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

OFFICE OF
CHEMICAL SAFETY
AND POLLUTION PREVENTION

Dr. Kenneth Racke
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

AUG 26 2010

Subject: GF-1587 SC-NC, EPA Reg. No. 62719-544
Date of Registrant Submission: May 27, 2010
Decisions: 435125

Dear Dr. Racke:

The labeling referred to above, submitted in connection with registration under the Federal insecticide, Fungicide, and Rodenticide Act, as amended, is acceptable.

Two (2) copies of the finished labeling must be submitted prior to releasing each product for shipment. If you have any questions regarding this letter, please contact Samantha Hulkower at (703) 603-0683.

Sincerely,

A handwritten signature in black ink, appearing to read "Mark Suarez", written over a horizontal line.

Mark Suarez
Product Manager 13
Insecticide Branch
Registration Division (7505P)

Enclosure: Copy of Labels Stamped "Accepted"

(Base label):

GF-1587 SC-NC

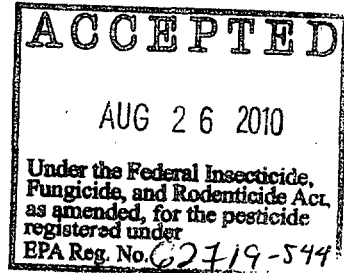
Insecticide

For control or suppression of lepidopterous larvae (worms, caterpillars), dipterous leafminers, thrips, sawfly larvae, and certain leaf-feeding beetles in commercial aquatic plants, home gardens, lawns, ornamentals, tree farms or plantations, turfgrass, and for control of red imported fire ants.

Group	5	INSECTICIDE
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Active Ingredient:

spinetoram: a mixture of spinetoram-J and spinetoram-L).....	11.7%
Other Ingredients	88.3%
Total	100.0%



Contains 1 lb of active ingredient per gallon (120 g ai/liter)

Keep Out of Reach of Children
CAUTION

Precautionary Statements

Hazards to Humans and Domestic Animals

Causes Moderate Eye Irritation

Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

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

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions 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.

First Aid

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 treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

This product is toxic to bees exposed to treatment for 3 hours following treatment. Do not apply this pesticide to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period. This product is toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Apply this product only as specified on the label.

Agricultural Use Requirements

Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Nonrefillable rigid containers 5 gallons or less:

Storage and Disposal

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

Pesticide Storage: Store in original container only. In case of leak or spill, contain material with absorbent materials and dispose as waste.

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: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Refillable rigid containers larger than 5 gal:

Storage and Disposal

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

Pesticide Storage: Store in original container only. In case of leak or spill, contain material with absorbent materials and dispose as waste.

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: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then

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Pesticide Storage: Store in original container only. In case of leak or spill, contain material with absorbent materials and dispose as waste.

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: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Refer to label booklet for Directions for Use.

Notice: Read the entire label. Use only according to label directions. **Before using this product, read Warranty Disclaimer, Inherent Risks of Use, and Limitation of Remedies at end of label booklet. If terms are unacceptable, return at once unopened.**

In case of emergency endangering health or the environment involving this product, call 1-800-992-5994.

Shake Well Before Use -- Avoid Freezing

EPA Reg. No. 62719-544

EPA Est. _____

Produced for
Dow AgroSciences LLC
9330 Zionsville Road
Indianapolis, IN 46268

Net Contents _____

5/23

(cover):

GF-1587 SC-NC

Insecticide

For control or suppression of lepidopterous larvae (worms, caterpillars), dipterous leafminers, thrips, sawfly larvae, and certain leaf-feeding beetles in commercial aquatic plants, home gardens, lawns, ornamentals, tree farms or plantations, turfgrass, and for control of red imported fire ants.

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Total	100.0%

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Keep Out of Reach of Children

CAUTION

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 Use this product only in accordance with its labeling and with the Worker Protection Standard, 40 CFR Part 170. Refer to label booklet under "Agricultural Use Requirements" in the Directions for Use section for information about this standard.

Refer to inside of label booklet for Directions for Use.

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(Page 1 through end):

Precautionary Statements

Hazard to Humans and Domestic Animals

CAUTION

Causes Moderate Eye Irritation

Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, or using tobacco.

Personal Protective Equipment (PPE)

Applicators and other handlers must wear:

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

Follow manufacturer's instructions for cleaning/maintaining PPE. If no such instructions 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.

First Aid

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 treatment advice.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-992-5994 for emergency medical treatment information.

Environmental Hazards

This product is toxic to bees exposed to treatment for 3 hours following treatment. Do not apply this pesticide to blooming, pollen-shedding or nectar-producing parts of plants if bees may forage on the plants during this time period. This product is toxic to aquatic invertebrates. Do not apply directly to water, to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when disposing of equipment washwaters. Do not apply where runoff is likely to occur. Do not apply when weather conditions favor drift from treated areas. Drift and runoff from treated areas may be hazardous to aquatic organisms in neighboring areas. Apply this product only as specified on the label.

Directions for Use

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read all Directions for Use carefully before applying.

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

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, restricted entry interval, and notification to workers (as applicable). 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 4 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
- Chemical-resistant gloves made of any waterproof material
- 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 in nurseries, greenhouses, and on sod and seed farms.

- Adults, children, and pets should not contact treated surfaces until the spray has dried.

Storage and Disposal

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

Pesticide Storage: Store in original container only. In case of leak or spill, contain material with absorbent materials and dispose as waste.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Nonrefillable rigid containers 5 gallons or less:

Container Handling: Nonrefillable container. Do not reuse or refill this container.

Triple rinse or pressure rinse container (or equivalent) promptly after emptying. **Triple rinse** as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 1/4 full with water and recap. Shake for 10 seconds. Pour rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure two more times. **Pressure rinse** as follows: Empty the remaining contents into application equipment or a mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank and continue to drain for 10 seconds after the flow begins to drip. Hold container upside down over application equipment or mix tank or collect rinsate for later use or disposal. Insert pressure rinsing nozzle in the side of the container, and rinse at about 40 psi for at least 30 seconds. Drain for 10 seconds after the flow begins to drip. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

Refillable rigid containers larger than 5 gal:

Container Handling: Refillable container. Refill this container with pesticide only. Do not reuse this container for any other purpose.

Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, empty the remaining contents from this container into application equipment or a mix tank. Fill the container about 10% full with water and, if possible, spray all sides while adding water. If practical, agitate vigorously or recirculate water with the pump for two minutes. Pour or pump rinsate into application equipment or rinsate collection system. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by other procedures allowed by state and local authorities.

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General Information

Use GF-1587 SC-NC insecticide for control or suppression of many foliage feeding pests including lepidopterous larvae (worms or caterpillars), dipterous leafminers, thrips, sawfly larvae, certain psyllids and leaf-feeding beetles, and red imported fire ant. This product's active ingredient, spinetoram, is derived from the fermentation of *Saccharopolyspora spinosa*, a naturally occurring soil organism. Mix the suspension concentrate of GF-1587 SC-NC with water and apply it as a foliar spray with ground equipment suitable for conventional insecticide spraying. Do not apply by air.

General Use Precautions

- Do not allow people or pets to contact treated surfaces until the spray has dried.
- Do not treat pets.
- Do not apply by air.
- Do not apply directly to fish pools and other bodies of water.
- **Chemigation:** Do not apply through any type of irrigation system.
- Do not apply to forests.

Integrated Pest Management (IPM) Programs

GF-1587 SC-NC is recommended for IPM programs in labeled uses. Apply GF-1587 SC-NC when field scouting indicates target pest densities have reached the economic threshold, i.e., the point at which the insect population must be reduced to avoid economic losses beyond the cost of control. Other than reducing the target pest species as a food source, GF-1587 SC-NC does not have a significant impact on certain parasitic insects or the natural predaceous arthropod complex in treated areas, including big-eyed bugs, ladybird beetles, flower bugs, lacewings, minute pirate bugs, damsel bugs, assassin bugs, predatory mites or spiders. The feeding activities of these beneficials will aid in natural control of other insects and reduce the likelihood of secondary pest outbreaks. If GF-1587 SC-NC is tank mixed with any insecticide that reduces its selectivity in preserving beneficial predatory insects, the full benefit of GF-1587 SC-NC in an IPM program may be reduced.

Insecticide Resistance Management (IRM)

GF-1587 SC-NC contains spinetoram, a Group 5 insecticide. Insect/mite biotypes with acquired resistance to Group 5 insecticides may eventually dominate the insect/mite population if Group 5 insecticides are used repeatedly in the same area, or in successive years as the primary method of control for targeted species. This may result in partial or total loss of control of those species by GF-1587 SC-NC or other Group 5 insecticides. Currently, only spinetoram and spinosad active ingredients are classified as Group 5 insecticides. These two insecticide active ingredients share a common mode of action and must not be rotated with each other for control of pests listed on this label. Spinetoram and

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spinosad may be rotated with all other labeled insecticide active ingredients.

To delay development of insecticide resistance, the following practices are recommended:

- Carefully follow the specific label guidelines within the Use Direction sections of this label, especially in regard to IRM recommendations.
- Avoid use of the same active ingredient or mode of action (same insecticide group) on consecutive generations of insects. However, multiple applications to reduce a single generation are acceptable. Treat the next generation with a different active ingredient that has a different mode of action or use no treatment for the next generation.
- Avoid using less than labeled rates of any insecticide when applied alone or in tank mixtures.
- Applications should be targeted against early insect developmental stages whenever possible.
- Base insecticide use on comprehensive IPM programs.
- Monitor treated insect populations for loss of effectiveness.
- Contact your local extension specialist and/or manufacturer for insecticide resistance management and/or IPM recommendations for the specific site and resistant pest problem.
- For further information or to report suspected resistance, contact your local Dow AgroSciences by calling 800-253-3033.

Requirements for Use of GF-1587 SC-NC in Greenhouses¹ and for Commercial Production of Herbaceous (Non-Woody) Ornamentals in Nurseries¹

¹A greenhouse is defined as a structure or space enclosed with a nonporous covering inside which plants are produced. A nursery is defined as a facility engaged in the outdoor production of plants.

- Regardless of the crop or pest being treated (excluding thrips, leafminers, and/or diamondback moths), do not apply GF-1587 SC-NC more than 10 times in a 12-month period inside a greenhouse or a structure that can be altered to be closed or open. If GF-1587 SC-NC is used for thrips, leafminer, and/or diamondback moth control, do not apply GF-1587 SC-NC more than 6 times in a 12-month period inside a greenhouse or a structure that can be altered to be closed or open regardless if other insect pests are also being treated. It is a violation of federal law to use this product in a manner inconsistent with its labeling.
- For areas of commercial production of herbaceous (non-woody) ornamentals in nurseries (including plant propagation beds), do not apply GF-1587 SC-NC more than 10 times in a 12-month period per crop regardless of the pest being treated (excluding thrips, leafminers and/or diamondback moths). If GF-1587 SC-NC is used in areas of commercial production of herbaceous (non-woody) ornamentals in nurseries (including plant propagation beds) for leafminer and/or diamondback moth control, do not apply GF-1587 SC-NC more than 6 times in a 12-month period per crop regardless if other insect pests are also being treated.
- Because generations of a specific pest may overlap, rotate insecticides and miticides and never apply more than 3 consecutive applications of GF-1587 SC-NC or products containing the same active ingredient or with the same mode of action (same insecticide group). Use only specified label rates.
- Make localized area treatments of ornamental plants where pest problems are anticipated or occur rather than general area-wide broadcast treatments.

Mixing Directions

Always shake well before use. Avoid freezing.

Application Rate Chart for Small Plantings or Spot Sprays

GF-1587 SC-NC fl oz per acre (based on 100 gal/acre)	Amount of GF-1587 SC-NC Per Volume of Spray Solution per					
	1 Gallon of Spray		3 Gallons of Spray		10 Gallons of Spray	
	fl oz	milliliters	fl oz	milliliters	fl oz	milliliters
2	0.02	0.6	0.06	1.8	0.2	6

4	0.04	1.2	0.12	3.6	0.4	12
6	0.06	1.8	0.18	5.4	0.6	18
8	0.08	2.4	0.24	7.2	0.8	24
10	0.10	3	0.30	9	1	30

For small plantings or spot sprays, add the required amount of GF-1587 SC-NC to the specified amount of water (table is based on 100 gallons of water per acre), mix thoroughly and apply uniformly to plant foliage up to the point of runoff. Mix only as much spray as needed for a single treatment. Do not use more than 3 gallons of spray per 1000 sq ft of area. Follow all label instructions for mixing and applications.

GF-1587 SC-NC - Alone: Fill the spray tank with water to about 1/2 of the required spray volume. Start agitation and add the required amount of GF-1587 SC-NC. Continue agitation while mixing and filling the spray tank to the required spray volume. Maintain sufficient agitation during application to ensure uniformity of the spray mix. Do not allow water or spray mixture to back-siphon into the water source.

GF-1587 SC-NC - Tank Mix: When tank mixing GF-1587 SC-NC with other materials, a compatibility test (jar test) using relative proportions of the tank mix ingredients should be conducted prior to mixing ingredients in the spray tank. If foliar fertilizers are used, the jar test should be repeated with each batch of fertilizer utilizing the mixing water source. Do not use acidifying buffering agents in tank mixes with GF-1587 SC-NC. Vigorous, continuous agitation during mixing, filling and throughout application is required for all tank mixes. Sparger pipe agitators generally provide the most effective agitation in spray tanks. To prevent foaming in the spray tank, avoid stirring or splashing air into the spray mixture.

Mixing Order for Tank Mixes: Fill the spray tank with water to 1/4 to 1/3 of the required spray volume. Start agitation. Add different formulation types in the order indicated below, allowing time for complete dispersion and mixing after addition of each product. Allow extra dispersion and mixing time for dry flowable products.

Add different formulation types in the following order:

1. Water dispersible granules
2. Wettable powders
3. GF-1587 SC-NC and other aqueous suspensions

Maintain agitation and fill spray tank to 3/4 of total spray volume. Then add:

4. Emulsifiable concentrates and water-based solutions
5. Spray adjuvants
6. Foliar fertilizers

Finish filling the spray tank. Maintain continuous agitation during mixing, final filling and throughout application. If spraying and agitation must be stopped before the spray tank is empty, the materials may settle to the bottom. Settled materials must be re-suspended before spraying is resumed. A sparger agitator is particularly useful for this purpose.

Premixing: Dry and flowable formulations may be premixed with water (slurried) and added to the spray tank through a 20 to 35 mesh screen. This procedure assures good initial dispersion of these formulation types.

Use of Adjuvants: Adjuvants may be used to improve control of dipterous and lepidpterous leafminers and thrips in situations where achieving uniform plant coverage is difficult such as a closed crop canopy, dense foliage, penetration into waxy leaf surfaces, and when less than optimum application equipment is used.

- Use only adjuvant products labeled for horticultural or agricultural use and follow the manufacturer's label directions. A nominal concentration of 1 to 2 quarts per 100 gallons (0.25 to 0.5% v/v) is generally

sufficient.

- For dipterous leafminers and thrips, emulsified crop oils or methylated crop oil plus organosilicone combination products are recommended.
- For lepidopterous leafminers, thrips and psyllids, citrus oils or horticultural oils may improve control.
- When using adjuvants, always conduct a jar test to determine the compatibility of the various components in the spray mixture. Plant safety should be evaluated in a small area or small number of plants whenever there is a significant change in spray mixture ingredients or source of water for the spray mixture.
- Do not use diesel fuel or pure mineral oil.
- When an adjuvant is to be used with this product, Dow AgroSciences recommends the use of a Chemical Producers and Distributors Association certified adjuvant.

Uses

Commercial Aquatic Plant Production

Use GF-1587 SC-NC in commercial aquatic plant production for control of lepidopterous pests such as China mark moth (*Nymphulielia daeckalis*) and light brown apple moth. This use is restricted to commercial facilities that utilize fully contained above or in-ground pools or containers for the purpose of commercial production of aquatic ornamental plants.

Application Timing: Apply when lepidopterous larvae are present. Applications at 2-week intervals, two to three times per year, have been shown to be effective when larvae are present.

Application Rate: Prepare a spray mixture containing 0.08 fl oz (2.3 mL) of GF-1587 SC-NC per gallon of water. Apply the spray mixture to aquatic foliage at a rate not to exceed 1 gallon of spray mixture per 100 sq ft of water surface area using suitable hand or power-operated application spray equipment.

Phytotoxicity: GF-1587 SC-NC has been tested alone on a wide variety of herbaceous and woody ornamental plants without phytotoxic symptoms. However, because it is not possible to test all possible tank mix combinations (including adjuvants) and ornamental plant species, varieties, and cultivars, and because environmental factors and varietal and plant stage of growth may affect phytotoxic expression, it is recommended that a small group of test plants be treated at the anticipated use rate of GF-1587 SC-NC either alone or in tank mix combinations and observed for at least 5 to 7 days to determine phytotoxicity before treating large numbers of those plants. **Note:** The user assumes responsibility for determining if GF-1587 SC-NC is safe to treated plants when applied either alone or in tank mixtures under commercial growing conditions.

Specific Use Restrictions for Commercial Aquatic Plant Production:

- Do not apply this product to aquatic environments (such as ponds; landscape pools or containers or ponds; lakes, rivers or streams) other than fully contained commercial production pools or containers.
- **Minimum Treatment Interval:** Do not make applications less than 7 days apart.
- If water treated with GF-1587 SC-NC needs to be discharged due to cleaning, repairing, or other reasons, discharge is allowed only onto land. Do not discharge water treated with GF-1587 SC-NC from commercial production pools or containers into surface water.
- Do not apply more than a total of 56 fl oz of GF-1587 SC-NC (0.438 lb ai of spinetoram) per acre per year.

Fire Ants – Mound Application in Turfgrass and Ornamentals, in Greenhouses, and in Other Outdoor Areas

Dilution Rate (fl oz)	
GF-1587 SC-NC per 1 gallon	GF-1587 SC-NC per 10 gallons
0.067	0.67

(2 mL)	(20 mL)
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Apply diluted GF-1587 SC-NC to individual fire ant mounds as a drench application. Use 1 to 2 gallons per mound depending upon the mound size. For mounds less than 8 inches in diameter, use 1 gallon of dilution per mound. Use a higher volume, up to 2 gallons, on mounds 8 inches or larger in diameter. Apply approximately 10% of the dilution volume around the perimeter of the mound out to about 12 inches and pour the remaining volume directly on the mound. Do not disturb mounds prior to application. If possible, apply following a recent rainfall. For best results, apply in cool weather, 65 to 85°F, or in early morning or late evening hours. Treat new mounds as they appear. Pressurized sprays should not be used as they may disturb the ants and cause migration, reducing control.

Specific Use Restrictions for Fire Ants:

- Do not apply more than a total of 2 fl oz of GF-1587 SC-NC (0.016 lb ai of spinetoram) per acre per year.

Home Gardens, Lawns and Ornamentals

Add the required amount of GF-1587 SC-NC to the specified amount of water, mix thoroughly, and apply uniformly to plant foliage to point of runoff, but do not exceed 3 gallons of spray per 1000 sq ft. Uniform coverage of both upper and lower leaf surfaces is essential for effective insect control. Mix only as much spray as needed for a single treatment. Do not use kitchen utensils for measuring. Keep measuring utensils with product and away from children.

Unit of Measure	Amount of GF-1587 SC-NC to Use per		
	1 Gallon (128 fl oz) of Spray	10 Gallons of Spray	100 Gallons of Spray
Fluid Ounces (fl oz)	0.06 fl oz	0.6 fl oz	6 fl oz
Milliliters (mL)	2 mL	18 mL	180 mL
Tablespoons (Tbs)	1/6 Tbs	1.5 Tbs	12 Tbs
Teaspoons (tsp)	1/2 tsp	4 tsp	36 tsp

Apply when listed pests are present. Target applications against early insect developmental stages whenever possible. Repeat applications may be made as indicated in the table below, but follow resistance management guidelines.

Specific Use Restrictions for Home Gardens, Lawns and Ornamentals:

- Do not apply more than 0.00047 lb ai of spinetoram per gallon per application.

Home Gardens

In the state of Georgia, do not apply GF-1587 SC-NC to: broccoli raab, Chinese cabbage (bok choy), collards, kale, mizuna, mustard greens, mustard spinach, rape greens.

Crops	Pests Controlled	Maximum Number of Applications per Season	Minimum Days to Wait Before Reapplying	Minimum Days to Wait from Last Application to Harvest
apple and other pome fruits including crabapple, mayhaw, pears, and quince	codling moth European corn borer European grapevine moth gypsy moth laconobia fruitworm leafminers ¹ leafrollers	6	7	7

	light brown apple moth oriental fruit moth pear psylla ¹ thrips ¹ tufted apple budmoth			
asparagus (post-harvest to protect ferns)	asparagus beetles	3	4	60
banana and plantain	banana moth lepidopterous larvae thrips ¹	4	7	56
Brassica (cole) leafy vegetables including broccoli, broccoli raab, Brussels sprouts, cabbage, cauliflower, cavalo, Chinese broccoli, Chinese cabbage (bok choy), Chinese cabbage (napa), Chinese mustard cabbage (gai choy), collards, kale, kohlrabi, mizuna, mustard greens, mustard spinach, and rape greens	cabbage looper ¹ dipterous leafminers ¹ diamondback moth imported cabbageworm light brown apple moth thrips worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)	6	4	1
bulb vegetables including dry bulb onion, garlic, great-headed (elephant) garlic, green onion, leek, shallot, and Welsh onion	armyworms (except yellowstriped armyworm and western yellowstriped armyworm) ¹ dipterous leafminers ¹ European corn borer ¹ loopers ¹ thrips ¹	5	4	1
bushberries including blueberry, currant, elderberry, gooseberry, huckleberry, juneberry, lingonberry, and salal	armyworms European grapevine moth fireworms fruit flies fruitworms gypsy moth leafrollers light brown apple moth loopers thrips ¹	6	6	3
caneberries including blackberry, black raspberry, loganberry, red raspberry, and cultivars and/or hybrids of these	armyworms (except yellowstriped armyworm and western yellowstriped armyworm) European grapevine moth fireworms fruit flies fruitworms leafrollers light brown apple moth loopers sawfly thrips ¹	6	4	1
citrus trees including grapefruit, lemons, limes,	citrus psyllid ¹ katydid ²	3	7	1

oranges, and tangerines (to prevent fruit scarring from thrips, treat when fruit is marble size)	leafminers ¹ leafrollers light brown apple moth thrips ¹ worms (caterpillars)			
cucurbits including cucumber, edible gourds, muskmelons (cantaloupe, honeydew, etc.), pumpkin, summer squash, watermelon and winter squash	cabbage looper dipterous leafminers ¹ thrips ¹ worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)	6 (per crop)	4	all except cucumber, 3; cucumber, 1
dates	carob moth	4	7	7
fig	navel orangeworm	4	7	7
fruiting vegetables and okra including eggplant, groundcherry, pepino, pepper, tomatillo, and tomato	Colorado potato beetle corn borer dipterous leafminers ¹ light brown apple moth loopers thrips ¹ worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)	6	4	1
grape	European grapevine moth grape leafroller leafrollers light brown apple moth orange tortrix thrips ¹ western grape leaf skeletonizer worms (berry moth)	5	4	7
herbs, leafy and dried including angelica, balm, basil, borage, burnet, chamomile, catnip, chervil (dried), chive, chive (Chinese), clary, cilantro, cilantro (leaf), coriander (leaf), costmary, curry (leaf), dillweed, horehound, hyssop, lavender, lemongrass, lovage (leaf), marigold, marjoram, nasturtium, parsley (dried), pennyroyal, rosemary, rue, sage, savory (summer and winter), sweet bay, tansy, tarragon, thyme, wintergreen, woodruff, and wormwood	light brown apple moth loopers thrips ¹ worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)	5	4	1
leafy vegetables (except Brassica) and watercress including amaranth, arugula, cardoon, celery, celtuce, chervil, Chinese celery,	cabbage looper diamondback moth dipterous leafminers ¹ light brown apple moth thrips ¹	6 (per crop)	4	1

<p>Chinese spinach, corn salad, dandelion, dock, edible-leaved chrysanthemum, endive (escarole), Florence fennel, garden cress, garden purslane, garland chrysanthemum, head lettuce, leaf lettuce, leafy amaranth, New Zealand spinach, orach, parsley, radicchio (red chicory), rhubarb, spinach, Swiss chard, tampala, upland cress, vine spinach, winter cress, winter purslane, and yellow rocket</p>	<p>worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)</p>			
<p>leaves of root and tuber vegetables and turnip greens including bitter cassava, black salsify, carrot, celeriac (celery root), chicory, dasheen (taro), edible burdock, garden beet, oriental radish (daikon), parsnip, radish, rutabaga, sugar beet, sweet cassava, sweet potato, tanier, true yam, turnip, turnip-rooted chervil</p>		6	7	3
<p>leaves of legume vegetables including any cultivar of bean and field pea (except soybean)</p>				
<p>legume vegetables (succulent and dried beans and peas) including adzuki bean, blackeyed pea, chickpea, cowpea, crowder pea, edible-pod pea, English pea, fava bean, field bean, field pea, garbanzo bean, garden pea, green pea, kidney bean, lentil, lima bean, lupins, mungbean, navy bean, pigeon pea, pinto bean, runner bean, snap bean, snow pea, sugar snap pea, tepary bean, wax bean, and yardlong bean</p>	<p>borers dipterous leafminers¹ light brown apple moth loopers thrips¹ worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)</p>	6	<p>European corn borer, 3; all other pests, 4</p>	<p>succulent, 3; dried, 28</p>
<p>peanut</p>	<p>corn borer loopers worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)</p>	3	7	3
<p>peppermint and spearmint</p>	<p>dipterous leafminers¹</p>	4	4	7

	light brown apple moth loopers thrips ¹ worms (caterpillars)			
pomegranate	European grapevine moth leafrollers thrips ¹ worms (caterpillars)	3	thrips, 4; all others, 7	1
root and tuber vegetables and globe artichoke including garden beet and sugar beet,	artichoke plume moth Colorado potato beetle corn borers dipterous leafminers ¹	4	7	7
black salsify, carrot, chicory, ginseng, horseradish, parsnip, salsify, Spanish salsify, turnip-rooted chervil, and turnip-rooted parsley,	light brown apple moth loopers thrips ¹ worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)	4	4	3
arracacha, arrowroot, bitter cassava, chayote root, Chinese artichoke, chufa, dasheen, edible canna, ginger, Jerusalem artichoke, leren, potato, sweet cassava, sweet potato, tanier, true yam, tumeric, and yam bean		4	7	7
globe artichoke		4	7	2
celeriac, edible burdock, oriental radish, radish, rutabaga, skirret, turnip, and other root vegetables not specifically listed		3	4	3
spices (except black pepper) including allspice, anise (seed), annatto (seed), black caraway, caper (buds), caraway, cardamom, cassia (buds), celery (seed), cinnamon, clove (buds), common fennel, coriander (seed), culantro (seed), cumin, dill (seed), Florence fennel (seed), fenugreek, grains of paradise, juniper (berry), lovage (seed), mace, mustard (seed), nutmeg, poppy (seed), saffron, star anise, vanilla, and white pepper	dipterous leafminers ¹ lepidopterous larvae thrips ¹	5	10	14
stone fruits including apricots, cherries, nectarines, peaches, plums, plumcots, and prunes	borers European grapevine moth fruit flies leafminers leafrollers light brown apple moth oriental fruit moth	4	7	apricot, 14; cherry, plum prune, and other stone fruits, 7; peach and nectarine, 1

	thrips ¹ tufted apple bud moth worms (caterpillars)			
strawberry	armyworms (except yellowstriped armyworm and western yellowstriped armyworm) leafrollers light brown apple moth thrips ¹	5	thrips, 3; all other pests, 4	1
sweet corn and popcorn (for corn earworms, treat silk frequently as it grows)	corn borers corn earworm worms (caterpillars) (except yellowstriped armyworm and western yellowstriped armyworm)	6	at silking, 2; all other times, 4	1
tree nuts and pistachios including almonds, cashew, chestnut, filbert (hazelnut), macadamia, pecan, and walnut	codling moth husk fly leafrollers light brown apple moth navel orangeworms peach twig borer pecan nut casebearer shuckworms worms (caterpillars)	4	7	1
tropical tree fruits including acerola, atemoya, avocado, biriba, black sapote, canistel, cherimoya, custard apple, feijoa, guava, ilama, jaboticaba, longan, lychee, mamey sapote, mango, papaya, passionfruit, pulasan, rambutan, sapodilla, soursop, Spanish lime, star apple, starfruit, sugar apple, ti leaves, wax jambu, and white sapote	citrus peelminer katydids ² leafrollers light brown apple moth orange tortrix thrips ¹ western tussock moth worms (caterpillars)	3	4	1
all crops listed in this table	fire ants	See Home Lawns and Ornamental Plants Section		

¹Control of lepidopterous larvae, leafminers, psylla and thrips may be improved with the addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing Directions.

²Katydid: Control of nymphs only; suppression of adults.

Resistance Management: Do not make more than two consecutive applications of Group 5 insecticides. If additional treatments are required after two consecutive applications of Group 5 insecticides, rotate to another class of effective insecticides for at least one application. For **thrips**, if additional treatments are required after two consecutive applications of Group 5 insecticides, rotate to another class of effective insecticides for at least two applications. Consult your local Dow AgroSciences representative, extension specialist, certified crop advisor, or state agricultural experiment station for information on alternative effective products to use in your area.

Lawns and Ornamentals

Use Site	Pests Controlled	Directions
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lawns	worms, including small (<3/4") armyworm, and sod webworm	Mix the amount of GF-1587 SC-NC specified per gallon of spray and uniformly apply a minimum of 3 gallons of spray per 1000 sq ft of area. Delay watering or mowing for 12 to 24 hours after application. Armyworms: For best results, apply in early morning or late afternoon.
outdoor ornamentals (herbaceous and woody plants)	dipterous leafminers ¹ gall midges leaf feeding beetles sawfly larvae thrips ¹ worms, including loopers, webworms, bagworms, gypsy moth, and tent caterpillars	Mix the amount of GF-1587 SC-NC specified per gallon of spray and uniformly spray foliage to the point of runoff. Uniform coverage of upper and lower leaf surfaces is essential for effective insect control.
lawns, ornamentals, home gardens (see listed crops in Home Gardens) and other outdoor areas	fire ants	Individual fire ant mounds: Mix the amount of GF-1587 SC-NC specified per gallon of spray and use a sprinkler can or similar device to apply the diluted spray as a mound drench, using 1 to 2 gallons per mound. Do not use pressurized sprays. Apply about 10% of the spray volume around the perimeter of the mound and the remainder directly to the mound. Do not disturb fire ant mound prior to application. If possible, apply following recent rainfall. For best results apply when weather is cool, 65 to 85°F, or in early morning or late evening. Treat new mounds as they appear.

¹Control of leafminers and thrips may be improved with the addition of an adjuvant to the spray mixture. See Use of Adjuvants section under Mixing Directions.

Ornamentals (Herbaceous and Woody) Growing Outdoors, in Nurseries (Including Conifer Seed Orchards), or in Greenhouses

Pests	GF-1587 SC-NC (fl oz/gallon)	GF-1587 SC-NC (fl oz/100 gallons)
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<p>chrysomelid leaf feeding beetles, such as: elm leaf (1) viburnum leaf (larvae) willow leaf (1) lepidopterous larvae, such as: azalea caterpillar bagworm beet armyworm cabbage looper California oakworm cankerworm diamondback moth eastern tent caterpillar fall webworm Florida fern caterpillar geranium budworm gypsy moth light brown apple moth oblique banded leafroller oleander caterpillar orange striped oakworm spruce budworm tussock moths (hickory, white-marked) western tent caterpillar yellow-necked caterpillar (2) sawfly larvae, such as: European pine pear redheaded pine thrips (exposed) in greenhouse settings, such as: (3) chilli Cuban laurel western flower</p>	<p>0.045 (1.3 mL)</p>	<p>4.5 (133 mL)</p>
<p>dipterous gall midges pinyon spindlegall thrips (exposed) in outdoor settings, such as: (3) chilli Cuban laurel western flower (3)</p>	<p>0.075 (2.2 mL)</p>	<p>7.5 (222 mL)</p>
<p>dipterous leafminers, such as: serpentine (4) Nantucket pine tip moth</p>	<p>0.15 (4.4 mL)</p>	<p>15 (444 mL)</p>

Numbers in parentheses (-) refer to Pest-Specific Use Directions.

Pest-Specific Use Directions (for pest control in the greenhouse or nursery, also refer to Insecticide Resistance Management for Greenhouses):

1. **Elm leaf beetle** and **willow leaf beetle** (adults and larvae): For effective control, apply in the spring or early summer when feeding is observed.
2. For effective control of the following lepidopterous larvae:
 - **Bagworms:** Apply when bags are small and larvae are actively feeding.
 - **Beet armyworms:** Apply when larvae are small.

- **Diamondback moth:** If additional treatments are required after two consecutive applications of Group 5 insecticides, rotate to another class of effective insecticides for at least two applications.
 - **Gypsy moth larvae:** Apply when larvae are small and all eggs have hatched.
 - **Spruce budworms:** Apply when larvae are exposed and actively feeding.
 - **Tent caterpillars and fall webworms:** Apply early when webs are first observed and direct the spray into the web and surrounding foliage within at least 3 feet of the nest.
3. **Exposed thrips (chilli, Cuban laurel and western flower):** For effective control, apply early at first signs of infestation and repeat until infestation is controlled, but follow resistance management guidelines. For thrips, if additional treatments are required after two consecutive applications of Group 5 insecticides, rotate to another class of effective insecticides for at least two applications. Addition of an adjuvant has been shown to enhance control of thrips (see Use of Adjuvants section under Mixing Directions).
 4. **Serpentine leafminers:** For effective control, apply early when stippling or mining of leaves is first observed and repeat until infestation is controlled, but follow resistance management guidelines. Three sequential applications at 7-day intervals can maximize control. Addition of a nonionic spray adjuvant such as DYNE-AMIC spray adjuvant at 0.1% v/v in greenhouse settings (see Phytotoxicity) has been shown to enhance control of leafminers (follow surfactant manufacturer's label directions).

Application Method: Dilute GF-1587 SC-NC in water and apply using suitable hand or power-operated application equipment (such as portable pump-up, backpack, hydraulic, boom) in a manner to provide complete and uniform plant coverage. Use of GF-1587 SC-NC in lath and shade houses is permitted.

Application Rate: GF-1587 SC-NC may be used up to a maximum labeled rate of 0.15 fl oz per gallon (15 fl oz per 100 gallons) per application on trees and ornamentals as a general treatment regardless of the target insect pest. Use pest specific rates when a single insect pest or group of insect pests within a rate category is the only intended target.

Spray Volume: Attempt to penetrate dense foliage, but avoid over spraying to the point of excessive runoff. Uniform coverage of both upper and lower leaf surfaces is critical for effective insect control.

Tank Mix: GF-1587 SC-NC may be tank mixed with other insect control products if broader spectrum insect control is required. When using tank mixtures, also follow all label directions of the mixing partner(s).

Phytotoxicity: GF-1587 SC-NC has been tested alone on a wide variety of herbaceous and woody ornamental plants without phytotoxic symptoms. However, because it is not possible to test all possible tank mix combinations (including adjuvants) and ornamental plant species, varieties, and cultivars, and because environmental factors and varietal and plant stage of growth may affect phytotoxic expression, it is recommended that a small group of test plants be treated at the specified use rate of GF-1587 SC-NC either alone or in tank mix combinations and observed for at least 5 to 7 days to determine phytotoxicity before treating large numbers of those plants. **Note:** The user assumes responsibility for determining if GF-1587 SC-NC is safe to treated plants when applied either alone or in tank mixtures under commercial growing conditions. Research has demonstrated that some spotting of African violet (*Saintpaulia*) flowers may occur.

Resistance Management: Do not make more than two consecutive applications of Group 5 insecticides. If additional treatments are required after two consecutive applications of Group 5 insecticides, rotate to another class of effective insecticides for at least one application. For **thrips** and **diamondback moth**, if additional treatments are required after two consecutive applications of Group 5 insecticides, rotate to another class of effective insecticides for at least two applications. Consult your local Dow AgroSciences representative, extension specialist, certified crop advisor, or state agricultural experiment station for information on alternative effective products to use in your area.

Specific Use Restrictions for Ornamentals:

- **Minimum Treatment Interval:** Except for greenhouses and structures that can be altered to be closed or open, do not make applications less than 7 days apart.
- Do not apply more than a total of 56 fl oz of GF-1587 SC-NC (0.438 lb ai of spinetoram) per acre per year.

Tree Farms or Plantations

Conifers, including Christmas trees, and deciduous trees

Pests	GF-1587 SC-NC (fl oz/acre)
lepidopterous larvae, such as: bagworm cone moth coneworm fall webworm gypsy moth hemlock looper jackpine budworm pine tip moth red-humped caterpillar spruce budworm tent caterpillar tussock moths light brown apple moth sawfly larvae, such as: European pine pear red-headed pine	2 – 11

Application Timing: Time applications to reach larvae when small or just hatching. A 7-day re-treatment schedule may be necessary to maintain control. Consult with your Dow AgroSciences representative, state agricultural experiment station, certified pest control advisor or extension specialist for information on application timing for specific pests in your area.

Application Rate: The rate of GF-1587 SC-NC applied per acre will depend upon tree size and severity of infestation. Use a higher rate in the rate range for large trees or heavy infestations. Apply in sufficient volume to ensure thorough coverage.

Specific Use Restrictions for Tree Farms or Plantations:

- Do not apply more than a total of 39 fl oz of GF-1587 SC-NC (0.305 lb ai of spinetoram) per acre per year.
- **Maximum Number of Applications:** Do not make more than six applications per calendar year.
- **Minimum Treatment Interval:** Do not make applications less than 7 days apart.

Turfgrass

Pests	GF-1587 SC-NC (fl oz/1000 sq ft)	GF-1587 SC-NC (fl oz/acre)
armyworms-small larvae such as: fall armyworm (1) sod webworms (including tropical) (2)	0.16 (4.8 mL)	7 (207 mL)
cutworms-small larva such as: black cutworm variegated cutworm (1,2)	0.55 (16.5 mL)	24 (710 mL)

annual bluegrass weevil armyworms-large larvae such as: fall armyworm (1) black turfgrass ataenius (adults) cutworms-large larvae such as: black cutworm variegated cutworm (1,2)	0.80 (24 mL)	35 (1036 mL)
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Numbers in parentheses (-) refer to Pest-Specific Use Directions.

Pest-Specific Use Directions:

1. **Fall armyworm** and **black cutworm** larvae: Use the lower rate for control of light infestations of small larvae (less than 3/4 of an inch for armyworms, an inch or less for cutworms); use the higher rate for control of heavy infestations and large larvae (3/4 of an inch or larger for armyworms, larger than an inch for cutworms). Applications for **fall armyworms** during the early morning or late afternoon can maximize control. Delay watering or mowing of the treated area for 12 to 24 hours after treatment.
2. **Black cutworm, sod webworm, and tropical sod webworm** larvae: Applications during the late afternoon or early evening can maximize control. Delay watering or mowing of the treated area for 12 to 24 hours after treatment.

Application Method: Dilute GF-1587 SC-NC in water and apply using suitable hand or power-operated application equipment (such as portable pump-up, backpack, hydraulic, boom, turf spray gun).

Application Rate: GF-1587 SC-NC may be used up to a maximum labeled rate of 0.80 fl oz per 1000 sq ft (35 fl oz per acre) per application on turfgrass as a general treatment regardless of the target insect pest. Use pest specific rates when a single insect pest or group of insect pests within a rate category is the only intended target.

Tank Mix: GF-1587 SC-NC may be tank mixed with other insect control products if broader spectrum insect control is required. When using tank mixtures, also follow all label directions of the mixing partner(s).

Resistance Management: Do not apply more than three times in succession. Whenever GF-1587 SC-NC is applied up to three times in succession, this should be followed by no use of GF-1587 SC-NC for a 21-day period or rotation to another insecticide class. Do not make more than six applications per season.

Specific Use Restrictions for Turfgrass:

- Do not apply more than a total of 56 fl oz of GF-1587 SC-NC (0.438 lb ai of spinetoram) per acre per year.
- **Minimum Treatment Interval:** Do not make applications less than 7 days apart.

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