or is expected. Apply the second application as needed to protect expanding fruit growth. DO NOT apply subsequent applications of HAI-D for at least 30 days.</p> <p>HAI-D is active on CPM is through absorption into eggs and it prevents eggs from hatching. Fruit protection may last several weeks however since fruit is rapidly expanding, protection from HAI-D will decrease with time.</p>

		The addition of petroleum spray oil, such as FC435-66, enhances spray coverage and penetration of HAI-D into CPM mines, eggs - improving activity on CPM.
<p><b>Citrus root weevil complex (CRW) including:</b></p> <p><b>West Indian sugar cane rootstock borer weevil</b> (Diaprepes abbreviatus)</p> <p><b>Southern blue-green citrus root weevil</b> (Pachnaeus litus)</p> <p><b>Blue-green citrus weevil</b> (P. opalus)</p> <p><b>Fuller rose beetle</b> (Asynonychus godmani)</p> <p><b>Little leaf notcher</b> (Artipus floridanus)</p>	<p><b>Single Application</b> 20 (0.31)</p>	<p>Apply HAI-D to a newly expanded citrus leaf flush when the oldest leaf is approximately one-half expanded, when adult weevils are present or when recent leaf feeding is observed. Addition of a spray oil enhances coverage and penetration of HAI-D into adult citrus root weevils and eggs – improving activity on each life stage. Oil may also reduce weevil egg masses from attaching to citrus leaf surfaces.</p> <p>but it does result in reduction of reproduction potential of citrus root weevils, and prevents eggs from hatching. The grubs from eggs laid on treated leaves are reduced in number.</p> <p>HAI-D will not control adult citrus root weevils. HAI-D is active through contact, ingestion, and/or absorption. It has activity on eggs laid on treated surfaces by preventing them from hatching. Adult female CRW feeding on or in contact with treated surfaces produce fewer hatchable eggs. HAI-D reduces the reproductive potential of citrus root weevil populations.</p>
<p><b>Katydids</b> <b>Grasshoppers</b></p>	<p><b>Single Application</b> 20 (0.31)</p> <p><b>Split Application</b> 10 + 10 (0.15 + 0.15)</p>	<p>Apply HAI-D when katydids or grasshoppers are first observed or recent leaf/ fruit feeding is seen.</p> <p>HAI-D will not control adult katydids or grasshoppers</p> <p><b>Split Application:</b> Making a split application of HAI-D may be useful since it will maximize spray coverage and protection of fruit and leaves from katydid and/or grasshopper damage.</p> <p>Apply first application when katydid and/or grasshoppers are first observed or when recent leaf or fruit feeding is observed. Apply the second application as needed to protect new growth. DO NOT apply subsequent applications of HAI-D for at least 30 days.</p> <p>HAI-D is active on katydid and grasshopper is through contact, ingestion and/or absorption. It has direct activity on eggs and nymphs by preventing eggs from hatching and nymphs from molting. Additionally adult female katydids and grasshoppers that feed on or contact treated surfaces produce fewer hatchable eggs. HAI-D reduces the reproductive potential of an existing katydid and/or grasshopper population.</p> <p>The addition of petroleum spray oil, such as FC435-66, enhances spray coverage and penetration of HAI-D into katydid and grasshopper eggs, nymphs and adults - improving activity on these life stages.</p>
<p><b>Spray Oil:</b> The addition of a petroleum spray oil, such as FC435-66 enhances coverage and may enhance control of most citrus pest listed on this label.</p>		
<p><b>Application:</b> <b>Ground Application:</b> HAI-D may be applied by ground using hand gun, hand-held, air blast or air assisted equipment. DO NOT apply within 25 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries.</p>		

**In the State of Florida**, DO NOT apply within 100 feet of estuarine/marine bodies of water. Apply to the last three rows windward of surface water using nozzles on one side only, directing spray away from surface water. DO NOT spray over tops of trees by adjusting or turning off top nozzles. When spraying outside rows, shut off nozzles on the side away from the grove. When turning at ends of rows and passing tree gaps in rows shut off nozzles.

**Aerial Application:** HAI-D may be applied by air using fixed-wing or rotary equipment. DO NOT apply within 150 feet of bodies of water such as lakes, reservoirs, rivers, permanent streams, natural ponds, marshes or estuaries.

**In the State of Florida**, DO NOT apply within 1000 feet of estuarine/marine bodies of water.

**In the State of California**, only registered for use on orange, grapefruit, tangerine, pummelo and their hybrids.

**Spray Volumes:** Use adequate spray volume for thorough coverage of leaf/fruit surfaces.

Ground = 50 to 1,000 GPA.

Low Volume Application: Except in California, apply in 3.0 to 5.0 gallons of finished spray solution per acre by ground using air-blast or air-assisted spray equipment. Use spray nozzles that produce a droplet size with a volume median diameter of 90 microns or larger.

Aerial = 5 to 20 GPA.

Use spray nozzles that product a droplet size with a volume median diameter of 90 microns or larger (see pest specific sections).

In California, DO NOT apply in a volume of less than 10 GPA.

**NOTE:** Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.

**USE RESTRICTIONS FOR CITRUS FRUIT GROUP 10-10:**

- **Pre-harvest interval:** DO NOT apply within 7 days of harvest.
- Repeat applications no closer than 30 days apart, except where split applications are used. See pest-specific sections above for split application directions.
- DO NOT apply more than the maximum application rate of 60 fl. ozs. of HAI-D (0.93 lb. of diflubenzuron a.i.) per acre per calendar year. May be applied 3 times per calendar year at the maximum application rate (20 fl. ozs./A), as 6 split applications (10 fl. ozs./A) per year or as a combination of full and split applications.
- DO NOT apply more than 3 full rate applications or 6 split applications per calendar year.
- DO NOT graze livestock in treated groves.
- DO NOT harvest cover crops for animal feed.
- **In the State of Florida**, DO NOT apply by ground within 100 feet of estuarine/marine bodies of water. Apply to the last three rows windward of surface water using nozzles on one side only, directing spray away from surface water. DO NOT spray over tops of trees by adjusting or turning off top nozzles. When spraying outside rows, shut off nozzles on the side away from the grove. When turning at ends of rows and passing tree gaps in rows shut off nozzles.
- **In the State of Florida**, DO NOT apply by air within 1,000 feet of estuarine/marine bodies of water.

**PEARS [\*\*]**

PEST	Application Rate Fl. Ozs./A (lbs. a.i./A)	COMMENTS
Pear psylla (pre-bloom)	40 to 48 (0.625 to 0.75)	Apply HAI-D in 80 to 400 gallons of water per acre during the period between delayed dormant up to the popcorn stage period. Complete uniform coverage of the tree is required to achieve insect control. Use a horticultural mineral oil at a rate of 4 to 6 gallons per acre during the delayed dormant period. After this period and through the popcorn stage, apply oil at a concentration of 0.25%, but use no more than 1 gallon per acre. A surfactant may improve coverage. Follow manufacturer's label specifications. Apply HAI-D during egg

		deposition so that it will come in contact with pear psylla eggs and/or 1 <sup>st</sup> and 2 <sup>nd</sup> instar nymphs.
<b>Pear rust mite</b> (pre-bloom)	40 to 48 (0.625 to 0.75)	Apply HAI-D in 80 to 400 gallons of water per acre during the period between delayed dormant up to the popcorn stage.  See Pear psylla pre-bloom section for directions on use with oil.
<b>Pear psylla</b> (post-bloom)	12 to 16 (0.188 to 0.25)	Apply at normal codling moth rates and timings to provide suppression of pear psylla.
<b>Codling moth</b>	12 to 16 (0.188 to 0.25)	<p>Apply HAI-D in a minimum of 80 gallons of water per acre. Use the lower listed rate for light codling moth pressure and/or on small trees. Complete coverage of the fruit and foliage in all areas of the trees is required for insect control. HAI-D prohibits hatch of codling moth eggs so it is important that it be applied prior to egg laying so that eggs are laid on treated plant parts. Apply first application as soon as possible after first moths are caught (biofix) or observed, or approximately 50-75 degree-days after biofix. Application timing can be determined by your local pest control consultant and/or fruit specialist with the aid of pheromone traps. This timing normally occurs at late petal fall or about 10-14 days earlier than the timing used for organophosphate insecticides. Make a second application about 14-18 days after the first. If necessary, a third and fourth application may be made. Time the application prior to egg laying of the 2<sup>nd</sup> generation by using the same method as for the 1<sup>st</sup> generation. If traps are not being used to monitor moth flights, make the 3<sup>rd</sup> application 21-30 days after the second, followed by the 4<sup>th</sup> application 21-30 days later. If a degree-day model is used the 3<sup>rd</sup> spray should be timed at 1,000 degree-days after biofix.</p> <p><b>Tankmixes with Organophosphates for Codling Moth Control</b> HAI-D can be used in tank mixes with an organophosphate insecticide, to save a trip through the orchard and to make timing of the HAI-D sprays easier. The tankmix is more effective than HAI-D alone when controlling moderate to heavy codling moth infestations and/or treating large trees. A tankmix with an organophosphate insecticide will provide residual control of eggs laid after application. Apply HAI-D and the organophosphates at their labeled rates. Apply at the beginning of egg hatch of 1<sup>st</sup> generation codling moth. This is the normal timing for the first organophosphate cover spray (250 degree-days following biofix for 1<sup>st</sup> generation and 1250 degree-days for the 2<sup>nd</sup> generation). Repeat this program for the 2<sup>nd</sup> and 3<sup>rd</sup> generation of codling moth or use HAI-D alone prior to egg laying. DO NOT use oil in tank mix with HAI-D in late season treatments. With light codling moth populations, as indicated by monitoring, this combination may offer control of an entire generation with 1 application. When populations are heavy, this combination will improve control, but it may not control an entire generation with one spray. A second spray of HAI-D alone or in combination may be applied 14-18 days later.</p>
<b>Leafminer</b>	8 to 16 (0.125 to 0.25)	<p>Apply HAI-D in a minimum of 80 gallons of water per acre prior to or during egg oviposition to control eggs and larvae. Consult your local pest control consultant or fruit specialist for information on timing of the 1<sup>st</sup> and 2<sup>nd</sup> leafminer generations. If control of later generations is necessary, apply HAI-D using the same method.</p> <p>Best control will be obtained if HAI-D is in place at the time of egg laying. It continues to give control through the early sap feeding stage. To achieve control of the larvae through the early sap feeding stage, complete coverage of the foliage is essential.</p>

**Oil usage:** HAI-D may be applied with 4 to 6 gallons per acre of horticultural mineral oil during the delayed dormant to popcorn growth stage for control of some pests shown below. Oil may cause injury to certain pear varieties so be sure to check compatibility of oil mixtures with your local tree fruit specialist.

**Application:**  
Use adequate spray volume to assure adequate coverage.

**NOTE:** Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.

**USE RESTRICTIONS FOR PEARS:**

- Pre-harvest Interval: DO NOT harvest within 14 days of application.
- DO NOT apply more than 4 applications per calendar year.
- DO NOT apply more than the maximum application rate of 64 fl. ozs. of HAI-D (1.0 lb. of diflubenzuron a.i.) per acre per calendar year.
- DO NOT use oil in tank mix in late season treatments (3<sup>rd</sup> and 4<sup>th</sup> applications).

**[\*\*Not registered for use in New York]**

**PEACH SUBGROUP 12-12B includes [\*\*]:**  
nectarine and peach and cultivars, varieties and hybrids of these.

**PLUM SUBGROUP 12-12C includes:**  
Apricot, Japanese apricot, Chinese jujube plum, American plum, Beach plum, Canada plum, cherry plum, Chickasaw plum, Damson plum, Japanese plum, Klamath plum, plum, prune, plumcot, sloe - cultivars, varieties and hybrids of these.

PEST	Application Rate Fl. Ozs./A (lbs. a.i./A)	COMMENTS
Peach twig borer	12 to 16 (0.188 to 0.25)	<p><b>Dormant/delayed dormant:</b> Apply HAI-D in combination with a narrow range oil at 4 to 6 gallons per acre (1.5 to 2.0 gallons per 100 gallons in a dilute spray). Use the higher listed rate if crop has a history of heavy infestations.</p> <p><b>Bloom to Harvest:</b> For control of peach twig borer during the growing season, apply HAI-D beginning at early bloom. Vegetable oil may be used at the rate of 1 qt. per acre. Always use the higher listed rate if crop has a history of heavy infestations. Make a repeat application if necessary for control, but no sooner than 14 days between applications.</p>
Fall webworm Filbert leafroller Oblique banded leafroller Omniverous leafroller Omniverous leaf tier Oriental fruit moth Redhumped caterpillar Variegated leafroller	8 to 16 (0.125 to 0.25)	Apply HAI-D at the first sign of larval infestation. Use the higher listed rate for longer residual control, higher pest infestations, low crop load, larger trees or heavy, dense foliage. Two applications can be made for control but no sooner than 14 days between applications.



Walnut caterpillar Winter moth Codling Moth* Katydid* Plum curculio*		*Not registered for use in California For adult control of plum curculio, tankmix with an adulticide
<p><b>Application:</b> Ground – Minimum of 50 GPA for small trees (less than 10 feet tall) or minimum of 100 GPA for larger trees (10 feet tall or greater). Use adequate spray volume to assure adequate coverage. Using an uneven spray pattern across the canopy will likely result in less than desired efficacy.</p> <p>Adjuvant: Crop oil at a rate of 0.25% v/v may be included in tank mixes.</p>		
<p><b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.</p>		
<p><b>USE RESTRICTIONS FOR PEACH SUBGROUP 12-12B/PLUM SUBGROUP 12-12C:</b></p> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 14 days of application.</li> <li>• DO NOT apply more than 2 applications per calendar year.</li> <li>• DO NOT apply more than the maximum application rate of 32 fl. ozs. of HAI-D (0.50 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• Retreatment interval of 14 days between applications.</li> </ul> <p><b>[**Not registered for use in New York]</b></p>		
For Use Only in the State of Georgia  Grasshoppers  Katydid	2 (0.031)	<p>HAI-D should be applied when immature grasshoppers and/or katydids are first observed in orchards or in surrounding non-crop vegetation.</p> <p>Reapply at 14 day intervals or as needed to protect new foliar growth.</p> <p>If a large number of adults are present in the infestation, tank mix with a knockdown insecticide to control the adults.</p> <p>HAI-D does not control adult grasshoppers.</p>
<p><b>Application:</b> Ground – Minimum of 50 GPA for small trees (less than 10 feet tall) or Minimum of 100 GPA for larger trees (10 feet tall or greater). Use adequate spray volume to assure adequate coverage.</p>		
<p><b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.</p>		
<p><b>USE RESTRICTIONS FOR PEACH SUBGROUP 12-12B/PLUM SUBGROUP 12-12C:</b></p> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 14 days of application</li> <li>• DO NOT make apply than 2 applications per calendar year.</li> <li>• DO NOT apply more than the maximum application rate of 32 fl. ozs. of HAI-D (0.50 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• Retreatment interval of 14 days between applications.</li> </ul>		

<p><b>TREE NUTS GROUP 14-12 includes [**]:</b> African tree nut, Almond, Beech nut, Brazil nut, Butternut, Brazilian pine, Bunya, Bur oak, Cajou nut, Candlenut, Cashew, Chestnut, Chinquapin, Coconut, Coquito nut, Dika nut, Filbert (hazelnut), Ginkgo, Guiana chestnut, Heartnut, Hickory nut, Japanese horse chestnut, Macadamia nut (bush nut), Mongongo nut, Pecan, Pistachio, Sapucaia nut, Tropical almond, Walnut (black &amp; English), Yellowhorn - Cultivars, varieties and/or hybrids of these.</p>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
Peach twig borer	12 to 16 (0.188 to 0.25)	<b>Dormant/delayed dormant:</b> Apply HAI-D in combination with a narrow range oil at 4 to 8 gallons per acre (1.5 to 2.0 gallons per 100 gallons in a dilute spray). Use the higher listed rate if the crop has a history of heavy infestation.

		<p><b>Bloom:</b> Apply HAI-D at early bloom. Always use the higher listed rate of HAI-D in the rate range if the crop has a history of heavy infestations.</p> <p><b>Spring flight ("May Spray"):</b> Using pheromone traps to determine flight activity, apply HAI-D at the rate of 16 fl. ozs. per acre at initial flight activity.</p> <p><b>Summer flight:</b> Using pheromone traps to determine flight activity. Apply HAI-D at the rate of 16 fl. ozs. per acre at initial flight activity.</p>
<b>Filbert worm</b>	12 to 16 (0.188 to 0.25)	Use the lower listed rate when filbert worm pressure is low and/or the trees are small. The higher rate is required when worm pressure is moderate to high and/or the trees are large. Apply HAI-D 2 to 3 days after the 1 <sup>st</sup> moth is caught in pheromone traps. Mating takes place several days of emergence and egg laying begins the next day. HAI-D must be applied prior to egg deposition on the treated foliage. Uniform coverage is essential to achieve optimum control of filbert worm with HAI-D. Normally, HAI-D will give season long control. If moth pressure remains high, additional applications should be made.
<b>Codling moth</b>	16 (0.25)	For optimum results HAI-D should be applied prior to egg laying. HAI-D must be present on the surface upon which eggs are laid; thus full coverage spray is necessary. Apply first application when moth flights begin or when moths are found in pheromone traps. Make a 2 <sup>nd</sup> application, approximately 21 days after the 1 <sup>st</sup> application. To control the 2 <sup>nd</sup> brood, application should be timed prior to egg laying, similar to 1 <sup>st</sup> brood. Due to fluctuations in temperature, the emergence and moth flights of the over-wintering population may be extended over a long period of time. When emergence is extended over a long period of time, HAI-D should be tank mixed with an organophosphate insecticide at its lowest label rate. This tank mix should be applied at normal 1 <sup>st</sup> organophosphate timing. Later in the season, if egg laying has already occurred before application of HAI-D, it is recommended that HAI-D be tank mixed with an organophosphate as previously described.
<b>Hickory shuckworm</b>	8 to 16 (0.125 to 0.25)	<p>Make split applications of HAI-D at 4 to 8 fl. ozs. per acre when hickory shuckworm moth emergence begins or larval feeding is observed. Make a 2<sup>nd</sup> application two weeks later for maximum nut protection and hickory shuckworm control.</p> <p>Start HAI-D applications at half-shell hardening. Make subsequent applications at 21 day intervals to shuck split, as long as nuts are susceptible to hickory shuckworm under heavy infestations. Use the higher listed rate under higher pest infestations, low crop load, larger trees or heavy, dense foliage.</p>
<b>Pecan nut case-bearer</b>	8 to 16 (0.125 to 0.25)	Make split applications of HAI-D at 4-8 fl. oz. per acre starting at bud break. Make a 2 <sup>nd</sup> application two weeks later. Normal timing in southeastern US would be from bud break (mid-April), and then two weeks later (early May). Apply HAI-D in split applications at the initiation of each adult generation to target egg hatch. The 1 <sup>st</sup> generation is approximately 8 to 15 days following the first prolonged moth catch (biofix which is defined as the date on which the total of 5 moths are captured in 3 pheromone traps within a 7-day period). States often have different recommendations for initiation of spraying. Consult authorities such as county and university extension specialists on current recommendations. Use the higher listed rate for longer residual control, higher pest infestations, low crop load, larger trees or heavy, dense foliage.
<b>Pecan weevil (suppression)</b>	8 to 16 (0.125 to 0.25)	Use the higher listed rate if weevils are attaching nuts and for higher infestations.

<b>Others pests, including:</b> <b>Fall webworm</b>  <b>Filbert leafroller</b>  <b>Oblique banded leafroller</b>  <b>Omnivorous leafroller</b>  <b>Omnivorous leaf-tier</b>  <b>Oriental fruit moth</b>  <b>Redhumped caterpillar</b>  <b>Variegated leafroller</b>  <b>Walnut caterpillar</b>  <b>Winter moth</b>	8 to 16 (0.125 to 0.25)	Make HAI-D application at the first sign of larval infestations. Use the higher listed rate for longer residual control, higher pest infestations, low crop load, larger trees or heavy, dense foliage.
<b>Application:</b> Ground – Minimum of 50 GPA for small trees (10 feet of less) or at least 100 to 300 GPA for larger trees (10 feet of more). Less than desired efficacy will likely be obtained if insufficient spray volume is used for thorough coverage and/or using an uneven spray pattern across the canopy.		
<b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.		
<b>USE RESTRICTIONS FOR TREE NUTS GROUP 14-12:</b> <ul style="list-style-type: none"> <li>• Pre-harvest Interval: DO NOT harvest within 28 days of application.</li> <li>• DO NOT apply more than 4 applications per calendar year.</li> <li>• DO NOT apply more than 3 applications per calendar year for walnuts.</li> <li>• DO NOT apply more than the maximum application rate of 64 fl. ozs. of HAI-D (1.0 lb. of diflubenzuron a.i.) per acre per calendar year.</li> <li>• If 4 applications are used, application timing should correspond to dormant to pre-bud swell, bloom to petal fall, and at leaves/immature nut fruit formation and at hull split.</li> </ul>		
<b>[**Not registered for use in New York]</b>		

<b>COMMERCIAL FISH (Ornamental fish and Baitfish) PRODUCTION PONDS AND TANKS</b>			
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>	
<b>Anchor Worms</b> (unattached forms)	Based on water volume	Application Rate: 1 ml/1,000 gallons of water	
	Based on Surface Area	Water Depth (feet)	Amount of HAI-D per acre of Surface Water
		1 foot	11 fl. ozs.
		2 feet	22 fl. ozs.
		3 feet	33 fl. ozs.
		4 feet	44 fl. ozs.
		5 feet	55 fl. ozs.
6 feet	66 fl. ozs.		
<b>Application:</b> Mix the required amount of HAI-D in enough water to enable uniform application to the pond or tank. Application should be made at first sign of infestation. Maintain consistent control by using subsequent applications at 14 to 60 day intervals. HAI-D is intended for control of only the unattached form of the anchor worm.			

**USE RESTRICTIONS FOR COMMERCIAL FISH PRODUCTION PONDS AND TANKS:**

- DO NOT apply to areas containing fish intended for human consumption (only for use in ornamental and baitfish production systems).
- Application to water is allowable only to the specified areas where all water is contained in a completely "closed system".
- Treated waters must be contained for a period of 14 days after treatment before being disposed of or released from ponds or tanks.

**GRASSLAND**

Includes Rangeland, Pastures, Improved Pastures and Similar Areas Used for Production of Native Domesticated Forage Grasses for Harvest for Livestock Primarily for Grazing or Mechanical Harvest, Grasses or Forage Grasses Grown for Biofuel, Biomass and/or Bioenergy Production.

PEST	Application Rate Fl. Ozs./A (lbs. a.i./A)	COMMENTS
<b>Grasshopper</b>	1 to 2 (0.016 to 0.031)	<p>Make a single application when the majority of the population is in the 2<sup>nd</sup> through 4<sup>th</sup> instar nymphal stage of development. (Use the high listed rate for pastureland.)</p> <p>If a large number of adults are present in the infestation, tank mix with a knockdown insecticide to control the adults.</p> <p>HAI-D does not control adult grasshoppers.</p>
<b>Mormon cricket</b>	0.75 to 1 - 1st application (0.012 to 0.016)  0.5 to 1 - 2nd application (0.008 to 0.016)	<p>On rangeland only, use HAI-D in a RAATs (Reduced Area and Agent Treatment) application on early instars. RATT applications use an IPM strategy that takes advantage of grasshopper movement while conserving biological control agents. This allows HAI-D to be applied on rangeland on a reduced treated area and at reduced rates, resulting in sustained acceptable control. HAI-D may be applied on as little as 50% of the infested acreage (e.g. skipping a 100 ft. swath for every 100 ft. treated), up to 100% of infested acreage using the RAAT program. The rate per acre and amount of area treated will depend on grasshopper/Mormon cricket, age, plant canopy and topography. When the topography is uniform and the population is comprised of early instar nymphs and sparse vegetation is present skip up to 50% of the infested area and use the lower listed rate. When the majority of the population is late instars, vegetation is dense, terrain is considered rough, and conditions are hot during treatment, increase the coverage and rate of HAI-D up to a blanket (100%) coverage with 1 fl. oz. per acre. If needed, make a second application 2 to 3 weeks after the first application.</p> <p>If a large number of adults are present in the infestation, tank mix with a knockdown insecticide to control the adults.</p> <p>HAI-D does not control adult Mormon cricket.</p>
<b>Lepidopteran foliage feeding caterpillars such as: Fall armyworm  Striped grass looper</b>	2 (0.031)	Apply HAI-D at first sign of hatch outs and prior to larvae reaching fourth instars (< 1/2 inch) for maximum control. HAI-D must be ingested and larvae must molt before populations are reduced.
<b>Horn fly Face fly</b>	2 (0.031)	Apply HAI-D to cattle manure patties for two weeks or longer control of horn fly and face fly emergence.

Apply HAI-D at 2 fl. ozs./acre to biofuel, biomass, or bioenergy grown grasses/forages/cellulosic crops (such as switchgrass, miscanthus sp., etc.) for control of Lepidopteran foliage feeding caterpillars (armyworms, grass looper, etc.), grasshoppers, or Mormon crickets.

**Application:** Ground – 2 to 30 GPA; Ground ULV – Minimum of 12 fl. ozs. total volume acre for rangeland  
Aerial – 2 to 10 GPA; Aerial ULV – Minimum of 12 fl. ozs. total volume acre for rangeland

Thorough coverage of the target crop is very important regardless of application type used. For aerial and ULV spray mixtures always include an evaporation/drift retardant product at label use rates. This is especially important when temperatures are high and humidity is low and evaporation is likely. When using oil type evaporation/drift retardant products, maintain a ratio of at least 2 parts water to 1 part oil. For low volume and ULV applications, make sure that the spray mixture in the boom contains the correct concentration of HAI-D before application begins. Additionally, be sure that good agitation is maintained throughout mixing and application. Use higher listed rates and gallonages for areas with dense vegetation, when nymphs are beyond the 3<sup>rd</sup> instar stage, and when climatic conditions are favorable for grasshopper/Mormon cricket survival and increase. Apply any time after eggs begin to hatch through early instars. HAI-D remains active on the foliage and will continue to control larvae and grasshoppers/Mormon crickets that hatch later in the season. HAI-D is not effective against adult grasshoppers/Mormon crickets. If adults of either species are present, tank-mix HAI-D with a registered adulticide to control later hatching species. Check mixing compatibility and sprayability prior to transferring to spray tank. Besides a fatal incomplete molting, adult grasshoppers/Mormon crickets may exhibit hernias, hemolymph exudation, malformed abdominal segments, missing posterior legs, twisted antennae, and wrinkled wings. Additionally, they may move slower, have limited jumps with unsteady landings, feed less exhibit atrophy of posterior legs or be unable to fly. Nymphs/adults possessing these symptoms are likely to be more susceptible to predatory insects, birds, and mammals.

**NOTE:** Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.

**USE RESTRICTIONS FOR GRASSLAND:**

- DO NOT apply more than the maximum single application rate of 2 fl. ozs. of HAI-D (0.031 lb. of diflubenzuron a.i.) per acre per cutting.
- DO NOT apply more than the maximum application rate of 6 fl. ozs. of HAI-D (0.094 lb. of diflubenzuron a.i.) per acre per calendar year.
- Allow at least 1 day after treatment before cutting grass.
- Apply only when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

**LIVESTOCK/POULTRY PREMISES [\*\*]**

Includes Litter, Stale/waste feed, Manure, Manure/straw mixtures, Feed muck spoilage, Spoiled organic refuse, Bedding material, Floors, Walls/wall footings, Posts, Cage frames, Ceilings Livestock / poultry operations include farms, farm buildings, barns, feedlots, dairies, equine facilities, poultry houses, and other production facilities. Application sites within these operations also include fence lines of holding pens, feed troughs, feed bunks, hay bale feeders, water troughs; and marginal areas of waste retention ponds. For insect control around hay feeding sites, treat the entire area where manure and waste hay are mixed at the soil surface by livestock activity.

PEST	Application Rate Fl. Ozs./1,000SF	COMMENTS
<b>Carrion beetle</b>  <b>Darkling beetle</b>  <b>Hide beetle</b>	12 fl. ozs./1,000 square feet in 2-20 gals. water per 1,000 square feet (0.188 lb. a.i./ 1,000 square feet)	<p><b>Broadcast Application:</b> Apply HAI-D as a whole house broadcast spray to the litter following de-caking. Also apply to floors, walls, posts, cage frames, and crack and crevices around insulation. Be sure to treat areas under feed and water lines. Apply in sufficient volume to uniformly and thoroughly wet litter and other surfaces. Spray volume will vary depending on the depth of litter being treated.</p> <p><b>Band Application:</b> If the whole house is not being treated, application of HAI-D may be made to areas where pests are concentrated, such as under feed and water lines, along perimeter walls and side / end walks. Use in sufficient spray volume to thoroughly wet litter following de-caking in a 2-4 foot wide band under and next to these areas. Spray volume will vary depending on depth of litter. Lower sections of walls, posts and cage frames should also be treated at least 1 foot up from the floor.</p>

<b>House fly</b>	Broadcast: 12 fl. ozs./1,000 square feet in 2-20 gals. water per 1,000 square feet	<p><b>Broadcast Application:</b> Apply HAI-D as a whole house broadcast spray as described above for beetles.</p> <p><b>Spot Treatment:</b> Use a directed spray at a volume of 1 quart of spray solution per 10 sq. ft. of surface area. 100 gallons of spray solution will treat 4,000 sq. ft.. Start applications when flies first appear. In 2 to 3 weeks after application, if adult fly numbers begin to increase, additional applications may be made at 3 week intervals.</p> <p>In poultry houses, for spot treatment make applications only between production cycles, and not while birds are in the houses.</p>
<b>Stable fly</b>		
<b>Face fly</b>		
<b>Horn fly</b>	(0.188 lb. a.i./ 1,000 square feet)	
	Spot Treatment: 5 fl. ozs. in 10 gals. water (0.08 lb. a.i. in 10 gals. water)	

**Application:**

Use adequate spray volume to assure adequate coverage.

For indoor uses, use banded or broadcast applications. Apply only once per production cycle at a rate not to exceed 520 fl. ozs. of HAI-D (8.125 lb a.i.) per acre per calendar year.

**For outdoor spot treatment applications:** DO NOT apply more than 7.5 fl. ozs. (0.12 lb. a.i) per acre per application, and do not exceed 17 applications per calendar year. DO NOT apply more than 127.5 fl. ozs. of HAI-D (2.04 lb a.i.) per acre per calendar year.

**For indoor use:** DO NOT apply more than 520 fl. ozs. of HAI-D (8.125 lb a.i.) per acre per calendar year.

Applications to manure and process wastewater must not be applied closer than 100 feet to any down gradient surface waters, open tile line intake structures, sinkholes, agricultural or domestic well heads, or other conduits to surface waters, unless a 35-foot wide vegetated buffer or physical barrier is substituted for the 100-foot setback or alternative conservation practices or field-specific conditions will provide pollutant reductions equivalent or better than the reductions achieved by the 100-foot setback.

**NOTE:** HAI-D will not control adult or pupal stages, but provides extended control of eggs and developing larvae. The reproductive potential of adults exposed to HAI-D through contact or ingestion will be impacted. This results in reduced egg numbers and viability of oviposited eggs. If a large adult population already exists at the time treatment is to be made, application with a knockdown insecticide either alone or in a tank mix with HAI-D may be desirable to achieve rapid reduction of existing population.

**USE RESTRICTIONS FOR LIVESTOCK/POULTRY PREMISES:**

- DO NOT apply directly to livestock or poultry.
- DO NOT contaminate feed or water through application-cover or remove exposed feed and water from the area to be treated.
- DO NOT apply more than the maximum seasonal application rate of 520 fl. ozs. of HAI-D (8.125 lb a.i.) per acre per calendar year for indoor uses.

**[\*\*Not registered for use in New York]**

<b>MUSHROOMS</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./1,000SF</b>	<b>COMMENTS</b>
<b>SCIARID FLIES</b>	<b>Composting Treatment</b> 40 to 64 fl. ozs. per 1,000 square feet (0.625 to 1.024 lb a.i.)	Apply between compost filling and spawning time by thorough incorporation such as with a spawning machine. Assuming a wet compost weight of 40 pounds per cubic foot, this is equivalent to 30 to 50 ppm active ingredient.
	<b>Casing Treatment</b> 13.5 fl. ozs./1,000 square feet (0.210 lb a.i.)	Apply at the time of casing. Assuming a casing weight of 6,700 pounds per 1,000 square feet, this is equivalent to a rate of 30 ppm active ingredient.
<p><b>NOTE:</b> HAI-D in the mushroom growing media will prevent the development of the larval stages of sciarids. This effectively stops reproduction in the growing medium and prevents damage to the mushrooms. Because of its unique type of activity, DO NOT expect immediate reductions in adult fly populations. HAI-D does not directly affect adults but kills the larvae in the growing medium.</p>		
<p><b>USE RESTRICTIONS FOR MUSHROOMS:</b></p> <ul style="list-style-type: none"> <li>• <b>NOT REGISTERED FOR USE ON MUSHROOMS IN CALIFORNIA, IDAHO, OREGON AND WASHINGTON.</b></li> </ul>		

<b>ORNAMENTALS (Field or Greenhouse Grown Chrysanthemums)</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Beet armyworm</b>	8 to 16 (0.125 to 0.25)	Begin applications when larvae appear and repeat at weekly intervals as required.  Confirm plant safety under location growing conditions by initially treating only a small portion of crop.
<b>Application:</b> Ground – apply in a dilute spray not to exceed 200 gallons of water per acre. Use adequate spray volume to assure adequate coverage.		
<b>NOTE:</b> Visible effects on immature stages of these insects may not be seen for 3 to 5 days following application.		

<b>TREES AND SHRUBS</b>		
<p>HAI-D is effective in controlling a variety of insect pests found on trees and shrubs in areas such as:</p> <ul style="list-style-type: none"> <li>• Christmas tree and conifer nurseries.</li> <li>• Forest plantings and forest nurseries.</li> <li>• Public and private forests.</li> <li>• Residential and municipal shade tree areas and landscape plantings.</li> <li>• Recreational areas such as campgrounds, golf courses, parks, parkways (In campground or other recreational areas applications should be made during periods of minimal use. Notify persons using recreational facilities or living in the area to be sprayed before application of this or any other pesticide.</li> <li>• Rights of way and other easements.</li> <li>• Shelterbelts.</li> </ul>		
<b>NOT REGISTERED FOR USE IN GREENHOUSES, SHADEHOUSES, OR INTERIORSCAPES.</b>		
<b>PEST</b>	<b>Application Rate Fl. Ozs./A (lbs. a.i./A)</b>	<b>COMMENTS</b>
<b>Armyworm</b>	4 to 8 (0.0625 to 0.125)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Bagworm</b>	2 to 4 (0.031 to 0.0625)	Apply in mid to late June to early instar larvae.  Maximum fl. ozs. per acre per year: 4
<b>Browntail Moth</b>	2 to 4 (0.031 to 0.0625)	Apply when overwintering 2 <sup>nd</sup> instar larvae become active – usually in late April/early May.  Maximum fl. ozs. per acre per year: 4
<b>Budworm</b>	4 to 8 (0.0625 to 0.125)	Apply to 4 <sup>th</sup> instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Cankerworm</b>	4 to 8 (0.0625 to 0.125)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Gypsy Moth</b>	1 to 4 (0.016 to 0.0625)	Apply to early instar larvae when leaf expansion is between 5 and 20 percent.  <b>QUARANTINE PROGRAMS (Gypsy Moth)</b> For use in Quarantine programs conducted by State Cooperators as well as USDA personnel of both Plant Protection and Quarantine, APHIS and the U.S. Forest Service. For use in eradication of isolated infestations make two applications of 1 to 2 fl. ozs. of HAI-D per acre 7-14 days apart. For use in quarantine programs involving the movement of nursery stock from infested

		to non-infested areas, make two applications of 1 to 2 fl. ozs. of HAI-D per acre 7-14 days apart on nursery stock.  Maximum fl. ozs. per acre per year: 4
<b>Hemlock Looper</b>	4 to 8 (0.0625 to 0.125)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Lepidopterous Leafminer</b>	8 to 16 (0.125 to 0.25)	Apply at 8 to 16 fl. ozs. per 100 gallons of water when oviposition begins on new growth flushes.  Maximum fl. ozs. per acre per year: 16
<b>Oakworm</b>	4 to 8 (0.0625 to 0.125)	Apply in August to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Pandora Moth</b>	4 to 8 (0.0625 to 0.125)	Apply after egg hatch in the fall or to early instars in the spring.  Maximum fl. ozs. per acre per year: 8
<b>Pine Shoot Moth</b>	4 to 8 (0.0625 to 0.125)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Pine Tip Moth</b>	2 to 4 (0.031 to 0.0625)	Apply to early second-generation instars or when 75% of first generation pupal cases are empty. Peak emergence can be determined by twig sampling, pheromone traps, degree days, etc.  Maximum fl. ozs. per acre per year: 4
<b>Sawflies</b>	4 to 8 (0.0625 to 0.125)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Spanworm</b>	4 to 8 (0.0625 to 0.125)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Tent Caterpillar</b>	2 to 8 (0.031 to 0.125)	Apply to early instar larvae prior to full leaf expansion.  Maximum fl. ozs. per acre per year: 8
<b>Tussock Moth</b>	4 to 8 (0.0625 to 0.125)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 8
<b>Webworm</b>	2 to 4 (0.031 to 0.0625)	Apply to early instar larvae.  Maximum fl. ozs. per acre per year: 4
<b>Weevils</b> ( <i>Diaprepes</i> spp.)	8 to 16 (0.125 to 0.25)	Apply at a rate of 8 to 16 ozs. per 100 gallons of water when adult weevils are present and/or to newly expanded growth. Will not control adult weevils but will reduce reproductive potential of adult weevils, resulting in decreased egg hatch.  Maximum fl. ozs. per acre per year: 16
<b>Weevils (Terminal) of pine and spruce</b> ( <i>Pissodes</i> spp.)	4 to 8 (0.0625 to 0.125)	Treat adults in early spring after snow melt and prior to egg of pine and spruce deposition. Aerial applications not recommended. Thoroughly ( <i>Pissodes</i> spp.) wet the leader and upper whorls of branches. Add an emulsifiable paraffinic crop oil at the rate of 1 to 2 gallons per acre.  Maximum fl. ozs. per acre per year: 8
<b>Zimmerman Moth</b>	4 to 8 (0.0625 to 0.125)	Apply to early instars in late summer prior to construction of hibernaculum.  Maximum fl. ozs. per acre per year: 8
<b>Application:</b> Determining the correct volume of water to apply is highly dependent on the tree height, canopy size and application type. Uniform coverage of the foliage is essential for optimum performance.		



**Ground:** Use an adequate amount of water to obtain thorough coverage to the foliage without excessive runoff. Use the recommended per acre dosage of HAI-D in the following amounts of water.  
 High volume hydraulic sprayer -100 to 400 gallons per acre.  
 Mist blower, air blast sprayer - 5 to 30 gallons per acre.

**Aerial:** spray volumes of 1/2 to 5 gallons per acre are recommended.  
 The higher water volumes are recommended when application conditions are less than ideal, for very large or dense tree stands, for high population pressures or when insects have reached older instar stages.

**NOTE:** Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.  
 HAI-D is an insect growth regulator - thus larvae/nymphs must ingest treated plant material and then molt before populations are reduced.

**NON-CROP AREAS [\*\*]**  
 Includes Field borders, Fence rows, Roadsides, Farmsteads, Ditchbanks, Wasteland, Conservation Reserve, Program CRP Land.

PEST	Application Rate Fl. Ozs./A (lbs. a.i./A)	COMMENTS
<b>Grasshopper</b>  <b>Mormon cricket</b>	2 (0.31)	Apply HAI-D to manage grasshopper and Mormon crickets in their breeding areas before they move into cropland.  Application should target pest when majority are in the 2 <sup>nd</sup> through 4 <sup>th</sup> instar nymphal stages for effective control.  See Grassland section above for additional application timing information.
<b>Lepidopteran foliage feeding caterpillars such as:</b> <b>Fall armyworm</b>  <b>Striped grass looper</b>	2 (0.31)	For optimum control use HAI-D at first sign of hatch and prior to larvae reaching fourth instars (<1/2 inch). HAI-D must be ingested and larvae must molt before populations are reduced.

**Application:** May be applied by ground and aerial application equipment to the listed non-crop areas.  
 Use adequate spray volume to assure adequate coverage.  
 See the Application section of Grassland above for further information.

**NOTE:** Visible effects on immature stages of these insects may not be seen for 5 to 7 days following application.  
 HAI-D is an insect growth regulator - thus larvae/nymphs must ingest treated plant material and then molt before populations are reduced.

**USE RESTRICTIONS FOR NON-CROP AREAS:**

- DO NOT apply more than the maximum single application rate of 2 fl. ozs. of HAI-D (0.031 lb. of diflubenzuron a.i.) per acre per cutting.
- DO NOT apply more than the maximum application rate of 6 fl. ozs. of HAI-D (0.094 lb. of diflubenzuron a.i.) per acre per calendar year.
- Allow at least 1 day after treatment before cutting grass.
- Apply only when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas).

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## STORAGE AND DISPOSAL

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

**PESTICIDE STORAGE** - Keep container closed when not in use. Store in a cool, dry, well-ventilated (preferably locked) area that is inaccessible to children, animals, fertilizer, feed and foodstuffs. DO NOT mix or allow this product to come in contact with oxidizing agents. Hazardous chemical reaction may occur.

**PESTICIDE DISPOSAL** - Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

### CONTAINER HANDLING

**Plastic containers:** Nonrefillable container. DO NOT reuse or refill this container. Triple rinse or pressure rinse (or equivalent) promptly after emptying.

**Triple rinse** as follows: For containers small enough to shake: Empty the remaining contents into a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and then recap. Shake for 10 seconds. Pour rinsate into a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. For containers too large to shake: Empty remaining contents into a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Empty the rinsate into a mix tank or store for later use or disposal. Repeat this procedure two more times.

**Pressure rinse** as follows: Empty the remaining contents into a mix tank and continue to drain for 10 seconds after the flow continues to drip. Hold container upside down over mix tank to collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container and rinse about 40 PSI for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer container for recycling if available or reconditioning if appropriate, or puncture and dispose of in a sanitary landfill, by or by other procedures allowed by State and local authorities.

**Recycling:** Once cleaned, some agricultural plastic pesticide containers can be taken to a container collection site or picked up for recycling. To find the nearest site, contact your chemical dealer or manufacturer or contact the Ag Container Recycling Council (ACRC) at 1-877-952-2272 (toll free) or [www.acrecycle.org](http://www.acrecycle.org).

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