

84059-10

11/9/2011

10/18

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY



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

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

Keith Pitts
Regulatory Manager
Marrone Bio Innovations
2121 Second Street, Suite B-107
Davis, CA 95618

RE: Product Name: MBI-203 EP Bioinsecticide
EPA Reg. No: 84059-10
Applications for Notification Dated: October 5, 2011 & revised on
November 9, 2011 to add Alternate Brand Name: Grandevo™ EP
as per PR Notice 98-10.

Dear Mr. Pitts:

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 Accepted" and will be placed accordingly in our records.

Questions concerning this action should be directed to Mary Paden (703) 308-0411 or email at paden.mary@epa.gov.

Sincerely,

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

NOV 9 2011

CONCURRENCES

SYMBOL	▶ 7511(P)						
SURNAME	▶ Paden						
DATE	▶ 09NOV11						

Please read instructions on reverse before completing form.

Form Approved, OMB No. 2070-0060

Print Form



United States
Environmental Protection Agency
Washington, DC 20460

<input type="checkbox"/>	Registration
<input type="checkbox"/>	Amendment
<input checked="" type="checkbox"/>	Other

OPP Identifier Number

Application for Pesticide - Section I

1. Company/Product Number 84059-10	2. EPA Product Manager Jeannine Kausch	3. Proposed Classification <input checked="" type="checkbox"/> None <input type="checkbox"/> Restricted
4. Company/Product (Name) Marrone Bio Innovations/MBI-203 EP Bioinsecticide	PM#	
5. Name and Address of Applicant (Include ZIP Code) Marrone Bio Innovations 2121 Second Street, Suite B-107, Davis, CA 95618 <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: <input checked="" type="checkbox"/> 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 _____
<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 _____

Notification Accepted

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

Notification of Alternate Brand Name per PR Notice 98-10. This notification is consistent

Date: 11/09/2011

Reviewer: m.f. Kaden

Section - III


1. Material This Product Will Be Packaged In:				2. Type of Container	
Child-Resistant Packaging <input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	Unit Packaging <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Water Soluble Packaging <input type="checkbox"/> Yes <input checked="" 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	Other (Specify) _____	
3. Location of Net Contents Information <input type="checkbox"/> Label <input type="checkbox"/> Container		4. Size(s) Retail Container 2.5 & 5 gallons		5. Location of Label Directions <input type="checkbox"/> On Label <input checked="" type="checkbox"/> On Labeling accompanying product	
6. Manner in Which Label is Affixed to Product <input checked="" 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 Keith Pitts	Title VP Regulatory Affairs	Telephone No. (Include Area Code) 536-750-2800
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 or both under applicable law.		6. Date Application Received (Stamped)
2. Signature 	3. Title Regulatory Manager	
4. Typed Name Audrey Sehn	5. Date October 5, 2011	

MBI-203 EP BIOINSECTICIDE

(Alternate names: MBI-203 Bioinsecticide, GRANDEVO™ EP)

 (For Organic Production) (For Use in Organic Production) [OMRI Listed® (logo)]

Notification Accepted

Date: 11/09/2011

Reviewer: *mj soden*

Active Ingredient: *Chromobacterium subtsugae* strain PRAA4-1^T and spent fermentation media* 94.50%

Other ingredients: 5.50%

Total: 100.00%

*Contains not less than 1000 Cabbage Looper Killing Units (CLKU)/mg. Note: The percent active ingredient does not indicate product performance and potency measurements are not federally standardized.

**KEEP OUT OF REACH OF CHILDREN
CAUTION**

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.
If inhaled	<ul style="list-style-type: none"> • Move person to fresh air. • If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth-to-mouth if possible. • Call a poison control center or doctor for further treatment advice.
If swallowed	<ul style="list-style-type: none"> • Call a poison control center or doctor immediately for treatment advice. • Have person sip a glass of water if able to swallow. • Do not induce vomiting unless told to do so by the poison control center or doctor. • Do not give anything by mouth to an unconscious person.
If on skin or clothing	<ul style="list-style-type: none"> • Take off contaminated clothing. • Rinse skin immediately with plenty of water for 15 – 20 minutes. • Call a poison control center or doctor for treatment advice.
HOT LINE NUMBER	
Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may also contact 1-800-222-1222 for emergency medical treatment information.	

EPA Reg. No.: 84059-10
Net Contents: XX
(Batch)(Lot) No: XXXX

EPA Est. No.: XXXXX-XX-XXX

Manufactured by: Marrone Bio Innovations, Inc.
2121 Second St., Suite B-107
Davis, CA 95618 USA
1-877-664-4476; www.marronebioinnovations.com; info@marronebio.com

US Patents No. XXXXX
XXXX® is a trademark of Marrone Bio Innovations, Inc.
Marrone Bio Innovations name and logo are registered trademarks of Marrone Bio Innovations, Inc.

PRECAUTIONARY STATEMENTS

Hazards to humans and domestic animals - CAUTION: Causes moderate eye irritation. Harmful if inhaled, swallowed or absorbed through the skin. Avoid contact skin, eyes or clothing. Avoid breathing spray mist. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet. Remove and wash contaminated clothing before reuse.

Personal Protective Equipment (PPE):

Applicators and other handlers must wear:

- long-sleeved shirt and long pants
- waterproof gloves
- shoes plus socks

Mixer/loaders and applicators must wear a dust/mist filtering respirator meeting NIOSH standards of at least N-95, R-95, or P-95. Repeated exposure to high concentrations of microbial proteins can cause allergic sensitization. Follow the manufacturer's instructions for cleaning/maintaining PPE. If no such instructions for washables are available, use detergent and hot water. Keep and wash PPE separately from other laundry.

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

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 breakdown.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove clothing/PPE immediately if pesticide gets inside. Then wash thoroughly and put on clean clothing.
- Remove PPE immediately after handling this product. Wash the outside of gloves before removing. As soon as possible, wash thoroughly and change into clean clothing.

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

This product is toxic to certain nontarget terrestrial arthropods. Minimize spray drift away from target area to reduce effects to nontarget insects.

This product is toxic to aquatic invertebrates. Drift and runoff may be hazardous to aquatic organisms in water adjacent to treated areas.

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 disposing of equipment washwater or rinsate.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. For any requirements specific to your State or Tribe, consult the State or Tribal agency responsible for pesticide

regulation. 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.

Agricultural Use Requirements

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

Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.

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

- Coveralls
- Waterproof gloves
- Shoes plus socks

PRODUCT INFORMATION

GRANDEVO™ EP is a biological insecticide/miticide containing fermentation solids of *Chromobacterium subtsugae* strain PRAA4-1^T for use on ornamental plants, turf and edible crops against the pests listed in the Directions for Use section. GRANDEVO™ EP functions primarily as a stomach poison for use in the control or suppression of many foliar-feeding pests, including caterpillars, foliage-feeding coleopteran, aphids, whiteflies and plant-sucking mites infesting labeled crops. GRANDEVO™ EP must be mixed with water and applied as a foliar spray with ground or aerial equipment equipped for conventional insecticide spraying or by chemigation.

GRANDEVO™ EP can be used in either the field or greenhouse for the control of any labeled pest.

USE INSTRUCTIONS

GRANDEVO™ EP is a highly selective insecticide/miticide for use against listed insects and mites. Close scouting and early attention to infestations is highly recommended. Proper timing of application targeting newly hatched larvae is important for optimal results.

Thorough coverage of infested plant parts is necessary for effective control. GRANDEVO™ EP does not have systemic activity. For some crops, directed drop nozzles by ground machine are required.

Under heavy pest populations, use the higher label rates, shorten the spray interval, and/or increase the spray volume to improve coverage.

Repeat applications at an interval sufficient to maintain control, usually 3-10 days depending upon plant growth rate, insect and mite activity, and other factors. If attempting to control an insect population with a single application, make the treatment when egg hatch is essentially complete but before economic damage occurs.

To enhance control, consider tank mixing with contact insecticides/miticides.

For hard-to-wet crops, consider using a spreader/sticker or adjuvant, which has been approved for targeted crop use, to enhance adhesion of GRANDEVO™ EP to the crop.

GRANDEVO™ EP has been evaluated for phytotoxicity on a variety of crops under various normal growing conditions. However, testing all crop varieties, in all mixtures and combinations, is not feasible. Prior to treating entire crop, test a small portion of the crop for sensitivity.

GROUND AND AERIAL APPLICATIONS

Apply GRANDEVO™ EP in ground and aerial equipment with quantities of water sufficient to provide thorough coverage of infested plant parts. The amount of water needed per acre will depend upon crop development, weather, application equipment, and local experience.

Do not spray when wind speed favors drift beyond the area intended for use.

Avoiding spray drift is the responsibility of the applicator.

Mixing directions

Important – Do not add GRANDEVO™ EP to the mix tank before introducing the desired amount of water. Add water to the mix tank. Start the mechanical or hydraulic agitation to provide moderate circulation before adding GRANDEVO™ EP. Add the desired volume of GRANDEVO™ EP to the mix tank and continue circulation. Maintain circulation while loading and spraying. Do not mix more GRANDEVO™ EP than can be used in 24 hours. Use a strainer no finer than 50 mesh in conventional spray systems.

Spray volume

For conventional air and ground applications, use at least 10 gallons of total volume per acre in water-based sprays.

Tank mixing

Do not combine GRANDEVO™ EP in the spray tank with other pesticides, surfactants, adjuvants, or fertilizers if there has been no previous experience or use of the combination to show it is physically compatible, effective, or non-injurious under your use conditions. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures.

To ensure compatibility of tank-mix combinations, they must be evaluated prior to use. To determine the physical compatibility of this product with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to one quart of water with agitation. Add dry formulations first, then flowables, then emulsifiable concentrates last. After thoroughly mixing, let this mixture stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

CHEMIGATION USE DIRECTIONS

Apply this product only through sprinkler irrigation systems, including center pivot, lateral move, end tow, side (wheel) roll, traveler, big gun, solid set, or hand move systems. Do not apply this product through any other type of irrigation system. Do not connect an irrigation system (including greenhouse systems) used for pesticide applications to a public water system.

Spray preparation

First, prepare a suspension of GRANDEVO™ EP in a mix tank. Fill tank 1/2 to 3/4 of the amount of water for the area to be treated. Start mechanical or hydraulic agitation. Add the required amount of GRANDEVO™ EP, and then the remaining volume of water. Then set the sprinkler to deliver a minimum of 0.1 to 0.3 inch of water per acre. Start sprinkler and uniformly inject the suspension of GRANDEVO™ EP into the irrigation water line so as to deliver the desired rate of GRANDEVO™ EP per acre. Inject the suspension of GRANDEVO™ EP with a positive displacement pump into the main line ahead of a right angle turn to ensure adequate mixing.

GRANDEVO™ EP is to be metered continuously for the duration of the water application. If you have questions about calibration, you should contact State Extension Service specialists, equipment manufacturers or other experts.

Do not combine GRANDEVO™ EP with pesticides, surfactants or fertilizers for application through chemigation equipment unless prior experience has shown the combination to be physically compatible, effective and non-injurious under conditions of use.

GRANDEVO™ EP has not been fully evaluated for compatibility with all adjuvants or surfactants. To ensure compatibility of adjuvants and surfactants, they must be evaluated prior to use. To determine the physical compatibility of this product with other products, use a jar test. Using a quart jar, add the proportionate amounts of the products to one quart of water with agitation. Add dry formulations first, then flowables, then emulsifiable concentrates last. After thoroughly mixing, let this mixture stand for 5 minutes. If the combination remains mixed or can be readily remixed, it is physically compatible. Once compatibility has been proven, use the same procedure for adding required ingredients to the spray tank.

Instructions for applications through sprinkler irrigation systems

Maintain continuous agitation in the mix tank during mixing and application to ensure a uniform suspension. Greater accuracy in calibration and distribution will be achieved by injecting a larger volume for a more dilute solution per unit time. Crop injury or lack of effectiveness can result from non-uniform distribution of treated water. A person knowledgeable of the chemigation system and responsible for its operation, or under the supervision of the responsible person, shall shut the system down and make necessary adjustments should the need arise. Allow sufficient time for pesticide to be flushed through all lines and all nozzles before turning off irrigation waters.

The system must contain a functional check valve, vacuum relief valve, and low pressure drain appropriately located on the irrigation pipeline to prevent water source contamination from backflow.

The pesticide injection pipeline must contain a functional, automatic, quick-closing check valve to prevent the flow of fluid back toward the injection pump.

The pesticide injection pipeline must 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 stops.

The irrigation line or water pump must include a functional pressure switch, which will stop the water pump motor when the water pressure decreases to the point where pesticide distribution is adversely affected.

Systems must use a metering pump, such as a positive displacement injection pump (e.g., diaphragm pump) effectively designed and constructed of materials that are compatible with pesticides and capable of being fitted with a system interlock.

Do not apply when wind speed favors drift beyond the area intended for treatment, when system connections or fittings leak, when nozzles do not provide uniform distribution or when lines containing the product must be dismantled and drained.

AERIAL DRIFT REDUCTION INFORMATION

GENERAL: Avoiding spray drift at the application site is the responsibility of the applicator. The Interaction of many equipment- and weather-related factors determine the potential for spray drift. The applicator and the grower are responsible for considering all these factors when making decisions. Where states have more stringent regulations, they should be observed.

BUFFER ZONE FOR AERIAL APPLICATION: Do not apply within 75 feet of aquatic habitats (such as, but not limited to, lakes, reservoirs, rivers, streams, marshes, ponds, estuaries, and commercial fish ponds).

INFORMATION ON DROPLET SIZE: Use only medium or coarser spray nozzles according to ASAE (S572) definition for standard nozzles. In conditions of low humidity and high temperatures, applicators should use a coarser droplet size. The most effective way to reduce drift potential is to apply large droplets. The best drift management strategy is to apply the largest droplets that will provide sufficient coverage and control. Applying larger droplets reduces drift potential, but will not prevent drift if applications are made improperly, or under unfavorable environmental conditions (see Wind, Temperature and Humidity, and Temperature Inversions).

CONTROLLING DROPLET SIZE: Volume - Use high flow rate nozzles to apply the highest practical spray volume. Nozzles with higher rated flows produce larger droplets. Pressure - Do not exceed the nozzle manufacturer's specified pressures. For many nozzle types, lower pressure produces larger droplets. When high flow rates are needed, use higher flow rate nozzles instead of increasing pressure. Number of Nozzles - Use the minimum number of nozzles that provide uniform coverage. Nozzle Orientation - Orienting nozzles so that the spray is released parallel to the airstream produces larger droplets than other orientations and is the recommended practice. Significant deflection from horizontal will reduce droplet size and increase drift potential. Nozzle Type - Use a nozzle type that is designed for the intended application. With most nozzle types, narrower spray angles produce larger droplets. Consider using low-drift nozzles. Solid stream nozzles oriented straight back produce the largest droplets and the lowest drift.

BOOM WIDTH: For aerial applications, the boom width must not exceed 75% of the wingspan or 90% of the rotary blade.

APPLICATION HEIGHT: Do not make application at a height greater than 10 feet above the top of the largest plants unless a greater height is required for aircraft safety. Making applications at the lowest height that is safe reduces exposure to droplets to evaporation and wind. If application includes a no-spray zone, do not release spray at a height greater than 10 feet above the ground or crop canopy.

SWATH ADJUSTMENT: When applications are made with a crosswind, the swath will be displaced downward. Therefore, on the up and downwind edges of the field, the applicator must compensate for this displacement by adjusting the path of the aircraft upwind. Swath adjustment distance should increase with increasing drift potential (higher wind, smaller drops, etc.).

WIND: Only apply this product if the wind direction favors on-target deposition. Do not apply when the wind velocity exceeds 15 mph. Drift potential is lowest between wind speeds of 2 - 10 mph. However, many factors, including droplet size and equipment type determine drift potential at any given speed. Application should be avoided below 2 mph due to variable wind direction and high inversion potential. NOTE: Local terrain can influence wind patterns. Every applicator should be familiar with local wind patterns and how they affect spray drift.

TEMPERATURE AND HUMIDITY: When making applications in low relative humidity, set up equipment to produce larger droplets to compensate for evaporation. Droplet evaporation is most severe when conditions are both hot and dry.

TEMPERATURE INVERSIONS: Do not apply during a temperature inversion because drift potential is high. Temperature inversions restrict vertical air mixing, which causes small, suspended droplets to remain in a concentrated cloud. This cloud can move in unpredictable directions due to the light variable winds common

during inversions. Temperature inversions are characterized by increasing temperatures with altitude and are common on nights with limited cloud cover and light to no wind. They begin to form as the sun sets and often continue into the morning. Their presence can be indicated by ground fog; however, if fog is not present, inversions can also be identified by the movement of smoke from a ground source or an aircraft smoke generator. Smoke that layers and moves laterally in a concentrated cloud (under low wind conditions) indicates an inversion, while smoke that moves upward and rapidly dissipates indicates good vertical air mixing.

SENSITIVE AREAS: The pesticide should only be applied when the potential for drift to adjacent sensitive areas (e.g. residential areas, bodies of water, known habitat for threatened or endangered species, non-target crops) is minimal (e.g. when wind is blowing away from the sensitive areas). Do not allow spray to drift from the application site and contact people, structures people occupy at any time and the associated property, parks and recreation areas, non-target crops, aquatic and wetland areas, woodlands, pastures, rangelands, or animals.

SHAKE WELL BEFORE USE

FOR USE ON THE FOLLOWING CROPS FOR CONTROL OF SPECIFIED INSECTS AND MITES:

Pre-harvest Interval (PHI) = 0 days

Alfalfa (Hay and Seed), Hay and Other Forage Crops

4 – 8 quarts of GRANDEVO™ EP per acre

Alfalfa webworm, alfalfa caterpillar, armyworms, European skipper

8 – 12 quarts of GRANDEVO™ EP per acre

Plant bugs, aphids

Asparagus

4 – 8 quarts of GRANDEVO™ EP per acre

Asparagus beetle and spotted asparagus beetle. Apply when adults are seen feeding on new spears and during the fern stage when field counts or crop injury indicates damaging populations.

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms

8 – 12 quarts of GRANDEVO™ EP per acre

Stink bugs

Bananas

4 – 8 quarts of GRANDEVO™ EP per acre

Banana skipper

8 – 12 quarts of GRANDEVO™ EP per acre

Stink bugs

Brassica (Cole) Leafy Vegetables

Broccoli, Broccoli Raab, Brussels Sprouts, Cabbage, Chinese Broccoli, Chinese Cabbage (Bok Choy), Chinese Cabbage (Napa), Chinese Mustard Cabbage (Gai Choy), Cauliflower, Cavalo Broccolo, Collards, Kale, Kohlrabi, Mizuna, Mustard Greens, Mustard Spinach, and Rape Greens

4 – 8 quarts of GRANDEVO™ EP per acre

Diamondback moth, cabbage looper, imported cabbageworm, cabbage webworm, beet armyworm, armyworms

Yellowmargined leafbeetle larvae – apply to newly hatched to 2nd instar. If adult beetles are also present, tank-mix with a knockdown insecticide.

8 – 12 quarts of GRANDEVO™ EP per acre

Whiteflies, thrips, aphids, stink bugs

Bulb Vegetables

Leek, Garlic and Onion (Bulb and Green)

4 – 8 quarts of GRANDEVO™ EP per acre

Loopers, omnivorous leafroller, hornworm, imported cabbageworm, diamondback moth, green cloverworm, webworms, saltmarsh caterpillar, armyworms, cutworms, cross-striped cabbageworm, *Heliothis*

Bushberries

Blueberry, Currant, Gooseberry, Huckleberry, Elderberry, Juneberry, Ligonberry, and Salal

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, cherry fruitworm, cranberry fruitworm, fireworms, leafrollers, loopers

8 – 12 quarts of GRANDEVO™ EP per acre

Stink bugs

Caneberries

Blackberry, Loganberry, Red and Black Raspberry, and Cultivars, Varieties and/or Hybrids of These

4 – 8 quarts of GRANDEVO™ EP per acre

Beet armyworm, bertha armyworm, green fruitworm, leafrollers, loopers, western raspberry fruitworm, armyworms

8 – 12 quarts of GRANDEVO™ EP per acre

Stink bugs

Cereal Grains

Barley, Buckwheat, Oats, Pearl Millet, Proso Millet, Rye, Sorghum (Milo), Triticale and Wheat

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, corn earworm (headworm), southwestern corn borer, web worms

8 – 12 quarts of GRANDEVO™ EP per acre

Cereal leaf beetle, chinch bugs

Citrus Fruit

Grapefruit, Lemons, Limes, Oranges, and Tangerines

4 – 8 quarts of GRANDEVO™ EP per acre

Fruittree leafroller, orangedog, citrus cutworm, citrus leafminer

8 – 12 quarts of GRANDEVO™ EP per acre

Two-spotted spider mite, Texas citrus mite, citrus red mite, citrus rust mite, six-spotted spider mite, Asian citrus psyllid, citrus whitefly, cloudy-winged whitefly, woolly aphid, citrus blackfly, green citrus aphid, cotton or melon aphid, brown citrus aphid, mealybugs, stink bugs

Corn (Field Corn, Sweet Corn, Popcorn and Corn Grown for Seed)

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, European corn borer, southwestern corn borer, western bean cutworm, corn earworm, corn rootworm adults

8 – 12 quarts of GRANDEVO™ EP per acre

Corn leaf aphid, stink bugs

Cotton

4 – 8 quarts of GRANDEVO™ EP per acre

European corn borer, cotton Bollworm, tobacco budworm, loopers (soybean and cabbage), saltmarsh caterpillar, armyworms

8 – 12 quarts of GRANDEVO™ EP per acre

Cotton aphid, *Lygus*

Cranberry

4 – 8 quarts of GRANDEVO™ EP per acre

Do not apply to flooded fields.

Armyworms, leafrollers, fireworms, loopers, sparganothis fruitworm, cranberry blossom weevil.

Cucurbit Vegetables

Cucumber, Edible Gourds, Muskmelon, Cantaloupe, Pumpkin, Watermelon, and Winter and Summer Squash

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, cabbage looper, melonworm, pickleworm, rindworm complex

8 – 12 quarts of GRANDEVO™ EP per acre

Silverleaf whitefly nymphs, aphids, stink bugs

Fig**4 – 8 quarts of GRANDEVO™ EP per acre**

Navel orangeworm

8 – 12 quarts of GRANDEVO™ EP per acre

Stink bugs

Flowers, Bedding Plants and Ornamentals – ground application only to non-blooming plants**4 – 8 quarts of GRANDEVO™ EP per acre or 1 – 2 gallons of GRANDEVO™ EP per 100 gallons of water**

Loopers, tobacco budworm, omnivorous looper, omnivorous leafroller, diamondback moth, Armyworm, ello moth, lo moth, oleander moth, azalea caterpillar

8 – 12 quarts of GRANDEVO™ EP per acre or

(For 2.5-gallon container size): 1 – 1.5 gallons of GRANDEVO™ EP per 50 gallons of water

(For 5-gallon container size): 2 – 3 gallons of GRANDEVO™ EP per 100 gallons of water

Whiteflies, aphids, mites

Fruiting Vegetables**Tomato, Tomatillo, Pepper, Groundcherry, Pepino, Okra and Eggplant****4 – 8 quarts of GRANDEVO™ EP per acre**

Loopers, hornworms, tomato fruitworm, variegated cutworm, saltmarsh caterpillar, armyworms, tomato pinworm, European corn borer

8 – 12 quarts of GRANDEVO™ EP per acre

Colorado potato beetle larvae – apply to newly hatched to 2nd instar larvae. If adult beetles are also present, tank-mix with a knockdown insecticide.

8 – 12 quarts of GRANDEVO™ EP per acre

Aphids, mites, stink bugs, *Lygus*, pepper weevil, silverleaf whitefly, plant bugs, stink bugs

Grape**4 – 8 quarts of GRANDEVO™ EP per acre**

Grape leaf skeletonizer, grape leafroller, omnivorous leafroller, orange tortrix, oblique-banded leafroller, grape berry moth

8 – 12 quarts of GRANDEVO™ EP per acre

Pacific spider mite, Willamette spider mite, two-spotted spider mite, mites, grape mealybug, stink bugs

Herbs and Spices

Angelica, Balm, Basil, Borage, Burnet, Camomile, Catnip, Chervil, Chive, Clary, Coriander, Costmary, Cilantro, Curry, Dillweed, Horehound, Hyssop, Lavender, Lemongrass, Lovage, Marjoram, Nasturtium, Parsley (Dried), Rosemary, Sage, Savory (Summer and Winter), Sweet Bay, Tansy, Tarragon, Thyme, Wintergreen, Woodruff and Wormwood

4 – 8 quarts of GRANDEVO™ EP per acre

Loopers, saltmarsh caterpillar, armyworms

Hops and Dried Cones

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, loopers

Leafy Vegetables

Arugula, Celery, Corn Salad, Cress, Dandelion, Dock, Edible Chrysanthemum, Endive, Fennel, Head Lettuce, Leaf Lettuce, Parsley, Purslane, Radicchio, Rhubarb, Spinach and Swiss Chard

4 – 8 quarts of GRANDEVO™ EP per acre

Cabbage looper, diamondback moth, armyworms, loopers

8 – 12 quarts of GRANDEVO™ EP per acre

Aphids, whiteflies, psyllids, stink bugs

Leaves of Root and Tuber Vegetables

Beets and Turnips

4 – 8 quarts of GRANDEVO™ EP per acre

Cabbage looper, diamondback moth, armyworms

8 – 12 quarts of GRANDEVO™ EP per acre

Aphids, whiteflies, psyllids, stink bugs

Legume Vegetables (Succulent or Dried)

Adzuki Bean, Blackeyed Pea, Beans, Chickpea, Cowpea, Crowder Pea, Edible-Pod Pea, English Pea, Fava Bean, Field Bean, Field Pea, Garbonzo Bean, Garden Pea, Green Pea, Kidney Bean, Lentils, Lima Bean, Lupins, Mung Bean, Navy Bean, Peas, Pigeon Pea, Pinto Bean, Runner Bean, Snap Bean, Snow Pea, Soybean, Sugar Snap Pea, Tepary Bean, Wax Bean, and Yardlong Bean

4 – 8 quarts of GRANDEVO™ EP per acre

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Armyworms, corn earworm, green cloverworm, loopers, podworms, soybean looper, velvetbean caterpillar

8 – 12 quarts of GRANDEVO™ EP per acre

Aphids, stink bugs, mites

Oilseed Crops

Canola, Safflower, Sunflower (including Sunflower Grown for Seed)

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, diamondback moth, loopers, saltmarsh caterpillar, *Heliothis*, headworms

Peanut

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, cabbage looper, corn earworm, soybean looper, green cloverworm, European corn borer, podworms, red-necked peanut worm, saltmarsh caterpillar, velvetbean caterpillar

Peppermint

4 – 8 quarts of GRANDEVO™ EP per acre

Loopers, saltmarsh caterpillar, armyworms

Pineapple

4 – 8 quarts of GRANDEVO™ EP per acre

Gummosos-Batracheda Comosae (Hodges), *Thecla-Thecla Basilides* (Geyr)(Fruitborer)

Pome Fruit

Apples, Crabapple, Loquat, Mayhaw, Pears and Quince

4 – 8 quarts of GRANDEVO™ EP per acre

Leaf rollers, oriental fruit moth, plum curculio, tufted apple budmoth

8 – 12 quarts of GRANDEVO™ EP per acre

Aphids, stink bugs, mites

Application timing: optimal timing for leaf rollers can vary between species and geographic locations. Monitor moth flights with pheromone traps and scout regularly to determine larval populations. Use a 7-10 day re-treatment schedule to maintain control if the crop is growing rapidly or if there is heavy pest pressure.

Pomegranate

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, cankerworms, codling moth, cutworms, filbert leafroller, fruittree leafroller, gypsy moth, oblique banded leafroller, oriental fruit moth, redbanded leafroller, tufted apple budmoth, twig borer, variegated leafroller, walnut caterpillar

8 – 12 quarts of GRANDEVO™ EP per acre

European red mite, McDaniel spider mite, Pacific spider mite, two-spotted red mite, stink bugs

Root and Tuber Vegetables

Artichoke, Black Salsify, Carrot, Cassava, Celery, Chicory, Chinese Artichoke, Edible Burdock, Garden Beet, Ginger, Ginseng, Horseradish, Jerusalem Artichoke, Oriental Radish, Parsnip, Potatoes, Radish, Rutabaga, Salsify, Skirret, Spanish Salsify, Sugar Beet, Sweet Potatoes, Tumeric, Turnip, Turnip-rooted Chervil, Turnip Rooted Parsley and Yams

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, artichoke plume moth, European corn borer, loopers

8 – 12 quarts of GRANDEVO™ EP per acre

Colorado potato beetle larvae – apply to newly hatched to 2nd instar larvae. If adult beetles are also present, tank-mix with a knockdown insecticide. Heavy infestations require repeat application.

Aphids, potato aphid, potato leafhopper, stink bugs

Shade and Ornamental Trees

4 – 8 quarts of GRANDEVO™ EP per acre or 1 – 2 gallons of GRANDEVO™ EP per 100 gallons of water

Blackheaded budworm, California oakworm, Douglas fir tussock moth elm leaf beetle, elm spanworm, fruittree leafroller, greenstriped mapleworm, hemlock looper, imported willow leaf beetle, Jack Pine Budworm, Mimosa Webworm, pine butterfly, saddleback caterpillar, saddle prominent caterpillar, spruce budworm, tent caterpillar, viburnum beetle, western tussock moth

8 – 12 quarts of GRANDEVO™ EP per acre or

(For 2.5-gallon container size): 1 – 1.5 gallons of GRANDEVO™ EP per 50 gallons of water

(For 5-gallon container size): 2 – 3 gallons of GRANDEVO™ EP per 100 gallons of water

Aphids, elm leaf beetle, imported willow leaf beetle, lace bugs, mites, whiteflies, viburnum leaf beetle

Stone Fruits

Apricots, Cherry, Nectarine, Peach, Plum, and Prune

4 – 8 quarts of GRANDEVO™ EP per acre

Green fruitworm, leafrollers (including oblique-banded, fruit tree, pandemic, redbanded, and variegated), oriental fruit moth, redhumped caterpillar, tent caterpillar, peach twig borer

8 – 12 quarts of GRANDEVO™ EP per acre

Aphids, mites, stink bugs

Application timing: optimal timing for peach twig borer and leafrollers can vary between species and geographic locations. Monitor moth flights with pheromone traps and scout regularly to determine larval populations. Use a 7-10 day re-treatment schedule to maintain control if the crop is growing rapidly or if there is heavy pest pressure. Use a 3- to 4-day re-treatment schedule at flowering.

Strawberry

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, leafrollers

8 – 12 quarts of GRANDEVO™ EP per acre

Aphids, *Lygus*, mites, thrips, stink bugs

Tobacco

4 – 8 quarts of GRANDEVO™ EP per acre

Hornworms, tobacco budworm, loopers

Tree Farms and Plantations

Conifers, Including Christmas Trees and Deciduous Trees

4 – 8 quarts of GRANDEVO™ EP per acre or 1 – 2 gallons of GRANDEVO™ EP per 100 gallons of water

Bagworm, fall webworm, gypsy moth, hemlock looper, jackpine budworm, pine tip moth, redhumped caterpillar, spruce budworm, tent caterpillar, tussock moths

8 – 12 quarts of GRANDEVO™ EP per acre or

(For 2.5-gallon container size): 1 – 1.5 gallons of GRANDEVO™ EP per 50 gallons of water

(For 5-gallon container size): 2 – 3 gallons of GRANDEVO™ EP per 100 gallons of water

Cottonwood leaf beetle - apply to newly hatched to 2nd instar larvae. If adult beetles are also present, tank-mix with a knockdown insecticide. Heavy infestations may require repeat application.

Tree Nuts and Pistachios

Almonds, Cashew, Chestnut, Filbert (Hazelnut), Macadamia Nut, Pecan, Pistachios, and Walnut

4 – 8 quarts of GRANDEVO™ EP per acre

Fall webworm, filbert worm, hickory shuckworm, navel orange worm, oblique-banded leafroller, peach twig borer, pecan nut casebearer, redhumped caterpillar

8 – 12 quarts of GRANDEVO™ EP per acre

Pecan weevil (suppression)

Tropical and Subtropical Fruit

Acerola, Atemoya, Avocado, Biriba, Black Sapote, Canistel, Cherimoya, Custard Apple, Feijoa, Guava, Ilima, Jaboticaba, Kiwi, Longan, Lychee, Mamey Sapote, Mango, Papaya, Passionfruit, Pulasan, Rambutan, Sapodilla,

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Soursop, Spanish Lime, Star Apple, Starfruit, Sugar Apple, Ti Palm Leaves, Wax Jambu (Wax Apple), and White Sapote

4 – 8 quarts of GRANDEVO™ EP per acre

Avocado leafroller, citrus peelminer, cutworms, fruit tree leafroller, omnivorous leafroller, orange tortrix, western tussock moth

8 – 12 quarts of GRANDEVO™ EP per acre

Stink bugs

Turf, Including Turf Grown for Seed

4 – 8 quarts of GRANDEVO™ EP per acre

Armyworms, cutworms, sod webworm

8 – 12 quarts of GRANDEVO™ EP per acre

Chinch bug

STORAGE AND DISPOSAL

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

Pesticide Storage: Store in original container at 35.6-46.4°F (2-8°C). Avoid freezing.

Pesticide Disposal: To avoid wastes, use all material in this container by application according to label directions. If wastes cannot be avoided, offer remaining product to a waste disposal facility or pesticide disposal program (often such programs are run by state or local governments or by industry).

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

Triple rinse container (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Fill the container 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. Do not burn, unless allowed by state and local ordinances. (For instances where state and local ordinances do allow burning): If burned, stay out of smoke.

Marrone Bio Innovations

WARRANTY

To the extent consistent with applicable law, the seller makes no warranty, expressed or implied, of merchantability, fitness or otherwise concerning use of this product. To the extent consistent with applicable law, the user assumes all risks of use, storage or handling that are not in strict accordance with the accompanying directions.

OPTIONAL LABEL CLAIMS:

- Biological Insecticide
- Flowable concentrate
- [OMRI Listed® (logo)]