



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

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

July 26, 2010

Norma Pangilinan, Ph.D
Manager, Registrations
Bayer Environmental Science
2 T.W. Alexander Drive
Research Triangle Park, NC 27709

RE: Product Name: BaFi TW
EPA Reg. No: 432-1512
Application for Notification Dated: June 1, 2010 to add alternate brand name
• Nortica™

Dear Dr. Pangilinan:

The Biopesticides and Pollution Prevention Division is in receipt of your application for Notification under Pesticides Registration Notice (PRN) 98-10 dated above. A preliminary screen of this request has been conducted for its applicability under PRN 98-10 and it has been determined that the action(s) requested falls within the scope of PRN 98-10. Our records have been duly noted, and the label submitted with this application has been stamped as "Notification, received and accepted" and will be placed accordingly in our records.

Questions concerning this action should be directed to Renae Whitaker (703) 347-0136 or email at whitaker.renae@epa.gov.

Sincerely,

Sheryl K. Reilly

Sheryl K. Reilly, Ph.D., Chief
Microbial Pesticides Branch
Biopesticides and Pollution Prevention
Division (7511P)

CONCURRENCES							
SYMBOL	▶ 7511P						
SURNAME	▶ Whitaker						
DATE	▶ 7/26/10						

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United States
Environmental Protection Agency
 Washington, DC 20460

Registration
 Amendment
 Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 432-1512	2. EPA Product Manager Sheryl Reilly	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) BaFi TW	PM# 90	
5. Name and Address of Applicant (Include ZIP Code) Bayer Environmental Science 2 T. W. Alexander Drive Research Triangle Park, NC 27709 <input type="checkbox"/> Check if this is a new address	6. Expedited Review. In accordance with FIFRA Section 3(c)(3) (b)(i), my product is similar or identical in composition and labeling to: EPA Reg. No. _____ Product Name _____	

Section - II

<input type="checkbox"/> Amendment - Explain below.	<input type="checkbox"/> Final printed labels in response to Agency letter dated _____	Notification Accepted Date: 7/26/10 Reviewer: Whitaker
<input type="checkbox"/> Resubmission in response to Agency letter dated _____	<input type="checkbox"/> "Me Too" Application.	
<input checked="" type="checkbox"/> Notification - Explain below.	<input type="checkbox"/> Other - Explain below.	

Explanation: Use additional page(s) if necessary. (For section I and Section II.)

- Alternate Brand Name - NORTICA.
 This notification is consistent with the provisions of PR Notice 98-10 and EPA regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec. 1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under Sections 12 and 14 of FIFRA.

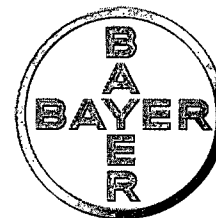
Section - III

1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input type="checkbox"/> No		<input type="checkbox"/> Metal	<input type="checkbox"/> Plastic
				<input type="checkbox"/> Glass	<input type="checkbox"/> Paper
* Certification must be submitted		If "Yes" Unit Packaging wgt.	No. per container	If "Yes" Package wgt.	No. per container
				<input type="checkbox"/> Other (Specify) _____	
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container		5. Location of Label Directions <input type="checkbox"/>	
6. Manner in Which Label is Affixed to Product <input type="checkbox"/> Lithograph <input type="checkbox"/> Paper glued <input type="checkbox"/> Stenciled			<input type="checkbox"/> Other _____		

Section - IV

1. Contact Point (Complete items directly below for identification of individual to be contacted, if necessary, to process this application.)		
Name Norma C. Pangilinan	Title Manager, Registrations	Telephone No. (Include Area Code) 919-549-2428
Certification I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment both under applicable law.		6. Date: Application Received (Stamped)
2. Signature 	3. Title Manager, Registrations	
4. Typed Name Norma C. Pangilinan	5. Date June 1, 2010	

Bayer Environmental Science



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Document Processing Desk (NOTIF)
EPA - Office of Pesticide Programs (7505P)
One Potomac Yard, Room S-4900
2777 S. Crystal Drive
Arlington, VA 22202

Attn: Dr. Sheryl Reilly
Branch Chief
Microbial Pesticides and Plant-Incorporated Protectants

**Subject: NORTICA: Alternate Brand Name for BaFi TW (Reg. No. 432-1512)
Notification per PR Notice 98-10**

Dear Dr. Reilly:

June 1, 2010

Bayer Environmental Science SA
2 T.W. Alexander Drive
Research Triangle Park, NC 27709

Phone: 919 549-2000

Pursuant to PR Notice 98-10, Bayer Environmental Science is submitting this notification for an alternate brand name for BaFi TW (Reg. No. 432-1512). The alternate brand name (ABN) is NORTICA. NORTICA is a Sub-Label of the BaFi TW master label. This notification is being submitted in compliance with 40 CFR 156.10(b)(2)(ii).

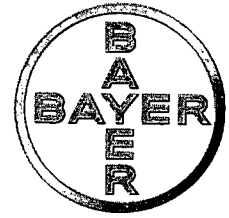
The following documents are being submitted with this notification:

- (1.) Completed EPA Form 8570-1 and
- (2.) Three copies of the ABN product label plus one highlighted copy of the BaFi TW master label, indicating which part of the master label is the sub-label NORTICA.

"This notification is consistent with the provisions of PR Notice 98-10 and EPA Regulations at 40 CFR 152.46, and no other changes have been made to the labeling or the confidential statement of formula of this product. I understand that it is a violation of 18 U.S.C. Sec.1001 to willfully make any false statement to EPA. I further understand that if this notification is not consistent with the terms of PR Notice 98-10 and 40 CFR 152.46, this product may be in violation of FIFRA and I may be subject to enforcement action and penalties under Section 12 and 14 of FIFRA."

A Business Group of
Bayer CropScience

Bayer Environmental Science



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Page 2 of 2

Please do not hesitate to call (919-549-2428) or e-mail me (norma.pangilinan@bayercropscience.com), if you have any questions.

Sincerely,

BAYER ENVIRONMENTAL SCIENCE
A Division of Bayer CropScience

A handwritten signature in cursive script, appearing to read 'Norma C. Pangilinan', is written over the printed name.

NORMA C. PANGILINAN, Ph.D.,
Registrations Manager

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MASTER LABEL

BAFI TW

Sub-label A: Agricultural/Commercial Use

Sub-label B: Residential Use

Sub-label C: Turf, Lawns, Sod Farms, and Golf Courses

Active Ingredient:

Bacillus firmus (strain I-1582)*.....5%

Other Ingredients:.....95%

Total:.....100%

* Contains a minimum of 3×10^9 cfu/gram

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

See back panel for additional precautionary statements

EPA Reg. No. 432-1512

EPA Est. No.



Bayer Environmental Science

A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709

~~Notification Not Accepted~~
~~Date:~~
~~Reviewer:~~

Notification Accepted
Date: 7/26/10
Reviewer: Whitaker

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SUB-LABEL A

BAFI TW

For Agricultural/Commercial Use Only

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BAFI TW

**A Biological Agent for the Protection of Plant Roots Against Plant Parasitic Nematodes
on Fruits, Vegetables, Field Crops, Ornamentals, and Propagation Materials**

Active Ingredient:

Bacillus firmus (strain I-1582)*.....5%

Other Ingredients:.....95%

Total:.....100%

* Contains a minimum of 3×10^9 cfu/gram

KEEP OUT OF REACH OF CHILDREN

CAUTION

See back panel for additional precautionary statements

Batch No. _____

EPA Reg. No. 432-1512 _____

EPA Est. No.

Net Contents: 50 Lbs (22.7 Kg)

Patented

U.S. Patent No. 6,406,690



Bayer Environmental Science

A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709

{Back Panel}

PRECAUTIONARY STATEMENTS

Hazards 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, using tobacco or using the toilet.

For **MEDICAL** And **TRANSPORTATION** Emergencies **ONLY** Call 24 Hours A Day 1-800-334-7577. For **PRODUCT USE** Information Call 1-866-99BAYER (1-866-992-2937)

FIRST AID	
If in eyes:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
<p>For MEDICAL Emergencies Call 24 Hours A Day 1-800-334-7577. Have the product container or label with you when calling a poison control center or doctor or going for treatment.</p>	

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks
- dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95

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.

Engineering Controls

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

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

Environmental Hazards

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters or rinsate.

IMPORTANT: Read the entire label before using this product.

DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the 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 (PPE), and restricted entry intervals (REI). 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.

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95

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.

Keep unprotected persons out of treated areas until sprays have dried.

GENERAL INFORMATION

BAFI TW suppresses nematode populations through the activity of *Bacillus firmus* I-1582. BAFI TW may be applied to field soil, to planting substrate, and directly on propagation material. Field application may be done by spraying the soil, drenching or by drip irrigation. Optimal results are obtained by preplant application (2-7 days before planting).

Applying BAFI TW during growth, from the fourth day after planting onward, is expected to cause a reduction in nematode populations in the soil. BAFI TW does not control other pests and pathogens. Control of other soil-borne pathogens by other means (such as soil fumigants) is highly recommended.

COMPATIBILITY

DO NOT apply BAFI TW for a month after formaldehyde application. Do not apply within two weeks of a fumigant application. Do not combine BAFI TW in the spray tank with pesticides, surfactants or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective and non-injurious under your use conditions.

BAFI TW is compatible with many commonly used pesticides, fertilizers, adjuvants and surfactants but has not been fully evaluated with all of these. To ensure compatibility of tank-mix combinations, they should be evaluated prior to use, as follows: Using a suitable container, add proportional amounts of product to water. Add wettable powders first, followed by water dispersible granules, then by liquid flowables and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the combination on a small portion of the target to be treated to ensure that a phytotoxic response will not occur as a result of application. Do not add products which lower the spray tank acidity below pH 5. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

APPLICATION INSTRUCTIONS

BAFI TW may be applied to field soil, to planting substrate and directly on propagation material.

BAFI TW is suitable for application by broadcast spraying to field soil and by soil incorporation, drenching, placement in-furrow or by drip irrigation water. Incorporate BAFI TW mechanically or with irrigation immediately after application. Apply BAFI TW to the entire volume of soil where the soil will be moist.

Timing of application: Optimal results are obtained by pre-plant applications (from 2-7 days prior to planting or transplanting). If product is applied prior to planting, maintain soil moisture until planting. Post-planting treatment will result in diminished nematode population (but is less effective than pre-plant application).

Additional/repeated treatments may be beneficial for perennials and long crop-cycle crops (more than 6 months).

Dosage:

Whenever a dosage range is indicated in the table, the higher rate refers to:

- Broadcast application or high crop density
- Hot climate during application season
- High nematode pressure expected

Preparation of BAFI TW suspension:

Add BAFI TW to water at a minimum ratio of 1 part BAFI TW to 5 parts water and maintain continuous agitation. BAFI TW suspension must be applied within the working day from wetting the powder.

Drenching:

Add BAFI TW to water at a minimum ratio of 5 parts water to 1 part BAFI TW and maintain continuous agitation. Thoroughly drench planting hole or around the wetted-zone of emitter/dripper. Avoid contact of plant leaves or stems by the suspension. Following the drenching treatment, irrigate the field adequately to moisten the entire root zone and activate the product. Depending on soil type and crop density, this may require 10,000-20,000 gallons per acre.

Spraying:

Apply BAFI TW through most standard spray nozzles. Do not exceed a 20% concentration of the suspension (approximately 150 lbs. BAFI TW per 100 gallons water).

Introduction With Irrigation Water (Biogation): Instructions and Guidelines for Applications Through Irrigation Systems

Apply BAFI TW suspension through drip tape and various types of emitters. BAFI TW has been tested in a wide variety of irrigation equipment types without damage or clogging. BAFI TW particles may accumulate on the irrigation screen filters; therefore, the application must be made at a point following the filter equipment. If this cannot be done, remove the screens at the time of application. This is not necessary for self-cleaning filters.

For optimum results, apply BAFI TW at the beginning of the irrigation cycle (but not less than over a 20-30 minute interval) to enable the remainder of the irrigation water to incorporate BAFI TW throughout the root zone.

Types of Irrigation Systems: Apply BAFI TW through drip/trickle-type irrigation systems.

Injection for Biogation: Inject the specified dosage of BAFI TW suspension into the irrigation main, water stream: (1) through a constant-flow, metering device; (2) into the center of the main line flow via a pitot tube or equivalent; (3) at a point ahead of at least one, right-angle turn in main stream flow such that thorough mixing with the irrigation water is ensured.

Uniform Water Distribution and System Calibration: The irrigation system must provide uniform distribution of BAFI TW-treated water. Lack of effectiveness can result from non-uniform distribution. The system must be calibrated to uniformly distribute the rates specified. With questions about calibration, contact your State Extension Service, equipment manufacturers, or other experts.

Biogation Monitoring: A person knowledgeable of the biogation 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.

Required Injection and Sprinkler System Safety Devices: The system must contain a functional check valve, vacuum relief valve, and low pressure drain, appropriately located on the irrigation pipeline to prevent water source contamination from back-flow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor/engine stops or in cases where there is no water pump, when water pressure decreases to the point where pesticide distribution is adversely affected. Injection systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Do not apply when wind speed favors drift beyond the area intended for treatment.

Using Water from Public Water Systems: Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Biogation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional automatic quick-closing check valve to prevent the flow of fluid back toward the injection. The pesticide injection pipeline must contain a functional normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut-down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Chemical Supply Tank Dilution and Agitation: For injection of BAFI TW, use a chemical supply tank for pre-mixing with water before injecting mixture into the irrigation line. Use a minimum dilution ratio of 5 parts water to 1 part BAFI TW. Constant mechanical or hydraulic agitation must be maintained in the chemical supply tank during the entire period of application. Determine the required amounts of BAFI TW and water to mix in the tank. The amount of BAFI TW needed equals the number of pounds of BAFI TW to be applied per acre multiplied by the number of acres to be chemigated. The amount of mixture needed equals the gallons of mixture delivered per hour by the injection pump, multiplied by the number of hours biogation will take place. The amount of water needed equals the amount of mixture needed minus the amount of BAFI TW needed.

For Drip (Trickle) Biogation:

The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must also contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Begin applying product 10 minutes after initiation of irrigation. Immediately after application, continue irrigation to promote penetration of BAFI TW into the soil. See post-application irrigation volumes specified in Application Instructions section.

Cleaning the Injection System: In order to apply pesticides accurately, the chemical injection system must be kept clean, free from chemical or fertilizer residues and sediments. Refer to your owner's manual or ask your equipment supplier for the cleaning procedure for your injection system.

Flushing the Irrigation System: At the end of the application period, allow time for all lines to flush the pesticide through all nozzles before turning off irrigation water. To ensure the lines are flushed and free of pesticides, a dye indicator may be injected into the lines to mark the end of the application period.

Center-Pivot and Automatic-Move Linear Systems: Inject the specified dosage per acre continuously for one complete revolution or move of the system. Run the system at maximum speed. Plug nozzles in the immediate area of control panels, chemical supply tanks, pumps and system safety devices to prevent chemical contamination of these areas. Do not use END GUNS. End guns which provide uneven distribution of treated water can result in lack of effectiveness.

Solid Set and Manually Controlled Linear Systems: Inject during the first 30 to 60 minutes of a regular irrigation period or as a separate 30 to 60 minute application not associated with a regular irrigation.

FIELD CROPS

Apply specified rate of BAFI TW per acre via at planting in-furrow, side-dress, or biogation applications to target area.

COTTON

Pests Controlled	Rate Lbs BAFI TW/Acre
Reniform nematode Root-knot nematode	10-30

Notes and Restrictions

Pre-Harvest Interval (PHI): 0 days.

Applications

Apply specified dosage using one of the following methods:

1. In-furrow spray.
2. Side-dress.
3. Biogation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment.
4. Post-plant/transplant biogation into root zone.

PEANUT

Pests Controlled	Rate Lbs BAFI TW/Acre
Root-knot nematode	10-30

Notes and Restrictions

Pre-Harvest Interval (PHI): 0 days.

Applications

Apply specified dosage in one of the following methods:

1. In-furrow spray.
2. Side-dress.
3. Biogation into root zone through low-pressure drip, trickle, micro-sprinkler or equivalent equipment.
4. Post-plant/transplant biogation into root zone.

VEGETABLE CROPS

Apply specified rate of BAFI TW per acre as a broadcast or directed ground spray to target area.

CROP Subgroup 1A – ROOT, TUBEROUS and CORM VEGETABLES Including:

Beet (garden)^{2/}, Beet (sugar, root)^{2/}, Burdock (edible)^{2/}, Carrot^{2/}, Celeriac (celery root)^{2/}, Chervil (turnip-rooted)^{2/}, Chickory^{2/}, Ginseng, Horseradish, Parsley (turnip-rooted), Parsnip^{2/}, Radish^{2/}, Oriental radish (daikon)^{2/}, Rutabaga^{2/}, Salsify (black)^{2/}, Salsify (oyster plant), Salsify (Spanish), Skirret

Pests Controlled	Rate Lbs BAFI TW/Acre
Bulb nematode Needle nematode Root-knot nematode Stem nematode Stubby-root nematode Sugarbeet nematode	30-150
Applications Apply specified dosage in one of the following methods: <ol style="list-style-type: none"> 1. Pre-planting soil application followed by mechanical incorporation and/or irrigation. 2. In-furrow spray at seeding followed by irrigation. 3. Biogation into root zone. 4. Post-plant/transplant biogation into root zone. 	

CROP Subgroup 1C – TUBEROUS and CORM VEGETABLES Including:

Arracacha, Arrowroot, Artichoke (Chinese and Jerusalem), Canna (edible, Queensland arrowroot), Cassava (bitter & sweet)^{2/}, Chayote (root)*, Chufa, Dasheen (taro)^{2/}, Ginger, Leren, Potato, Sweet potato^{2/}, Tanier (cocoyam)^{2/}, Turmeric, Yam bean (jicama, manioc pea), Yam (true)^{2/}

*See CUCURBIT Vegetable Crop Group for Chayote (fruit)

Pests Controlled	Rate Lbs BAFI TW/Acre
Golden nematode Lance nematode Potato rot nematode Reniform nematode Root-knot nematode Sting nematode	30-150
Applications Apply specified dosage in one of the following methods: <ol style="list-style-type: none"> 1. Pre-planting soil application followed by mechanical incorporation and/or irrigation. 2. In-furrow spray at seeding followed by irrigation. 3. Biogation into root zone. 4. Post-plant/transplant biogation into root zone. <p>Make 3 applications as necessary: 1) before planting/transplanting; 2) 1st hilling; 3) 2nd hilling.</p>	

CROP GROUP 3-07 – BULB VEGETABLES (*Allium* sp.) Including:

Chive (fresh leaves), Chinese chive (fresh leaves), Daylily (bulb), Elegans hosta, Fritillaria (bulb and leaves), Garlic (common group, great-headed group, serpent group), Kurrat group, Leek group (including common, lady's and wild), Lily (bulb), Onion (bulb and green leaves including: common group, Beltsville bunching, Chinese bulb, fresh, green, macrostem, Pearl group, potato onion group, tree onion-tops, Welsh-tops), Shallot, plus cultivars, varieties, and/or hybrids of these

Pests Controlled	Rate Lbs BAFI TW/Acre
Bulb nematode Stem nematode	20-100
Applications Apply specified dosage in one of the following methods: <ol style="list-style-type: none"> 1. Pre-planting soil application followed by mechanical incorporation and/or irrigation. 2. Pre-plant/transplant biogation into root zone. 3. In-furrow spray at seeding followed by irrigation. 4. Post-plant/transplant biogation into root zone. 	

CROP GROUP 4 – LEAFY VEGETABLES (except Brassica) Including:

Amaranth (leafy amaranth, Chinese spinach, tampala), Arugula (Roquette), Cardoon, Celery, Celtuce, Chervil, Chinese celery, Chrysanthemum (edible-leaved and garland), Corn salad, Cress (garden), Cress (upland, yellow rocket, winter cress), Dandelion, Dock (sorrel), Endive, Florence fennel (sweet anise, sweet fennel, Finocchio), Lettuce (head and leaf), Orach, Parsley, Purslane (garden and winter), Radicchio (red chicory), Rhubarb, Spinach [including New Zealand and vine (Malabar spinach, Indian spinach)], Swiss chard

Pests Controlled	Rate Lbs BAFI TW/Acre
Lesion nematode Needle nematode Pin nematode Root-knot nematode Spiral nematode Stunt nematode Sugarbeet cyst	20 – 100
Applications Apply specified dosage in one of the following methods: <ol style="list-style-type: none"> 1. Pre-planting soil application followed by mechanical incorporation and/or irrigation. 2. Pre-plant/transplant biogation into root zone. 3. In-furrow spray at seeding followed by irrigation. 4. Post-plant/transplant biogation into root zone. 	

CROP GROUP 5 – BRASSICA LEAFY VEGETABLES Including:

Broccoli, Broccoli raab (*rapini*), Brussels sprouts, Cabbage, Cauliflower, Cavalo broccolo, Chinese broccoli (*gai lon*), Chinese cabbage (*bok choy*), Chinese cabbage (*napa*), Chinese mustard cabbage (*gai choy*), Collards, Kale, Kohlrabi, Mizuna, Mustard greens, Mustard spinach, Rape greens, Turnip greens

Pests Controlled	Rate Lbs BAFI TW/Acre
Lesion nematode Needle nematode Pin nematode Root-knot nematode Spiral nematode Stunt nematode Sugarbeet cyst	20 – 100

Applications

Apply specified dosage in one of the following methods:

1. Pre-planting soil application followed by mechanical incorporation and/or irrigation.
2. Pre-plant/transplant biogation into root zone.
3. In-furrow spray at seeding followed by irrigation.
4. Post-plant/transplant biogation into root zone.

CROP GROUP 6 – SOYBEAN and PEA and BEAN (Legume) VEGETABLES Including:

Edible Podded and Succulent Shelled Pea and Bean and Dried Shelled Pea and Bean

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

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

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

Bean (immature, *Glycines max*, soybean).

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

Other Beans and Peas includes broad bean (fava), chickpea (garbanzo bean), guar, jackbean, lablab bean (hyacinth bean), lentil, pigeon pea, soybean, soybean (immature seed), sword bean

Pests Controlled	Rate Lbs BAFI TW/Acre
Lesion nematode Root-knot nematode Soybean cyst nematode Sting nematode	20 – 100

Applications

Apply specified dosage in one of the following methods:

1. Pre-planting soil application followed by mechanical incorporation and/or irrigation.
2. Pre-plant/transplant biogation into root zone.
3. In-furrow spray at seeding followed by irrigation.
4. Post-plant/transplant biogation into root zone.

CROP GROUP 8 – FRUITING VEGETABLES Including:

Eggplant, Groundcherry, Pepinos, Pepper (*Capsicum* spp., including Bell, Chili, Cooking, Pimento and Sweet), Tomatillo, Tomato

Pests Controlled	Rate Lbs BAFI TW/Acre
Root-knot nematode Sting nematode Stubby-root nematode	30 – 100

Applications

Apply specified dosage in one of the following methods:

1. Pre-planting soil application followed by mechanical incorporation and/or irrigation.
2. Pre-plant/transplant biogation into root zone.
3. In-furrow spray at seeding followed by irrigation.
4. Post-plant/transplant biogation into root zone.

CROP GROUP 9 – CUCURBIT VEGETABLES Including:

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

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Pests Controlled	Rate Lbs BAFI TW/Acre
Lesion nematode Reniform nematode Root-knot nematode	30 – 100
Applications Apply specified dosage in one of the following methods: <ol style="list-style-type: none"> 1. Pre-planting soil application followed by mechanical incorporation and/or irrigation. 2. Pre-plant/transplant biogation into root zone. 3. In-furrow spray at seeding followed by irrigation. 4. Post-plant/transplant biogation into root zone. 	

CROP GROUP 19 – HERBS and SPICES Including:

Allspice, Angelica, Anise (anise seed), Anise (star), Annatto (seed), Balm (lemon balm), Basil (fresh and dried), Borage, Burnet, Camomile, Caper buds, Caraway, Caraway (black), Cardamom, Cassia (bark and buds), Catnip, Celery seed, Chervil (dried), Chinese chive, Chive, Cinnamon, Clary, Clove (buds), Coriander (cilantro or Chinese parsley leaves, Coriander seed (cilantro seed), Costmary, Culantro (leaf and seed), Cumin, Curry leaf, Dill (seed), Dillweed, Fennel [common and Florence (seed)], Fenugreek, Grains of paradise, Horehound, Hyssop, Juniper berry, Lavender, Lemongrass, Lovage (leaf and seed), Mace, Marigold, Marjoram (includes sweet or annual marjoram, wild marjoram or oregano and pot marjoram), Mustard (seed), Nasturtium, Nutmeg, Parsley (dried), Pennyroyal, Pepper (black and white), Poppy (seed), Rosemary, Rue, Saffron, Sage, Savory (summer and winter), Sweet bay (bay leaf), Tansy, Tarragon, Thyme, Vanilla, Wintergreen, Woodruff, Wormwood

Pests Controlled	Rate Lbs BAFI TW/Acre
Lesion nematode Reniform nematode Root-knot nematode	30 – 150
Applications Apply specified dosage in one of the following methods: <ol style="list-style-type: none"> 1. Pre-planting soil application followed by mechanical incorporation and/or irrigation. 2. Pre-plant/transplant biogation into root zone. 3. In-furrow spray at seeding followed by irrigation. 4. Post-plant/transplant biogation into root zone. 	

TREE, NUT and VINE CROPS

Apply specified rate of BAFI TW per acre as a directed ground spray to target area.

CROP GROUP 10 – CITRUS FRUIT Including:

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

Pests Controlled	Rate Lbs BAFI TW/Acre
Citrus nematode Lesion nematode Sting nematode	10-50
<p>Applications Apply specified dosage in one of the following methods:</p> <ol style="list-style-type: none"> 1. Drench into root zone. 2. Biogation into root zone. <p>Treat before planting and make 2 annual applications as necessary: 1) before Spring flush; 2) Harvest.</p>	

CROP GROUP 11 – POME FRUIT Including:

Apple, Crabapple, Loquat, Mayhaw, Pear, Oriental pear, Quince

Pests Controlled	Rate Lbs BAFI TW/Acre
Dagger nematode Pin nematode Ring nematode Lesion nematode Root-knot nematode	10-50
<p>Applications Apply specified dosage in one of the following methods:</p> <ol style="list-style-type: none"> 1. Drench into root zone. 2. Biogation into root zone. <p>Treat before planting and make 2 annual applications as necessary: 1) Spring flush; 2) Harvest.</p>	

CROP GROUP 12 – STONE FRUIT Including:

Apricot, Cherry (including sweet and tart), Nectarine, Olive, Peach, Plum (including Chickasaw, Damson and Japanese), Plumcot, Prune (fresh)

Pests Controlled	Rate Lbs BAFI TW/Acre
Pin nematode Ring nematode Root-knot nematode	10-50
<p>Applications Apply specified dosage in one of the following methods:</p> <ol style="list-style-type: none"> 1. Drench into root zone. 2. Biogation into root zone. <p>Treat before planting and make 2 annual applications as necessary: 1) Spring flush; 2) Harvest.</p>	

CROP GROUP 13 – BERRY and SMALL FRUIT Including:

Blackberry (*Rubus* spp. - including Andean Blackberry, Arctic blackberry, Bingleberry, Black satin berry, Boysenberry, Brombeere, California blackberry, Chesterberry, Cherokee blackberry, Cheyene blackberry, Common blackberry, Coryberry, Darrowberry, Dewberry, Dirksen thornless berry, Evergreen blackberry, Himalayaberry, Hullberry, Lavacaberry, Loganberry, Lowberry, Lucretiaberry, Mammoth blackberry, Marionberry, Mora, Mures deronce, Nectarberry, Northern dewberry, Olallieberry, Oregon evergreen berry, Phenomenalberry, Rangeberry, Ravenberry, Rossberry, Shawnee blackberry, Southern dewberry, Tayberry, Youngberry, Zazzamora, plus cultivars, varieties and/or hybrids of these), **Blueberry** (includes all *Vaccinium* spp. and varieties and/or hybrids of these [such as American blueberry, swamp blueberry; Northern highbush blueberry, Southern highbush blueberry, half-high blueberry, Lowbush and Southern black blueberry]), Buffaloberry, Che, Chilean guava, Chokeycherry, Cloudberry, **Cranberry**, Currant (black, buffalo, native and red), Elderberry, European barberry, Gooseberry (*Ribes* spp.), **Grape** (*Vitis* spp.), Highbush cranberry, Honeysuckle (edible), Huckleberry, Jostaberry, Juneberry (including Saskatoon berry), **Kiwifruit** (fuzzy and hardy), Lingonberry, Maypop (passionflower), Mountain pepper berries, Mulberry, Muntries, Partridgeberry, Phalsa, Pincherry, **Raspberry** (*Rubus* spp. - including Bababerry, Black raspberry, Blackcap, Caneberry, Framboise, Frambueso, Himbeere, Keriberry, Mayberry, Purple raspberry, Red raspberry, Thimbleberry, Tulameen, Wild raspberry, Yellow raspberry, plus cultivars, varieties and/or hybrids of these), Riberry, Salal, Schisandra berry, Sea buckthorn, Serviceberry, **Strawberry**, plus cultivars, varieties and/or hybrids of these

Pests Controlled	Rate Lbs BAFI TW/Acre
Root-knot nematode	30-100
<p>Applications Apply specified dosage in one of the following methods:</p> <ol style="list-style-type: none"> 1. Drench into root zone. 2. Biogation into root zone. <p>Treat before planting/transplanting and make up to 3 annual applications: 1) before Spring flush; and 2) During periods of high stress.</p>	

CROP GROUP 14 – TREE NUTS Including:

Almond, Beech nut, Brazil nut, Butternut, Cashew, Chestnut, Chinquapin, Hazelnut (filbert), Hickory nut, Macadamia nut (bush nut), Pecan, Pistachio, Walnut [including black and English (Persian) walnuts]

Pests Controlled	Rate Lbs BAFI TW/Acre
Dagger nematode Lesion nematode Ring nematode Root-knot nematode	10-50
<p>Applications Apply specified dosage in one of the following methods:</p> <ol style="list-style-type: none"> 1. Drench into root zone. 2. Biogation into root zone. <p>Treat before planting and make 2 annual applications as necessary: 1) before Spring flush; 2) Harvest.</p>	

ORNAMENTALS – Flowering/Foliage such as: Anigozanthus, Aralia, Asclepias, Aspidistra, Aster, Chamelaucium, Dianthus, Echinops, Galobularia, Gerbera, Hypericum, Lisianthus, Ornithogalum, Ozothamnus, Phlox, Roses, and Solidago	
Pests Controlled	Rate Lbs BAFI TW/Acre
Bulb nematode Foliar nematodes Root-knot nematode Stem nematode	30-100
Applications Make applications at-planting (up to 5 days pre-plant) and at 90-day intervals as necessary during the growing season.	

**PROPAGATION MATERIAL
(bulbs, tubers, and bare-root seedlings)**

Propagation material (bulbs, tubers, and bare-root seedlings) such as garlic, potatoes, Narcissus, peony, Kurkuma, Echinops that is suspected to be nematode infested may be treated by dipping the roots/bulbs/tubers in an aqueous suspension of BAFI TW. Consult with local authorities regarding the acceptance of this treatment for quarantine purposes.

Preparing the suspension: While mixing, add one part BAFI TW to a minimum of 5 parts water. Mix well. Wait 5 minutes. Dilute with water to final concentration.

Soak roots/bulbs/tubers in the agitated BAFI TW suspension for a minimum of 20 minutes just prior to planting. Longer incubations (up to 10 hours) will improve efficacy. One ounce of BAFI TW per gallon of water was found to be safe to many crops.

Actively growing roots/bulbs/tubers might be damaged by either BAFI TW suspension or by long dipping: Perform a preliminary test monitoring the "stand" of such treated material.

Do not apply this product at rates higher than those specified on this label.

Pests Controlled in Listed Crops	Rate Ounces BAFI TW/Gallon of Water
Root-knot nematode	1.0
Crop	
Tobacco	
Legume Vegetables (except soybean)	Adzuki bean, asparagus bean, blackeyed peas, broad bean (fava), catjang, chickpea (Garbanzo bean), Chinese longbean, cowpea, Crowder pea, dwarf pea, edible-pod bean, English pea, field bean, field pea, garden pea, green pea, Guar, Jackbean, kidney bean, lima bean, lentil, Lupin (grain, sweet, white and white sweet), moth bean, mung bean, navy bean, pigeon pea, rice bean, runner bean, snap bean, snow pea, Southern pea, sugar snap pea, tepary bean, urd bean, yardlong bean, wax bean
Brassica (Cole) Leafy Vegetables	Broccoli (including Chinese and raab), Brussels sprouts, cabbage (including Chinese bok choy, Chinese napa and mustard), cauliflower, cavalo broccoli, collards, kale, kohlrabi, mizuna, mustard greens, mustard spinach, and rape greens

Cucurbit Vegetables	Chayote (fruit), Chinese waxgourd, citron melon, cucumber, gherkin, edible gourd (includes hyotan, cucuzza, Chinese okra, and hechima), Momordica spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), muskmelon (includes true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon), pumpkin, summer squash (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), winter squash (includes butternut squash, calabaza, hubbard squash), Cucumis mixtar, Cucumis pepo (includes acorn squash, spaghetti squash), watermelon (includes hybrids and/or varieties of Citrullus lanatus.).
Leafy Vegetables	Amaranth (leafy, Chinese spinach, tampala, cardoon, celery (including Chinese), celtuce, chervil, chrysanthemum (edible-leaved and garland), corn salad, cress (garden and upland), dandelion, dock, endive/fennel (finocchio), lettuce (head and leaf), orach, parsley, purslane (garden and winter), radicchio, rhubarb, spinach* (including new Zealand and vine), and Swiss chard.
Fruiting Vegetables	Eggplant, groundcherry, pepino, pepper (including bell pepper, chili pepper, cooking pepper, pimento, sweet pepper), tomatillo, and tomato
Bulb Vegetables	Garlic, Leek, Onion (dry bulb and green), Shallot
Root and Tuber Vegetables	Arracacha, arrowroot, artichoke (Chinese and Jerusalem), beet (garden and sugar), burdock (edible), canna (edible), carrot, cassava (bitter and sweet), celery root, chayote, chervil, chicory, chufa, dasheen, ginger, ginseng, horseradish, leren, parsley (turnip-rooted), parsnip, potato, radish (includes oriental dalkon), rutabaga, salsify (includes black and Spanish), skirret, sweet potato, tanier, tumeric, turnip, yam bean (jicama, manioc pea), yam
Ornamental Bulbs, Corms and Tubers	Narcissus, peony, Kurkuma, Echinops

Short-term protection of plantlets (or transplants)

Plantlets of nematode-susceptible crops may be protected from nematode damage in the field for a short time by drenching the crop with BAFI TW prior to field planting.

Add BAFI TW at up to 0.1% (w/v) directly to growth substrate.

Do not apply to foliar portions of plant.

Vegetable Plantlets

Pests Controlled	Rate
Root-knot and sting nematode; other minor vegetable plant parasitic nematodes	Apply 0.1 gram per plant
Crop	
Tobacco	

Cucurbit Vegetables	Chayote (fruit), Chinese waxgourd, citron melon, cucumber, gherkin, edible gourd (includes hyotan, cucuzza, Chinese okra, and hechima), Momordica spp. (includes balsam apple, balsam pear, bitter melon, Chinese cucumber), muskmelon (includes true cantaloupe, cantaloupe, casaba, Crenshaw melon, golden pershaw melon, honeydew melon, honey balls, mango melon, Persian melon, pineapple melon, Santa Claus melon, and snake melon), pumpkin, summer squash (includes crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), winter squash (includes butternut squash, calabaza, hubbard squash), Cucumis mixtar, Cucumis pepo (includes acorn squash, spaghetti squash), watermelon (includes hybrids and/or varieties of Citrullus lanatus)
Leafy Vegetables	Amaranth (leafy, Chinese spinach, tampala, cardoon, celery (including Chinese), celtuce, chervil, chrysanthemum (edible-leaved and garland), corn salad, cress (garden and upland), dandelion, dock, endive/fennel (finocchio), lettuce (head and leaf), orach, parsely, purslane (garden and winter), radicchio, rhubarb, spinach* (including new Zealand and vine), and Swiss chard
Fruiting Vegetables	Eggplant, groundcherry, pepino, pepper (including bell pepper, chili pepper, cooking pepper, pimento, sweet pepper), tomatillo, and tomato
Bulb Vegetables	Garlic, Leek, Onion (dry bulb and green), Shallot
Root and Tuber Vegetables	Arracacha, arrowroot, artichoke (Chinese and Jerusalem), beet (garden and sugar), burdock (edible), canna (edible), carrot, cassava (bitter and sweet), celery root, chayote, chervil, chicory, chufa, dasheen, ginger, ginseng, horseradish, leren, parsley (turnip-rooted), parsnip, potato, radish (includes oriental dalkon), rutabaga, salsify (includes black and Spanish), skirret, sweet potato, tanier, tumeric, turnip, yam bean (jicama, manioc pea), yam

<p>Ornamental (including flowers) transplants; herbs</p>	<p>Ornamentals including, Anigozanthus, Aralia, Asclepias, Aspidistra, Aster, Chamelaucium, Dianthus, Echinops, Galobularia, Gerbera, Hypericum, Lisianthus, Ornithogalum, Ozothamnus, Phlox, Roses, and Solidago</p> <p>Herbs including Allspice, Angelica, Anise (anise seed), Anise (star), Annatto (seed), Balm (lemon balm), Basil (fresh and dried), Borage, Burnet, Camomile, Caper buds, Caraway, Caraway (black), Cardamom, Cassia (bark and buds), Catnip, Celery seed, Chervil (dried), Chinese chive, Chive, Cinnamon, Clary, Clove (buds), Coriander (cilantro or Chinese parsley leaves), Coriander seed (cilantro seed), Costmary, Culantro (leaf and seed), Cumin, Curry leaf, Dill (seed), Dillweed, Fennel [common and Florence (seed)], Fenugreek, Grains of paradise, Horehound, Hyssop, Juniper berry, Lavender, Lemongrass, Lovage (leaf and seed), Mace, Marigold, Marjoram (includes sweet or annual marjoram, wild marjoram or oregano and pot marjoram), Mustard (seed), Nasturtium, Nutmeg, Parsley (dried), Pennyroyal, Pepper (black and white), Poppy (seed), Rosemary, Rue, Saffron, Sage, Savory (summer and winter), Sweet bay (bay leaf), Tansy, Tarragon, Thyme, Vanilla, Wintergreen, Woodruff, Wormwood</p>
<p>Legume Vegetables (except soybean)</p>	<p>Adzuki bean, asparagus bean, blackeyed peas, broad bean (fava), catjang, chickpea (Garbanzo bean), Chinese longbean, cowpea, Crowder pea, dwarf pea, edible-pod bean, English pea, field bean, field pea, garden pea, green pea, Guar, Jackbean, kidney bean, lima bean, lentil, Lupin (grain, sweet, white and white sweet), moth bean, mung bean, navy bean, pigeon pea, rice bean, runner bean, snap bean, snow pea, Southern pea, sugar snap pea, tepary bean, urd bean, yardlong bean, wax bean</p>
<p>Brassica (Cole) Leafy Vegetables</p>	<p>Broccoli (including Chinese and raab), Brussels sprouts, cabbage (including Chinese bok choy, Chinese napa and mustard), cauliflower, cavalo broccoli, collards, kale, kohlrabi, mizuna, mustard greens, mustard spinach, and rape greens</p>

PLANTING SUBSTRATE (SOIL OR SOILESS)

Substrates for planting may become infested with nematodes either by direct contact with infested soil, by infested propagation material, by equipment or by water. Such infestations can be counteracted to a certain degree by preventive treatment of the substrate with BAFI TW.

Mix the substrate with dry BAFI TW or with an aqueous suspension of BAFI TW.

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Do not expose the treated substrate to sun or allow it to dry out.

Preparing the suspension: While mixing, add one part BAFI TW to a minimum of 5 parts water. Mix well.

Mix the substrate thoroughly with the BAFI TW or its aqueous suspension at up to 1 gram per liter of substrate.

Test a small number of plants to be treated for phytotoxicity, before treating all plants. Do not mix BAFI TW with other pesticides or chemicals without prior consultation with a local Bayer representative.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in cool, dry conditions in original container only out of reach of children.

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

[Containers (pails) with capacities equal to or less than 50 pounds]

Triple 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 ¼ 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. Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[Containers (bags) with capacities equal to or less than 50 pounds]

Completely empty bag into application equipment. Then offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

IMPORTANT: READ BEFORE USE

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

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

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer CropScience. To the extent allowed by law, all such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, THAT EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of Bayer CropScience is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE DISCLAIMS ANY LIABILITY WHATSOEVER FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

LIMITATIONS OF LIABILITY: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID, OR AT BAYER CROPSCIENCE'S ELECTION, THE REPLACEMENT OF PRODUCT.



Bayer Environmental Science

A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709

SUB-LABEL B

BAFI TW

For Residential Use Only

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BAFI TW

**A Biological Agent for the Protection of Plant Roots Against Plant Parasitic Nematodes
on Lawns and Ornamentals**

Active Ingredient:

Bacillus firmus (strain I-1582)*5%

Other Ingredients:95%

Total100%

* Contains a minimum of 3×10^9 cfu/gram

KEEP OUT OF REACH OF CHILDREN

CAUTION

See back panel for additional precautionary statements

Batch No. _____

EPA Reg. No. 432-1512_____

EPA Est. No.

Net Contents: 50 Lbs (22.7 Kg), 35 lbs (15.9 Kg)

Patented

U.S. Patent No. 6,406,690



Bayer Environmental Science

A Division of Bayer CropScience LP

2 T. W. Alexander Drive

Research Triangle Park, NC 27709

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{BACK PANEL}

PRECAUTIONARY STATEMENTS

HAZARDS 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, using tobacco or using the toilet.

For **MEDICAL** And **TRANSPORTATION** Emergencies **ONLY** Call 24 Hours A Day 1-800-334-7577
For **PRODUCT USE** Information Call 1-866-99BAYER (1-866-992-2937)

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.
- Call a poison control center or doctor for treatment advice.

For **MEDICAL** Emergencies Call 24 Hours A Day 1-800-334-7577.
Have the product container or label with you when calling a poison control center or doctor or going for treatment.

Environmental Hazards

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters or rinsate.

IMPORTANT: Read the entire label before using this product.

DIRECTIONS FOR USE

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

GENERAL INFORMATION

BAFI TW suppresses nematode populations through the activity of *Bacillus firmus*. BAFI TW may be applied to soil, to planting substrate, or directly to lawns and ornamental plants. Application may be done by directed soil spraying, drenching or by drip irrigation. Optimal results are obtained by preplant application (2-7 days before planting).

Applying BAFI TW during growth, from the fourth day after planting onward, will cause a reduction in nematode populations in the soil. BAFI TW does not control other pests and pathogens.

Use the higher rates early in the season or when heavy infestation is known or anticipated. Use lower rates later in the season when populations begin to decline.

APPLICATION INSTRUCTIONS

Apply BAFI TW to lawns and ornamentals using the desired amount according to the tables below by watering can, pressure sprayer (pump up or other) or the feeder jar of a hose-end sprayer.

LAWNS

Apply spray by adding 26 ounces of BAFI TW in 4 to 5 gallons of water.

Agitate the mixture and apply directly to the soil or turf. Continue watering to wet the upper 4 inches of soil.

New Grass Grow-Ins: Optimal results are obtained by making the first application 2 to 7 days prior to seeding, sprigging, laying sod or at the time of seeding, sprigging or sodding. Maintain soil

moisture until seeds, sprigs or sod is installed.

Cool Season Grass: Optimal results are obtained by making the first application early in the season (as grass comes out of dormancy).

Warm Season Grass: Optimal results are obtained by making the first application before the first flush of roots.

Pests Controlled	Rate Ounces of BAFI TW per 1000 sq. ft.
Cyst nematode Lance nematode Lesion nematode Root-knot nematode Sheath nematode Spiral nematode Sting nematode Stunt nematode	10-30
Applications Make applications every 3 months and water to depth of 4 inches.	

ORNAMENTALS

Drench Applications: Prepare suspension by diluting 1 part BAFI TW to 20 parts water. Apply directly to the soil/root zone immediately surrounding the plant. Avoid contact with plant stem and foliage. Wash with water if plant becomes wet with product.

ORNAMENTALS – Deciduous and Coniferous Trees and Shrubs

Pests Controlled	Rate Ounces of BAFI TW per 1000 sq. ft.
Dagger nematode Lance nematode Lesion nematode Ring nematode Root-knot nematode Spiral nematode Stubby-root nematode Stunt nematode	10-30
Applications Make applications at-planting (2 to 7 days pre-plant) and at 90-day post-plant intervals during the growing season.	

ORNAMENTALS – Bulbs

Pests Controlled	Rate Ounces of BAFI TW per 1000 sq. ft.
Bulb nematode Root-knot nematode Stem nematode	10-30
Applications Make applications at-planting (2 to 7 days pre-plant) and at 90-day intervals during the growing season.	

Mixing with Planting Substrate

Artificial substrates for planting may become infested with nematodes either by direct contact with infested soil, by infested propagation material, by equipment or by water. Such infestations can be counteracted to a certain degree by preventive treatment of the substrate with BAFI TW.

Mix the substrate with dry BAFI TW or with an aqueous suspension of BAFI TW.

Do not expose the treated substrate to sun or allow to dry out.

Preparing the suspension: While mixing, add one part BAFI TW to a minimum of 5 parts water. Mix well.

Mix the substrate thoroughly with the BAFI TW or its aqueous suspension. Apply up to 1 gram per liter substrate.

Do not mix BAFI TW with other pesticides or chemicals used for seed treatment without prior consultation with a local Bayer representative.

Do not combine BAFI TW in the spray tank with other pesticides or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective and non-injurious under your use conditions.

BAFI TW is compatible with many commonly used pesticides and fertilizers but has not been fully evaluated with all of these. To ensure compatibility of tank-mix combinations, they should be evaluated prior to use, as follows: Using a suitable container, add proportional amounts of product to water. Add wettable powders first, followed by water dispersible granules, then by liquid flowables and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the combination on a small portion of the target to be treated to ensure that a phytotoxic response will not occur as a result of application. Do not add products which lower the spray tank acidity below pH 5. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store product in original container in a dry, shaded area designated for pesticide storage, out of reach of children.

PESTICIDE DISPOSAL AND CONTAINER HANDLING:

If empty: Nonrefillable container. Do not reuse or refill container. Place in trash or offer for recycling, if available.

If partly filled: Call your local solid waste agency or 1-800-CLEANUP for disposal instructions. Never place unused product down any indoor or outdoor drain.

IMPORTANT: READ BEFORE USE

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

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

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer CropScience. To the extent allowed by law, all such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, THAT EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of Bayer CropScience is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE DISCLAIMS ANY LIABILITY WHATSOEVER FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

LIMITATIONS OF LIABILITY: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID, OR AT BAYER CROPSCIENCE'S ELECTION, THE REPLACEMENT OF PRODUCT.



Bayer Environmental Science

A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709

SUB-LABEL C

BAFI TW

Turf, Lawns, Sod Farms, and Golf Courses

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BAFI TW

A Biological Agent for the Protection of Plant Roots Against Plant Parasitic Nematodes on Turf, Lawns, Sod Farms, and Golf Courses (Greens, Tees, Fairways and Roughs)

Active Ingredient:

Bacillus firmus (strain I-1582)*5%

Other Ingredients:.....95%

Total.....100%

* Contains a minimum of 3×10^9 cfu/gram

KEEP OUT OF REACH OF CHILDREN

CAUTION

See back panel for additional precautionary statements

Batch No. _____

EPA Reg. No. 432-1512_____

EPA Est. No.

Net Contents: 50 Lbs (22.7 Kg), 35 lbs (15.9 Kg)

Patented

U.S. Patent No. 6,406,690



Bayer Environmental Science

A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709

{Back Panel}

PRECAUTIONARY STATEMENTS

Hazards 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, using tobacco or using the toilet.

For **MEDICAL** And **TRANSPORTATION** Emergencies **ONLY** Call 24 Hours A Day 1-800-334-7577
For **PRODUCT USE** Information Call 1-866-99BAYER (1-866-992-2937)

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.

For **MEDICAL** Emergencies Call 24 Hours A Day 1-800-334-7577.
Have the product container or label with you when calling a poison control center or doctor or going for treatment.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks
- dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95

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.

Engineering Controls

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

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

Environmental Hazards

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters or rinsate.

IMPORTANT: Read the entire label before using this product.

DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the 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 (PPE), and restricted entry intervals (REI). 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.

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95

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.

Keep unprotected persons out of treated areas until sprays have dried.

GENERAL INFORMATION

BAFI TW suppresses nematode populations through the activity of *Bacillus firmus*. As a result of this biological protection, a vigorous root system is established by the plant, which often results in more uniform foliage.

BAFI TW is suitable for application by spraying, drenching or by drip irrigation. Optimal results are obtained by preplant application (2-7 days before planting).

Applying BAFI TW during growth will cause a reduction in nematode populations in the soil. BAFI TW does not control other pests and pathogens. Control of other soil-borne pathogens by other means (such as soil fumigants) is highly recommended.

COMPATIBILITY

DO NOT mix BAFI TW with other chemicals or fertilizers during application without first contacting a local Bayer representative.

DO NOT apply BAFI TW for a month after formaldehyde application. Do not apply within two weeks of a fumigant application. Do not combine BAFI TW in the spray tank with pesticides, surfactants or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective and non-injurious under your use conditions.

BAFI TW is compatible with many commonly used pesticides, fertilizers, adjuvants and surfactants but has not been fully evaluated with all of these. To ensure compatibility of tank-mix combinations they should be evaluated prior to use, as follows: Using a suitable container add proportional amounts of product to water. Add wettable powders first, followed by water dispersible granules, then by liquid flowables and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the combination on a small portion of the target to be treated to ensure that a phytotoxic response will not occur as a result of application. Do not add products which lower the spray tank acidity below pH 5. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

APPLICATION INSTRUCTIONS

BAFI TW is suitable for application by spraying, drenching, or by drip irrigation. Optimal results are obtained by pre-plant applications (from 2-7 days prior to planting) and immediately irrigating after application to a minimum of 3-4 inches. If product is applied prior to planting, maintain moist soil with daily irrigation until planting.

BAFI TW must be applied to the entire volume of soil when moist. It is preferable, therefore, to apply BAFI TW by an irrigation or biogation (irrigation plus biopesticide) system, or with irrigation after foliar or drench treatment.

Apply BAFI TW using any conventional chemigation system: pressure tanks, suction tanks and various injector pumps (water-driven, Venturi, electrical, etc.).

Apply BAFI TW at the beginning of the irrigation cycle to enable the remainder of the irrigation water to incorporate BAFI TW throughout the root zone.

Apply BAFI TW as a drench, using conventional equipment, to the root zone. Following drenching, the treated area must be irrigated with adequate water to moisten the entire root zone. This applies to post-plant applications of BAFI TW and so that it will not cause damage to the plant stand.

Apply BAFI TW at the beginning of the irrigation cycle. Remove any regulators attached to the injector pump prior to application.

Preparation of BAFI TW suspension

Add BAFI TW to water at a minimum ratio of 1 part BAFI TW to 5 parts water and maintain continuous agitation.

For application on plants further dilute to 20 parts water to 1 part BAFI TW.

BAFI TW suspension does not clog drip lines or irrigation equipment and has been tested in a wide variety of irrigation equipment from various manufacturers. BAFI TW particles may accumulate on the irrigation screen filters; therefore, the application must be made at a point following the filter equipment. If this cannot be done, remove the screens at the time of application (this is not necessary for self-cleaning filters).

Application Equipment

1. Use of fertilizer injection pumps

Preparation of suspension: Add water to BAFI TW in the ratio of 2 lbs. BAFI TW to a minimum of 1 gallon of water and stir constantly. Injection of suspension: Begin application with the start of irrigation to ensure it is completed within 15 - 30 minutes. To ensure proper flow, suction the suspension from the top of the tank and not from a drainage valve on the bottom of the tank.

2. Injection of BAFI TW into irrigation system by means of spray tank

Preparation of suspension: Add water to BAFI TW in the ratio of 2 lbs. BAFI TW to a minimum of 1 gallon of water and stir constantly.

For areas that are not irrigated by drip lines: A spray tank enables a larger quantity of suspension to be applied than most irrigation tanks, and constantly agitates the suspension during the application. Application of suspension is made via the pipe which connects the pump to the spraying system.

Injection of suspension into irrigation system: Begin application with the start of the irrigation to ensure it is completed within 15 - 30 minutes.

3. Use of pressure fertilizer tanks

Place BAFI TW in the tank and open the valve immediately at the start of irrigation. Set the pressure differential at 7 to 15 psi to ensure proper dispersion.

4. Drenching

Preparation of suspension: Add water to BAFI TW in the ratio of 2 lbs. BAFI TW to a minimum of 1 gallon of water and stir constantly.

Calculation of the BAFI TW dose per dripper: Divide the recommended BAFI TW rate per acre by the number of dripper lines per acre.

Drenching: Drench around the dripper with the use of a measuring cup or measuring syringe.

5. Spray applications

Apply BAFI TW through most standard spray nozzles. Do not exceed a 20% concentration of the suspension (approximately 150 lbs. BAFI TW per 100 gallons water). The BAFI TW suspension has been evaluated for phytotoxicity on a range of turfgrasses such as creeping bentgrass, common and ultra-dwarf bermudagrass and no phytotoxicity has been observed. However, due to the number of species and cultivars of turfgrass, it is impossible to test every one for tolerance to BAFI TW. The professional user should determine if BAFI TW could be used safely prior to commercial use. Test the prescribed rates on a small area for phytotoxicity prior to widespread use. Before using BAFI TW in tank mixture with other products and adjuvants, test the mixture on a small area for phytotoxicity prior to widespread use. Factors affecting turf safety are temperature, humidity and other environmental factors. A 5% concentration has been found to be safe. After application of BAFI TW, irrigate to remove product from foliage and to ensure it reaches the soil.

6. Sprinkler system

BAFI TW has been applied successfully using sprinkler systems. After application, it is important to continue the sprinkle irrigation to wash the BAFI TW suspension from the leaves and to allow for the product to reach the soil.

Introduction With Irrigation Water (Biogation): Instructions and Guidelines for Applications Through Irrigation Systems

Apply BAFI TW suspension through drip tape and various types of emitters. BAFI TW has been tested in a wide variety of irrigation equipment types without damage or clogging. BAFI TW particles may accumulate on the irrigation screen filters; therefore, the application must be made at a point following the filter equipment. If this cannot be done, remove the screens at the time of application. This is not necessary for self-cleaning filters.

For optimum results, apply BAFI TW at the beginning of the irrigation cycle to enable the remainder of the irrigation water to incorporate BAFI TW throughout the root zone.

Types of Irrigation Systems: Apply BAFI TW through overhead sprinkler or drip/trickle-type irrigation systems.

Injection for Biogation: Inject the specified dosage of BAFI TW suspension into the irrigation main, water stream: (1) through a constant-flow, metering device; (2) into the center of the main line flow via a pitot tube or equivalent; (3) at a point ahead of at least one, right-angle turn in main stream flow such that thorough mixing with the irrigation water is ensured.

Uniform Water Distribution and System Calibration: The irrigation system must provide uniform distribution of BAFI TW-treated water. Lack of effectiveness can result from non-uniform distribution. The system must be calibrated to uniformly distribute the rates specified. With questions about calibration, contact your State Extension Service, equipment manufacturers, or other experts.

Biogation Monitoring: A person knowledgeable of the biogation 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.

Required Injection and Sprinkler System Safety Devices: The system must contain a functional check valve, vacuum relief valve, and low pressure drain, appropriately located on the irrigation pipeline to prevent water source contamination from back-flow. The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection. The pesticide injection pipeline must also contain a functional, normally closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor/engine stops or in cases where there is no water pump, when water pressure decreases to the point where pesticide distribution is adversely affected. Injection systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Do not apply when wind speed favors drift beyond the area intended for treatment.

Using Water from Public Water Systems: Public water system means a system for the provision to the public of piped water for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. Biogation systems connected to public water systems must contain a functional, reduced-pressure zone, back flow preventer (RPZ) or the functional equivalent in the water supply line upstream from the point of pesticide introduction. As an option to the RPZ, the water from the public water system should be discharged into a reservoir tank prior to pesticide introduction. There shall be a complete physical break (air gap) between the outlet end of the fill pipe and to top or overflow rim of the reservoir tank of at least twice the inside diameter of the fill pipe. The pesticide injection pipeline must contain a functional automatic quick-closing check valve to prevent the flow of fluid back toward the injection. The pesticide injection pipeline must contain a functional normally closed solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut-down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops or in cases where there is no water pump, when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Chemical Supply Tank Dilution and Agitation: For injection of BAFI TW, use a chemical supply tank for pre-mixing with water before injecting mixture into the irrigation line. Use a minimum dilution ratio of 5 parts water to 1 part BAFI TW. Constant mechanical or hydraulic agitation must be maintained in the chemical supply tank during the entire period of application. Determine the required amounts of BAFI TW and water to mix in the tank. The amount of BAFI TW needed equals the number of pounds of BAFI TW to be applied per acre multiplied by the number of acres to be chemigated. The amount of mixture needed equals the gallons of mixture delivered per hour by the injection pump, multiplied by the number of hours biogation will take place. The amount of water needed equals the amount of mixture needed minus the amount of BAFI TW needed.

For Drip (Trickle) Biogation:

The system must contain a functional check valve, vacuum relief valve, and low-pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow. The pesticide injection pipeline must also contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump. The pesticide injection pipeline must also contain a functional, normally-closed, solenoid-operated valve located on the intake side of the injection pump and connected to the system interlock to prevent fluid from being withdrawn from the supply tank when the irrigation system is either automatically or manually shut down. The system must contain functional interlocking controls to automatically shut off the pesticide injection pump when the water pump motor stops. The irrigation line or water pump must include a functional pressure switch which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected. Systems must use a metering pump such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock. Begin applying product 10 minutes after initiation of irrigation. Immediately after application, continue irrigation to promote penetration of BAFI TW into the soil. See post-application irrigation volumes specified in Application Instructions section.

Cleaning the Biopesticide Injection System: In order to apply pesticides accurately, the injection system must be kept clean, free from chemical or fertilizer residues and sediments. Refer to your owner's manual or ask your equipment supplier for the cleaning procedure for your injection system.

Flushing the Irrigation System: At the end of the application period, allow time for all lines to flush the pesticide through all nozzles before turning off irrigation water. To ensure the lines are flushed and free of pesticides, a dye indicator may be injected into the lines to mark the end of the application period.

Center-Pivot and Automatic-Move Linear Systems: Inject the specified dosage per acre continuously for one complete revolution or move of the system. Run the system at maximum speed. Plug nozzles in the immediate area of control panels, chemical supply tanks, pumps and system safety devices to prevent chemical contamination of these areas. Do not use END GUNS. End guns which provide uneven distribution of treated water can result in lack of effectiveness.

Solid Set and Manually Controlled Linear Systems: Inject during the first 30 to 60 minutes of a regular irrigation period or as a separate 30 to 60 minute application not associated with a regular irrigation.

BAFI TW may be applied to turf by foliar spray.

Apply spray solution by diluting BAFI TW suspension with water to 5% w/w.

Agitate the solution and apply directly to the soil or turf. Continue irrigation to wet the upper 4 inches of soil.

New Turf Grow-Ins: Optimal results are obtained by making the first application 2 to 7 days prior to seeding, sprigging, laying sod or at the time of seeding, sprigging or sodding. Maintain soil moisture until seeds, sprigs or sod is installed

Cool Season Turf: Optimal results are obtained by making the first application early in the season (as turf comes out of dormancy).

Warm Season Turf: Optimal results are obtained by making the first application before the first flush of roots.

Pests Controlled	Rate (lbs. BaFl-TW/acre)
Cyst nematode Lance nematode Lesion nematode Root-knot nematode Sheath nematode Spiral nematode Sting nematode Stunt nematode	30-100
Applications Make applications every 3 months as necessary and irrigate to depth of 4 inches.	

After application of BaFl-TW, irrigate to wash product from foliage and to ensure it reaches the soil.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in cool, dry conditions in original container only out of reach of children.

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

[Containers (pails) with capacities equal to or less than 50 pounds]
 Triple 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 1/2 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. Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[Containers (bags) with capacities equal to or less than 50 pounds]
 Completely empty bag into application equipment. Then offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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IMPORTANT: READ BEFORE USE

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

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

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer CropScience. To the extent allowed by law, all such risks shall be assumed by the user or buyer.

DISCLAIMER OF WARRANTIES: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE MAKES NO OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE, THAT EXTEND BEYOND THE STATEMENTS MADE ON THIS LABEL. No agent of Bayer CropScience is authorized to make any warranties beyond those contained herein or to modify the warranties contained herein. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, BAYER CROPSCIENCE DISCLAIMS ANY LIABILITY WHATSOEVER FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT.

LIMITATIONS OF LIABILITY: TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER FOR ANY AND ALL LOSSES, INJURIES OR DAMAGES RESULTING FROM THE USE OR HANDLING OF THIS PRODUCT, WHETHER IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE, SHALL NOT EXCEED THE PURCHASE PRICE PAID, OR AT BAYER CROPSCIENCE'S ELECTION, THE REPLACEMENT OF PRODUCT.



Bayer Environmental Science

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2 T. W. Alexander Drive
Research Triangle Park, NC 27709

BAFI TW (MASTER) Approved 10/27/09

NORTICA™

**A Biological Agent for the Protection of Plant Roots Against Plant Parasitic Nematodes
on Turf, Lawns, Sod Farms, and Golf Courses (Greens, Tees, Fairways and Roughs)**

Active Ingredient:

Bacillus firmus (strain I-1582)*5%

Other Ingredients:.....95%

Total.....100%

* Contains a minimum of 3 x 10⁹ cfu/gram

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

See back panel for additional precautionary statements

Batch No. _____

EPA Reg. No. 432-1512_____

EPA Est. No.

Net Contents: 50 Lbs (22.7 Kg), 35 lbs (15.9 Kg)

Patented

U.S. Patent No. 6,406,690



Bayer Environmental Science

A Division of Bayer CropScience LP
2 T. W. Alexander Drive
Research Triangle Park, NC 27709

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{Back Panel}

PRECAUTIONARY STATEMENTS
Hazards 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, using tobacco or using the toilet.

For MEDICAL And TRANSPORTATION Emergencies **ONLY** Call 24 Hours A Day 1-800-334-7577
For PRODUCT USE Information Call 1-866-99BAYER (1-866-992-2937)

FIRST AID	
If in eyes:	<ul style="list-style-type: none"> • Hold eye open and rinse slowly and gently with water for 15-20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. • Call a poison control center or doctor for treatment advice.
<p>For MEDICAL Emergencies Call 24 Hours A Day 1-800-334-7577. Have the product container or label with you when calling a poison control center or doctor or going for treatment.</p>	

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks
- dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95

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.

Engineering Controls

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

IMPORTANT: When reduced PPE is worn because a closed system is being used, handlers must be provided all PPE specified above for "applicators and other handlers" and have such PPE immediately available for use in an emergency, such as a spill or equipment break-down.

Environmental Hazards

For terrestrial uses: Do not apply directly to water, or to areas where surface water is present or to intertidal areas below the mean high water mark. Do not contaminate water when cleaning equipment or disposing of equipment wash waters or rinsate.

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IMPORTANT: Read the entire label before using this product.

DIRECTIONS FOR USE

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

Do not apply this product in a way that will contact workers or other persons either directly or through drift. Only protected handlers may be in the area during application. For any requirements specific to your State or Tribe, consult the 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 (PPE), and restricted entry intervals (REI). 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.

Exception: If the product is soil-injected or soil-incorporated, the Worker Protection Standard, under certain circumstances, allows workers to enter the treated area if there will be no contact with anything that has been treated.

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

- Coveralls
- Waterproof gloves
- Shoes plus socks
- Dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95

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.

Keep unprotected persons out of treated areas until sprays have dried.

GENERAL INFORMATION

NORTICA™ suppresses nematode populations through the activity of *Bacillus firmus*. As a result of this biological protection, a vigorous root system is established by the plant, which often results in more uniform foliage.

Applying NORTICA during growth will cause a reduction in nematode populations in the soil. NORTICA does not control other pests and pathogens. Control of other soil-borne pathogens by other means (such as soil fumigants) is highly recommended.

COMPATIBILITY

DO NOT mix NORTICA with other chemicals or fertilizers during application without first contacting a local Bayer representative.

DO NOT apply NORTICA for a month after formaldehyde application. Do not apply within two weeks of a fumigant application. Do not combine NORTICA in the spray tank with pesticides, surfactants or

fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective and non-injurious under your use conditions.

NORTICA is compatible with many commonly used pesticides, fertilizers, adjuvants and surfactants but has not been fully evaluated with all of these. To ensure compatibility of tank-mix combinations they should be evaluated prior to use, as follows: Using a suitable container add proportional amounts of product to water. Add wettable powders first, followed by water dispersible granules, then by liquid flowables and lastly, emulsifiable concentrates. Mix thoroughly and let stand for at least five minutes. If the combination stays mixed or can be remixed, it is physically compatible. Test the combination on a small portion of the target to be treated to ensure that a phytotoxic response will not occur as a result of application. Do not add products which lower the spray tank acidity below pH 5. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

APPLICATION INSTRUCTIONS

NORTICA is suitable for application by spraying, drenching, or by drip irrigation. Optimal results are obtained by pre-plant applications (from 2-7 days prior to planting) and immediately irrigating after application to a minimum of 3-4 inches. If product is applied prior to planting, maintain moist soil with daily irrigation until planting.

NORTICA must be applied to the entire volume of soil when moist. It is preferable, to apply NORTICA with irrigation after foliar or drench treatment.

Apply NORTICA at the beginning of the irrigation cycle to enable the remainder of the irrigation water to incorporate NORTICA throughout the root zone.

Apply NORTICA as a drench, using conventional equipment, to the root zone. Following drenching, the treated area must be irrigated with adequate water to moisten the entire root zone. This applies to post-plant applications of NORTICA and so that it will not cause damage to the plant stand.

Preparation of NORTICA suspension

Add NORTICA to water at a minimum ratio of 1 part NORTICA to 5 parts water and maintain continuous agitation.

1. Drenching

Preparation of suspension: Add water to NORTICA in the ratio of 2 lbs. NORTICA to a minimum of 1 gallon of water and stir constantly.

Calculation of the NORTICA dose per dripper: Divide the recommended NORTICA rate per acre by the number of dripper lines per acre.

Drenching: Drench around the dripper with the use of a measuring cup or measuring syringe.

2. Spray applications

Apply NORTICA through most standard spray nozzles. Do not exceed a 20% concentration of the suspension (approximately 150 lbs. NORTICA per 100 gallons water). The NORTICA suspension has been evaluated for phytotoxicity on a range of turfgrasses such as creeping bentgrass, common and ultra-dwarf bermudagrass and no phytotoxicity has been observed. However, due to the number of species and cultivars of turfgrass, it is impossible to test every one for tolerance to NORTICA. The professional user should determine if NORTICA could be used safely prior to commercial use. Test the prescribed rates on a small area for phytotoxicity prior to widespread use. Before using NORTICA in tank mixture with other products and adjuvants, test the mixture on a small area for phytotoxicity prior to widespread use. Factors affecting turf safety are temperature, humidity and other environmental factors. A 5% concentration has been found to be safe. After application of NORTICA, irrigate to remove product from foliage and to ensure it reaches the soil.

NORTICA may be applied to turf by foliar spray.

Apply spray solution by diluting NORTICA suspension with water to 5% w/w.

Agitate the solution and apply directly to the soil or turf. Continue irrigation to wet the upper 4 inches of soil.

New Turf Grow-Ins: Optimal results are obtained by making the first application 2 to 7 days prior to seeding, sprigging, laying sod or at the time of seeding, sprigging or sodding.

Maintain soil moisture until seeds, sprigs or sod is installed

Cool Season Turf: Optimal results are obtained by making the first application early in the season (as turf comes out of dormancy).

Warm Season Turf: Optimal results are obtained by making the first application before the first flush of roots.

Pests Controlled	Rate lbs Nortica/acre
Cyst nematode Lance nematode Lesion nematode Root-knot nematode Sheath nematode Spiral nematode Sting nematode Stunt nematode	30-100
Applications Make applications every 3 months as necessary and irrigate to depth of 4 inches.	

After application of NORTICA, irrigate to wash product from foliage and to ensure it reaches the soil.

STORAGE AND DISPOSAL

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

PESTICIDE STORAGE: Store in cool, dry conditions in original container only out of reach of children.

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

[Containers (pails) with capacities equal to or less than 50 pounds]

Triple 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 ¼ 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. Then offer for recycling, if available, or puncture and dispose of in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

[Containers (bags) with capacities equal to or less than 50 pounds]

Completely empty bag into application equipment. Then offer for recycling, if available, or dispose of empty bag in a sanitary landfill or by incineration, or if allowed by state and local authorities, by burning. If burned, stay out of smoke.

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IMPORTANT: READ BEFORE USE

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

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

CONDITIONS: The directions for use of this product are believed to be adequate and must be followed carefully. However, it is impossible to eliminate all risks associated with the use of this product. Crop injury, ineffectiveness or other unintended consequences may result because of such factors as weather conditions, presence of other materials, or the manner of use or application, all of which are beyond the control of Bayer CropScience. To the extent allowed by law, all such risks shall be assumed by the user or buyer.

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