UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES

JAN 29 2008

Mr. Ronald Landis, Ph.D.
Landis International
P.O. Box 5126
Valdosta, GA 31603-5126

Authorized agent for Mitsui Chemicals

Dear Dr. Landis:

Subject: Revised labeling
Dinotefuran 20 % Turf, Ornamental and Vegetable Transplants
EPA File Symbol 33657-16
Your submission dated Nov. 8, 2007

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

1. On page 3, change the heading GENERAL INFORMATION to APPLICATION INFORMATION or APPLICATION INSTRUCTIONS. The term GENERAL is not enforceable because it implies that the information is optional.

2. On pages 11 to 16, delete RECOMMENDATIONS FOR from the use patterns.

3. On page 3, change "professional applicators" to "commercially licensed applicators" in the last bulleted paragraph. Delete "only" from this sentence and from the first bulleted paragraph.

4. Some of the words or statements on the label need to be replaced or rephrased. Please delete or rephrase the following terms: *should, should not, recommended, avoid.* These terms are not enforceable; therefore we no longer allow these on pesticide labels.

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

Submit two (2) copies of the final printed label before you release the product for shipment bearing the revised labeling. If you have any questions, please do not hesitate to write or call me at (703) 308-8291.

Sincerely,

Rita Kumar

Rita Kumar
Senior Regulatory Specialist
Insecticide Rodenticide Branch
Registration Division (7505C)
E-mail: kumar.rita@epa.gov

Enclosure

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GROUP	4A	INSECTICIDE

DINOTEFURAN 20 %
TURF, ORNAMENTAL AND VEGETABLE TRANSPLANTS

For foliar and systemic insect control in ornamental plants, vegetable transplants and turfgrass.
For Greenhouse, Nursery, Interior Plantscape and Outdoor Landscape Use Only

Active Ingredient:

Dinotefuran, [N-methyl-N'-nitro-N"-((tetrahydro-3-furanyl)methyl)guanidine]	20%
Other Ingredients	80%
Total:	100%

KEEP OUT OF REACH OF CHILDREN

CAUTION

See side panels for additional precautionary statements

FIRST AID	
If On Skin Or Clothing	• Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15-20 minutes. • Call a poison control center or doctor for further treatment advice.
If Swallowed	• Call poison control center or doctor immediately for treatment advice. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Have person sip a glass of water if able to swallow. • Do not give anything by mouth to an unconscious person.
If In Eyes	• Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for further treatment advice.
If Inhaled	• Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth, if possible. • Call poison control center or doctor for further treatment advice.

HOT LINE NUMBER

Have the product container or label with you when calling a poison control center or doctor or going for treatment. You may also contact CHEMTREC (800) 424-9300 (24 hours) for emergency medical treatment information.

See side/back panels for additional precautionary statements

EPA Reg No. 33657-16

EPA Establishment No. 67545-AZ-01

Net Contents:

Manufactured By:
MITSUI CHEMICALS, INC.
Shiodome City Center
1-5-2 Higashi-Shimbashi
Minato-ku, Tokyo 105-7117
JAPAN

ACCEPTED
with COMENTS
in EPA Letter Dated:
JAN 29 2008
Under the Federal Insecticide,
Fungicide, and Rodenticide Act,
As amended, for the pesticide
Registered under EPA Reg. No.
33657-16

PRECAUTIONARY STATEMENTS
HAZARDS TO HUMANS AND DOMESTIC ANIMALS
CAUTION

Harmful if swallowed or absorbed through skin. Causes moderate eye irritation. Avoid contact with skin, eyes or clothing. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

PERSONAL PROTECTIVE EQUIPMENT

Applicators and other handlers must wear:

- Long-sleeved shirt and long pants
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks

USER SAFETY REQUIREMENTS

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

USER SAFETY RECOMMENDATIONS

Users should:

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

ENVIRONMENTAL HAZARDS

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

This product is highly toxic to bees exposed to direct treatment or residues on blooming crops or weeds. Do not apply this product or allow it to drift to blooming crops or weeds if bees are visiting the treatment area.

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

PHYSICAL OR CHEMICAL HAZARDS

Do not use, pour, spill or store near heat or open flame.

SPRAY DRIFT ADVISORY

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

DIRECTIONS FOR USE

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

READ ENTIRE LABEL, USE STRICTLY IN ACCORDANCE WITH PRECAUTIONARY STATEMENTS AND DIRECTIONS, AND WITH APPLICABLE STATE AND FEDERAL REGULATIONS.

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

AGRICULTURAL USE REQUIREMENTS

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

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

EXCEPTION: If product is drenched or soil-injected, workers may enter the area at any time if there will be no contact with anything that has been treated.

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

- Coveralls
- Chemical-resistant gloves made of any waterproof material such as polyethylene or polyvinyl chloride
- Shoes plus socks

NON-AGRICULTURAL USE REQUIREMENTS

The requirements in this box apply to uses of this product that are NOT within the scope of the Worker Protection Standard for agricultural pesticides (40 CFR part 170). The WPS applies when this product is used to produce agricultural plants on farms, forests, nurseries, or greenhouses. **Do not allow others to enter treated areas until sprays have dried.**

GENERAL INFORMATION

- **Applications of Dinotefuran 20% Turf and Ornamental in residential areas may be made by commercially licensed applicators only.**

Application to Turfgrass:

- Dinotefuran 20% Turf and Ornamental can be used for the control of soil inhabiting pests of turfgrass such as Masked Chafers, European Chafer, Green June Beetle, May or June Beetle, Japanese Beetle, Oriental Beetle, Billbugs, Annual Bluegrass Weevil, Black Turfgrass Ataenius and Mole Crickets. Dinotefuran 20% Turf and Ornamental can also be used for the suppression of cutworms and chinchbugs in turfgrass areas.
- Dinotefuran 20% Turf and Ornamental can be used as directed on outdoor residential, recreational and commercial turfgrass in sites such as home lawns, commercial lawns, multi-family residential and apartment complexes, grounds or lawns around business and office complexes, shopping centers, airports, military and other institutions, cemeteries, golf courses, playgrounds, parks, athletic fields and sod farms. Applications may be made by professional applicators only.

- Timing of Dinotefuran 20% Turf and Ornamental applications should be targeted at or just prior to or during egg laying of the target pests. The need for an application can be based on historical and/or physical monitoring of the site, current season adult trapping, previous experience or other methods. Optimum control will be achieved when applications are made prior to or at egg hatch of the target pests followed by sufficient irrigation or rainfall to move the active ingredient through the turf thatch layer. Consult your local State Extension Service for more specific application timing recommendations.
- Applications should not be made when the target site is saturated with water. Adequate distribution of the active ingredient cannot be achieved when these conditions exist.

Application to Ornamental plants:

- Dinotefuran 20% Turf and Ornamental can be applied as a foliar spray, a broadcast spray, a soil drench, soil injection and via chemigation for insect control in ornamental plants in greenhouses, nurseries, outdoor landscapes and interior plantscapes.
- Dinotefuran 20% Turf and Ornamental is a systemic product and will be taken up by the root system and translocated upward throughout the plant. When applied as a foliar spray, the product offers translaminar and locally systemic control of foliar pests.
- When applied to the soil, Dinotefuran 20% Turf and Ornamental will be translocated more quickly in herbaceous plants than in woody shrubs and trees. Speed of insect control will range from as little as one day for small herbaceous plants in containers, to several weeks in large trees in growing in the landscape.
- For outdoor and landscape ornamentals, broadcast applications cannot exceed a total of 2.7 lbs of product (0.54 lb.active ingredient) per acre per year.

MIXING INSTRUCTIONS:

Dinotefuran 20% Turf and Ornamental Alone: Add ½ of the required amount of water to the mix tank. With the agitator running, add the desired amount of Dinotefuran 20% Turf and Ornamental to the tank. Continue agitation while adding the remainder of the water. Begin application of the solution after Dinotefuran 20% Turf and Ornamental has completely dispersed into the mix water. Maintain agitation until all of the mixture has been applied.

Dinotefuran 20% Turf and Ornamental + Tank Mixtures: Add ½ of the required amount of water to the mix tank. Start the agitator running before adding any tank mix partners. In general, tank mix partners should be added in this order: products packaged in water-soluble packaging, wettable powders, wettable granules (dry flowables), liquid flowables, liquids, emulsifiable concentrates, and surfactants/adjuvants. Always allow each tank mix partner to become fully dispersed before adding the next product. Provide sufficient agitation while adding the remainder of the water. Maintain agitation until all the mixture has been applied.

NOTE: When using Dinotefuran 20% Turf and Ornamental in tank mixtures, all products in water-soluble packaging should be added to the tank before any other tank mix partner, including Dinotefuran 20% Turf and Ornamental. Allow the water-soluble packaging to completely dissolve and the product(s) to completely disperse before adding any other tank mix partner to the tank.

If using Dinotefuran 20% Turf and Ornamental in a tank mixture, observe all directions for use, crop/sites, use rates, dilution ratios, precautions, and limitations which appear on the tank mix product label. No label dosage rate should be exceeded, and the most restrictive label precautions and limitations should be followed. This product should not be mixed with any product which prohibits such mixing. Tank mixtures or other applications of products referenced on this label are permitted only in those states in which the referenced products are labeled.

Compatibility

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

Dinotefuran 20% Turf and Ornamental is compatible with most commonly used pesticides, crop oils, adjuvants, and nutritional sprays. However, since it is not possible to test all possible mixtures, the user should pre-test to assure the physical compatibility and lack of phytotoxic effect of any proposed mixtures with Dinotefuran 20% Turf and Ornamental. To determine the physical compatibility of Dinotefuran 20% Turf and Ornamental with other products, use a jar test, as described below:

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

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RESISTANCE MANAGEMENT RECOMMENDATIONS

Dinotefuran 20% Turf and Ornamental contains a Group 4A insecticide. Insect biotypes with acquired resistance to Group 4A may eventually dominate the insect population if Group 4A insecticides are used repeatedly in the same crop or in successive years as the primary method of control for a targeted species. This may result in partial or total loss of control of those species by Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides.

To delay the development of insecticide resistance in greenhouse, nursery and interiorscape use sites, strongly consider the following recommendations:

- Do not apply Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides to consecutive generations of the same insect pest species.
- Do not drench soil media with Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides more than one time per crop cycle or three months, whichever is shorter.
- Do not make more than two foliar or broadcast sprays of Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides to a single crop during a two-month period.
- Do not make more than one soil drench and one foliar or broadcast spray with Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides during a two-month period.
- Base insecticide use on a comprehensive IPM program.
- Monitor treated insect populations for loss of field efficacy.
- Contact your local extension specialist, certified crop advisors, and/or manufacturers for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problems.
- For further information or to report suspected resistance, you may contact Landis International, Inc., a representative of Mitsui Chemicals, Inc., at toll free number: 1-800-526-3471 or at their web site: www.landisintl.com

APPLICATION PROCEDURES AND SPRAY EQUIPMENT

Ground Application: Spray nozzles should be selected which will provide accurate and uniform spray deposition. Use spray nozzles which provide medium-sized droplets and reduce drift. To help insure accuracy, calibrate sprayer before each use. For information on spray equipment and calibration, consult nozzle manufacturers and/or State Extension Service specialists.

Apply Dinotefuran 20% Turf and Ornamental using sufficient water volume to provide thorough and uniform coverage. In situations where a dense canopy exists and/or pest pressure is high, use greater water volumes. The use of a spray adjuvant may improve spray coverage. Avoid making applications under conditions where uniform coverage cannot be obtained or where excessive spray drift may occur.

Applications to turfgrass: Apply Dinotefuran 20% Turf and Ornamental through conventional spray equipment in a minimum of 1 gallon of finished spray per 1000 sq. ft. Ensure adequate distribution in the treated area using accurately calibrated equipment normally used for application of turfgrass insecticides. Use equipment which will produce a uniform, coarse droplet spray, using a low pressure setting to eliminate off target drift. Check calibration periodically to ensure that equipment is working properly. Avoid skips by using marker dyes or foam aids.

Applications to ornamental plants: Dinotefuran 20% Turf and Ornamental can be applied using many different types of application equipment. Apply in sufficient water to ensure good coverage of ornamental plants. When making applications to plants with hard to wet foliage such as holly or pine, the addition of a spreader/sticker is recommended. If concentrate or mist type spray equipment is used, an equivalent amount of product should be used on the spray area as would be used in a dilute solution. To assure optimum effectiveness, the product must be placed where the growing portion of the target plant can absorb the active ingredient. Applications can be made to foliage or as a soil drench.

RESTRICTIONS

- Do not graze treated areas or use clippings from treated areas for feed or forage.
- Avoid runoff or puddling of irrigation water following application.
- Keep children and pets off treated areas until spray has dried.
- Avoid application to areas that are water logged or saturated, or frozen, which will not allow penetration into the root zone of the plant.
- Avoid soil application when plants are dormant or not actively taking up water from the soil.

APPLICATION THROUGH IRRIGATION SYSTEMS (CHEMIGATION):

Dinotefuran 20% Turf and Ornamental may be applied by injection into an irrigation system, either alone or in combination with other pesticides or chemicals that are registered for application through irrigation systems. Dilution ratios are normally 1:100 to 1:200, depending on the system. Apply this product only through center pivot, solid set, hand move, or moving wheel irrigation systems (Turfgrass) or microirrigation (individual spaghetti tube), drip irrigation, overhead irrigation, or motorized calibrated irrigation equipment (Ornamentals). Do not apply through any other type of irrigation system. Lack of effectiveness can result from non-uniform distribution of treated water. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise.

Using Water from Public Water Systems:
DO NOT APPLY DINOTEFURAN 20% TURF & ORNAMENTAL THROUGH ANY IRRIGATION SYSTEM PHYSICALLY CONNECTED TO A PUBLIC WATER SYSTEM.
Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days per year. Dinotefuran 20% Turf and Ornamental may be applied through irrigation systems which may be supplied by a public water system only if the water from the public water system is discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. Before beginning chemigation, always make sure that the air gap exists and that there is no blockage of the overflow of the reservoir tank.

Any irrigation system using water supplied from a public water system must also meet the following requirements:

Operating Instructions for All Recommended Types of Irrigation Systems:

1. The system must be calibrated to uniformly apply the rates specified. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers, or other experts.
2. 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.
3. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.
4. The pesticide injection pipeline must 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.
5. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops.
6. 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.
7. 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.
8. Do not apply when wind speed favors drift beyond the area intended.

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Calibration and Application Instructions:

Dinotefuran 20% Turf and Ornamental should be applied under the schedule specified in the specific use recommendations, not according to the irrigation schedule unless the events coincide. In general, set the equipment to apply the minimum amount of water per acre. Run the system at 86 - 90% of the manufacturer's maximum rated travel speed.

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

Center Pivot Irrigation Equipment:

NOTES: 1) Use only drive systems that provide uniform water distribution. 2) Do not use end guns when chemigating Dinotefuran 20% Turf and Ornamental through center pivot systems because of non-uniform application. 3) Plug the first nozzle closest to the well head to protect the water source.

1. Determine the size of the area to be treated.
2. Determine the time required to apply 0.1 - 0.25 inches of water over the area to be treated when the system and injection equipment are operated at normal pressures as recommended by the equipment manufacturer. Run the system at 80-95% of the manufacturer's rated maximum travel speed.
3. Using water, determine the injection pump output when operated at normal line pressure.
4. Determine the amount of Dinotefuran 20% Turf and Ornamental, and any tank mix partners, required to treat the area covered by the irrigation system.
5. Add the required amount of Dinotefuran 20% Turf and Ornamental, and any tank mix partners, and sufficient water to meet the injection time requirements to the solution tanks. (See "Mixing Instructions" section of this label.)
6. Make sure the system is fully charged with water before starting injection of the Dinotefuran 20% Turf and Ornamental solution. Time the injection to last at least as long as it takes to bring the system to full pressure.
7. Inject the specified amount of Dinotefuran 20% Turf and Ornamental per acre continuously for one complete revolution of the system.
8. Stop the injection equipment after treatment is complete. Continue to operate the system until the Dinotefuran 20% Turf and Ornamental solution has cleared all of the sprinkler heads.
9. Allow time for all lines to flush the pesticide through all nozzles before turning off irrigation water.

Solid Set, Hand Move, and Moving Wheel Irrigation Equipment:

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

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RECOMMENDATIONS TO AVOID SPRAY DRIFT

As with all crop protection products, it is important to avoid off-target movement. Do not allow spray to drift onto adjacent land, crops, or aquatic areas. Follow these recommendations to avoid spray drift:

1. Make applications when wind velocity favors on-target product deposition (approximately 3 to 10 mph). Do not apply when wind velocity exceeds 10 mph. Avoid applications when wind gusts approach 10 mph.
2. Risk of exposure to sensitive aquatic areas can be reduced by avoiding applications when wind direction is toward the aquatic area.
3. Do not cultivate or plant crops within 25 feet of the aquatic area as to allow growth of a vegetative filter strip.
4. Do not make applications during temperature inversions. Inversions are characterized by stable air and increasing temperatures with increased height above the ground. Mist or fog may indicate the presence of an inversion in humid areas. The applicator may detect the presence of an inversion by producing smoke and observing a smoke layer near the ground surface.
5. Use the largest droplet size consistent with good pest control. Small droplets are more prone to spray drift and can be minimized by appropriate nozzle selection, by orienting nozzles away from the air stream as much as possible, and by avoiding excessive spray boom pressure.
6. Apply as close to target plants as practical to obtain a good spray pattern for adequate coverage. Applications more than 10 ft. above the crop canopy should be avoided.
7. For aerial applications, the spray boom should be mounted on the aircraft so as to minimize drift caused by wing tip vortices. The minimum practical boom length should be used and must not exceed 75% of wing span or rotor diameter.

Air Assisted (Air Blast) Tree and Vine Sprayers (Ornamentals Only):

Air assisted tree and vine sprayers carry droplets into the canopy of trees and vines via a radially or laterally directed air stream. In addition to the general drift management principles already described, the following specific practices will further reduce the potential for drift:

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

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TURFGRASS

Crop	Pest	Product Rate	Remarks
Turfgrasses Residential Recreational Commercial	**Mole cricket** Southern mole cricket Tawny mole cricket	2.7 lbs. per acre (1 oz. per 1000 sq. ft.) 0.54 lbs. a.i. per acre	Make application prior to or during the peak egg hatch period. When adults or large nymphs are present and actively tunneling, application should be accompanied by a curative insecticide such as Orthene® Turf, Tree & Ornamental Spray.
	White grub larvae such as: Annual bluegrass weevil Asiatic garden beetle Billbug Black Turfgrass ataenius European chafer Green June beetle Japanese beetle May/June beetle Northern masked chafer Oriental beetle Southern masked chafer	2.7 lbs. per acre (1 oz. per 1000 sq. ft.) 0.54 lbs. a.i. per acre	For optimum control of grubs, billbugs, and annual bluegrass weevil, make application prior to or during egg hatch of the target pest.
	Cutworms Chinchbug Sod webworm	2.7 lbs. per acre (1 oz. per 1000 sq. ft.) 0.54 lbs. a.i. per acre	For suppression of chinchbugs, make application prior to hatching of the first instar nymphs.
	European Cranefly	2.7 lbs. per acre (1 oz. per 1000 sq. ft.) 0.54 lbs. a.i. per acre	

Important Notes:

- Apply in sufficient water to ensure thorough coverage of target area. Use a minimum of 50 gallons finished spray per acre.
- Consult your local State Extension Service or State Extension Turfgrass Specialists for more specific information on timing of insecticide applications.
- For optimal control, irrigation or rainfall should occur within 24 hours after application to ensure movement of the active ingredient through the thatch.
- Avoid mowing turf or lawn grass until after sufficient irrigation or rainfall has occurred so that uniformity of application will not be affected.
- Do not apply more than a total of 2.7 lbs. of Dinotefuran 20% Turf and Ornamental (0.54 lbs. a.i.) per acre per year.

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ORNAMENTAL PLANTS

Recommendations for foliar or broadcast spray application

For foliar insect control on ornamental plants in nurseries, greenhouses, interior plantscapes, lath and shadehouses, and outdoor landscapes (commercial, industrial, recreational and residential).

Crop	Pest	Product Rate	Remarks
Ornamental plants including: Shrubs Bedding Plants Flowering Plants Foliage Plants Ground Covers Evergreens Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines Not for use on house plants grown inside private residences	Adelgids including: Hemlock Wooly Aphids (Suppression) Glassy-Winged Sharpshooter Japanese beetles (adults) Lacebugs including: Azalea Leaf beetles Leafhoppers Leafminers including: Serpentine Mealybugs including: Citrus Long-Tailed Madeira Obscure Pink Hibiscus Psyllids including: Asian Citrus Root Weevils (adults) including: Black Vine Sawflies (larvae) Scales (Armored and Soft) including: Cryptomeria Cycad Aulacaspis Elongate Hemlock Euonymus Florida Red Florida Wax Tea White Peach Thrips (suppression) Chilli Whiteflies including: Giant Greenhouse Silverleaf /Sweetpotato (B and Q Biotypes)	**Foliar Spray** ¼ to ½ lb. per 100 gallons (4 to 8 oz. per 100 gallons) (0.05 to 0.1 lbs. a.i. per 100 gallons) 8-16 oz per Acre (0.1 to 0.2 lbs. a.i./A) 0.2-0.4 oz per 1,000 sq. ft. For treatment of small areas: ½-1.0 tsp per gallon	For optimal control, make first application just before pest populations reach an economic threshold. If necessary, make a second application after 14-21 days. Tank mixing with a surfactant may improve control of pests such as whitefly, mealybug and scale. Confirm plant safety of tank mix in small area before using on a commercial scale. 100 gals. of spray mix will treat 20,000 sq. ft of area

1 level teaspoon contains 2.4 grams and 1 cup (8 fl oz) contains 4.0 oz of Dinotefuran 20% Turf and Ornamental.

Do not apply more than 2.7 lbs (0.54 lbs. a.i.) per acre of nursery or landscape per year

To delay the development of resistance: Do not apply Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides to consecutive generations of the same insect species without switching to a different mode of action. Do not make more than two sprays of Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides to a single crop during a two-month period. Refer to "Resistance Management Recommendations" section of label for further guidelines.

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VEGETABLE TRANSPLANTS

Recommendations for foliar or broadcast spray application

For foliar insect control on vegetable transplants grown in enclosed structures.

Crop	Pest	Product Rate	Remarks
Cucurbits Cantaloupe, Cucumber, Melons, Squash Fruiting Vegetables Eggplant, Peppers, Tomato Head and Stem Brassica Broccoli, Brussel Sprouts, Cabbage, Cauliflower, Kholrabi	Aphids Leafminers Mealybugs Thrips (suppression) Whiteflies including Silverleaf/Sweetpotato (B and Q Biotypes)	3.5 - 7.0 oz/100 gal 7-14 oz per Acre 0.16 - 0.32 oz Per 1,000 sq ft (0.09 to 0.18 lbs. a.i. per Acre)	Do not make more than one application per crop. Do not apply to greenhouse grown vegetables. 100 gals. of spray mix will treat 20,000 sq. ft of area Do not apply within one (1) day of harvest.
Leafy Vegetables (Excluding Brassica spp.)	Aphids Leafminers Mealybugs Thrips (suppression) Whiteflies including Silverleaf/Sweetpotato (B and Q Biotypes)	3.5 - 5.5 oz./100 gal 7-11 oz per Acre 0.16 - 0.25 oz. Per 1,000 sq ft (0.09 to 0.134 lbs. a.i. per Acre)	Do not make more than one application per crop. Do not apply to greenhouse grown vegetables. 100 gals. of spray mix will treat 20,000 sq. ft of area Do not apply within seven (7) days of harvest.

1 level teaspoon contains 2.4 grams and 1 cup (8 fl oz) contains 4.0 oz of Dinotefuran 20% Turf and Ornamental.

Do not apply more than 1.34 lbs (0.268 lbs. a.i.) per acre of nursery per year.

To delay the development of resistance: Do not apply Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides to consecutive generations of the same insect species without switching to a different mode of action. Do not make more than two sprays of Dinotefuran 20% Turf and Ornamental or other Group 4A insecticides to a single crop during a two-month period. Refer to "Resistance Management Recommendations" section of label for further guidelines.

Recommendations for application to soil media of containerized plants

For systemic insect control on containerized ornamental plants in nurseries, greenhouses, interior plantscapes, lath and shadehouses, and outdoor landscapes (commercial, industrial, recreational and residential) by application as a soil drench, micro-irrigation (spaghetti tube or emitter), drip irrigation, overhead irrigation, ebb and flood irrigation equipment or motorized irrigation equipment.

Crop	Pest	Product Rate	Remarks
Ornamental plants including: Shrubs Bedding Plants Flowering Plants Foliage Plants Ground Covers Evergreens Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines	Adelgids including: Hemlock Wooly Spruce Gall Wooly Balsam Aphids Erythrina Gall Wasp Flatheaded Borers including: Alder Borer Bronze Birch Borer Flatheaded appletree Fungus Gnats (larvae) Glassy-Winged Sharpshooter Lacebugs including: Azalea Leaf Beetles Leafhoppers Leafminers including: Birch Boxwood Holly Serpentine Mealybugs including: Citrus Long-Tailed Madeira Obscure Pink Hibiscus Root Pine Tip Moth (Larvae) Psyllids including: Asian Citrus Root Weevils (larvae and adults) including: Black Vine Citrus Diaprepes (Apopka) Roundheaded Borers including: Asian Longhorned Eucalyptus Longhorned Scales (Armored and Soft) including: Cottony Cushion Cryptomeria Cycad Aulacaspis Duplachionaspis Elongate Hemlock Euonymus False Oleander Fletcher Florida Red Florida Wax Oystershell Pine needle Tea Tulip Tree White Peach Thrips (Suppression) Chilli Whiteflies including: Giant Greenhouse Silverleaf/Sweetpotato White Grubs including: Japanese Beetle Oriental Beetle	**Soil Media Drench** ¾ to 1½ pounds per 100 gallons 12 to 24 ounces per 100 gallons 1.5-3.0 teaspoons per gallon **Media Drench Volume for Individual Pots** Pot diameter (inches) / Fl oz of dilute solution per pot 4 / 2 5 / 3 6 / 4 7 / 5 8 / 6 For larger pot volumes, apply 3 – 4 oz of dilute solution (0.11 to 0.22 g product/4 oz.) per gallon of potting media. Drench volume should be sufficient to wet soil media without resulting in overflow or runoff through drain holes in pot.	Only apply to moist soil media. Do not apply to dry or saturated media. For optimal performance, do not apply media drench until roots from transplanted plugs or liners have extended at least ▯▯ to the edge of pots. Do not leach treated soil media for at least 7 days after application or performance may be reduced. Heavy rainfall or excessive irrigation following application may decrease performance. In general, higher rates will be needed to control insects on woody plants than on herbaceous plants. Poinsettia: For optimal control of whiteflies, treat plants 1-3 weeks after pinch. Late season drenches will take longer to give control.

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<table>
<tr><th>Crop</th><th>Pest</th><th>Product Rate</th><th>Remarks</th></tr>
<tr><td></td><td></td><td>Media Drench Volume for Plants in Raised Beds, Benches, Bedding Flats, Plug and Liner Trays:

Apply sufficient dilute solution to wet soil media without loss of liquid from bottom of bed or liner.</td><td></td></tr>
<tr><td></td><td></td><td>Ebb and Flood Irrigation
<table><tr><th>Pot diameter (inches)</th><th>Ounces per 1,000 pots</th></tr><tr><td>4</td><td>1.9 - 3.7</td></tr><tr><td>5</td><td>2.8 - 5.6</td></tr><tr><td>6</td><td>3.7 - 7.5</td></tr><tr><td>7</td><td>4.7 - 9.3</td></tr><tr><td>8</td><td>5.6 - 11.2</td></tr></table></td><td>Bring several pots to field capacity, let soil dry and then measure amount of water required to bring pots back to field capacity. Multiply the average volume of water required to rehydrate one pot by the number of pots to be treated. Add this volume of water to the minimum amount of water needed to flood the area to be treated. Re-use any returned volume in subsequent irrigation of same plants.

For pot diameter greater than 8", use 3.7-7.5 ounces of Dinotefuran 20% Turf and Ornamental per 1,000 gallons of potting soil media.</td></tr>
<tr><td></td><td></td><td>Chemigation of individual containers using a micro-irrigation system (spaghetti tube)
<table><tr><th>Injection ratio</th><th>Ounces per gallon of injector tank water</th></tr><tr><td>1:100</td><td>12 - 24</td></tr></table></td><td>A 1:100 injection ratio (1 part injector tank solution: 100 parts irrigation water) is recommended. Do not mix more than 24 oz of Dinotefuran 20% Turf and Ornamental per gallon of injector tank water, or some product may settle out of solution. Irrigation system should be calibrated to deliver 3-4 fl oz of dilute solution per gallon of potting media.</td></tr>
<tr><td colspan="4">1 level teaspoon contains 2.4 grams, and 1 cup (8 fl oz) contains 4.0 oz of Dinotefuran 20% Turf and Ornamental.

Do not apply more than 2.7 lbs (0.54 lbs. a.i.) per acre of nursery per year.

To delay the development of resistance, do not make more than one soil application per crop cycle or three-months, whichever is shorter. Refer to "Resistance Management Recommendations" section of label for additional guidelines.</td></tr>
</table>

Recommendations for soil application to in-ground plants

For systemic insect control on ornamental plants in field nurseries (in-ground) and outdoor landscapes (commercial, industrial, recreational and residential) by application as a soil drench, micro-irrigation, drip irrigation or as a banded soil spray.

Crop	Pest	Product Rate	Remarks
Ornamental plants including: Shrubs Bedding Plants Flowering Plants Foliage Plants Ground Covers Evergreens Ornamental Trees Non-Bearing Fruit Trees Non-Bearing Nut Trees Non-Bearing Vines	Adelgids including: Hemlock Wooly Spruce Gall Wooly Balsam Aphids Erythrina Gall Wasp Flatheaded Borers including: Alder Borer Bronze Birch Borer Flatheaded appletree Fungus Gnats (larvae) Glassy Wing Sharpshooter Lacebugs including: Azalea Leaf Beetles Leafhoppers Leafminers including: Birch Boxwood Holly Serpentine Mealybugs including: Citrus Long-Tailed Madeira Obscure Pink Hibiscus Root Pine Tip Moth (Larvae) Psyllids including: Asian Citrus Root Weevils (larvae and adults) including: Black Vine Citrus Diaprepes (Apopka) Roundheaded Borers including: Asian Longhorned Beetle Eucalyptus Longhorned Beetle Scales (Armored and Soft) including: Cottony Cushion Cryptomeria Cycad Aulacaspis Duplachionapis Elongate Hemlock Euonymus False Oleander Fletcher Florida Red Florida Wax Oystershell Pine needle Tea Tulip Tree White Peach Thrips (Suppression) Chilli Whiteflies including: Giant Greenhouse Silverleaf/Sweetpotato White Grubs including: Japanese Beetle Oriental Beetle	**Shrubs** 3 - 6 grams (1.25 - 2.5 level teaspoons) per foot of height 1.0 - 2.1 ounces per 10 feet of height	For optimal control, apply early in plant's annual growing cycle and keep soil moist for at least 7 days after application. Only apply to moist soil. Do not apply to dry , saturated, or frozen soil, or when plants are not actively taking up water from soil. Heavy rainfall or inadequate irrigation immediately following application may decrease performance. Use higher labeled rates for broadleaf evergreens with dense foliage (ex. hollies) **Soil Drench:** Mix required dose in water and uniformly apply to soil around base of shrub or tree. Pull back mulch before drenching. For optimal performance, apply at least 1 quart of dilute solution per foot of height or inch of trunk diameter. If lower drench volume is used, apply ½ inch of irrigation immediately after application to move product into root zone. Keep soil moist for at least 7 days after application.

Recommendations for soil application to in-ground plants (continued)

For systemic insect control on ornamental plants in field nurseries (in-ground) and outdoor landscapes (commercial, industrial, recreational and residential) by application as a soil drench, micro-irrigation, drip irrigation or as a banded soil spray.

Crop	Pest	Product Rate		Remarks
		Trees 3 - 12 grams (1.25 - 5.0 level teaspoons) per inch of trunk diameter at breast height (DBH) 1.05 - 4.2 ounces per 10 inches of trunk diameter at breast height (DBH) For multi-stem trees, base rate on cumulative inches of diameter of all stems at breast height.		**Soil Injection:** Mix required dose in water and make at least four injections per shrub or tree with a low-pressure applicator. Use same amount of solution per hole. Injections can be made using the following methods: *Grid System*-Space injections on a 2.5 ft center extending to drip line. *Circle System*-Make injections in concentric circles extending inward from drip line. *Basal System*-Space injections evenly around trunk no more than 12" out from the base. For optimal performance, inject at least 1 quart of dilute solution per foot of height or inch of trunk diameter.
		Banded spray application to soil surface (2.7 lbs per acre)		Apply as a uniform band in row over root zone. Apply from peak adult flight to peak egg hatch. Apply in at least two gallons of water per 1,000 linear feet. Irrigate after application to move product into soil profile. Control any weeds in treated area prior to application, or performance may be reduced. Adjust rates accordingly for other row spacing.
		Row spacing	Ounces per 1,000 linear feet of row	
		3	3	
		4	4	
		5	5	
		6	6	
		7	7	
		8	8	

1 level teaspoon contains 2.4 grams, and 1 cup (8 fl oz) contains 4.0 oz of Dinotefuran 20% Turf and Ornamental.

Do not apply more than 2.7 lbs (0.54 lbs. a.i.) per acre of nursery or landscape per year.

To delay the development of resistance, do not make more than one soil application per crop cycle or three-months, whichever is shorter. Refer to "Resistance Management Recommendations" section of the label for additional guidelines.

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STORAGE AND DISPOSAL

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

Pesticide Storage: Keep pesticide in original container. Do not put concentrate or dilute into food or drink containers. Store in a cool dry place. Do not store diluted spray. For help with any spill, leak, fire or exposure involving this material, call day or night 1-800-CLEANUP.
Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.
Container Disposal:
Triple rinse (or equivalent). Do not reuse container. Offer for recycling or reconditioning, or puncture and dispose of in a sanitary landfill, or incineration, or if allowed by State and local authorities, by burning. If burned, stay out of smoke.

CONDITIONS OF SALE

MITSUI CHEMICALS, INC., warrants that this product in its unopened package conforms to the chemical description on the label and is reasonably fit for the purposes set forth on the label when used according to directions under normal use conditions to the crops specified. To the extent consistent with applicable law, there are no other warranties, expressed or implied, concerning the use of this product other than indicated on the label. To the extent consistent with applicable law, this warranty does not extend to the handling or use of this product contrary to label instructions or under abnormal conditions or conditions not reasonably foreseeable to seller, and buyer assumes all risk of any such use.

11/06/2007