2022-0028
2022-02-04

GROUP	11	INSECTICIDE

beetleTERMINATOR™

Bio Insect Control

Live Organism

Natural Active Ingredient*

WATER DISPERSIBLE POWDER

Selectively controls listed Beetle Adults and Larvae in Turf and Ornamental Plants in Residential and Commercial Settings, Public Landscapes, Nurseries, Greenhouses, and Indoor Plantscapes

COMMERCIAL

READ THE LABEL BEFORE USING
KEEP OUT OF REACH OF CHILDREN

ACTIVE INGREDIENT: *Bacillus thuringiensis* subsp. *galleriae* strain SDS-502 – 8.5×10^{9} CFU/g

REGISTRATION NO.: 33317 PEST CONTROL PRODUCTS ACT

POTENTIAL SENSITIZER

NET CONTENTS: 100g-1050 kg

Date of Manufacture

Phyllom BioProducts Corporation
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**If used inappropriately, any pest control product, including those with natural ingredients, may have health, safety or environmental risks: use this product only in accordance with label instructions.*

PRODUCT INFORMATION

beetleTERMINATOR™ is a water dispersible powder with a high level of activity against certain beetle pests, including those in the families Curculionidae and Scarabaeidae . The active ingredient of **beetleTERMINATOR** will control listed beetles upon ingestion. Susceptible beetles will cease feeding within hours of ingestion of the active ingredient and die over a period of days.

DIRECTIONS FOR USE

As this product is not registered for the control of pests in aquatic systems, DO NOT use to control aquatic pests.

DO NOT contaminate irrigation or drinking water supplies or aquatic habitats by cleaning of equipment or disposal of wastes.

DO NOT apply by air.

Application: Apply **beetleTERMINATOR™** by pressurized backpack or other conventional ground application equipment with quantities of water sufficient to provide thorough coverage of plant foliage to be protected without excessive runoff. The amount of water needed per hectare will depend upon the site, amount of foliage, weather, spray equipment, and local experience. Avoiding spray drift at the application site is the responsibility of the applicator.

Mixing: Fill sprayer or mixing tank half full of water. Begin agitation, and pour **beetleTERMINATOR** into water while maintaining continuous agitation. Add other compatible spray materials (if any) and balance of water. Agitate as necessary to maintain suspension. When mixing **beetleTERMINATOR** with any other registered pesticide products, always read and follow all use directions, restrictions, and precautions of both **beetleTERMINATOR** and the tank-mix partner(s). The resulting mixture must be in accordance with the most restrictive label limitations and precautions. Do not allow diluted mixture to remain in the sprayer or tank for more than 12 hours.

FOLIAR APPLICATION TO ORNAMENTAL PLANTS

Sites of Application: beetleTERMINATOR can be used for applications to ornamental plants (e.g., trees and shrubs). Use sites include golf courses, residential and commercial grounds (e.g., office and shopping complexes and airports), parks, nurseries, greenhouses, agricultural fields and indoor plantscapes.

Apply **beetleTERMINATOR** by pressurized backpack or other ground application equipment with quantities of water sufficient to provide thorough coverage of plant foliage to be protected without excessive runoff. The minimum amount of water needed per hectare will depend upon the site, amount of foliage, weather, spray equipment, and local experience. Avoiding spray drift at the application site is the responsibility of the applicator.

Application Timing: To help manage populations of adult beetles, begin **beetleTERMINATOR** applications after adult emergence but in advance of the peak of adult flight for the target insect species as determined by degree day models, pest surveys or pest trapping programs. Repeat applications as often as necessary to reduce beetle populations to threshold levels through the season. Consult with local horticultural specialists to access information related to predictive models and/or surveys that predict the best timing of applications against target insect pests.

Application Rates: beetleTERMINATOR is to be applied within the rate ranges on the label. The low rate is to be used during periods of relatively low infestation of the target beetle adult pest(s) that are feeding on foliage. This period of low rate treatment can be timed by observing the presence of the target beetle and damage to foliage. Consult with local horticultural specialists to access information, including growing degree day models, for beetle pests found in your community.

The low rate should be used at the time the model predicts first adult emergence from the soil. The high rate of application should be used within 7 days after first adult emergence or during peak beetle flight and each 7 days thereafter until the infestation subsides. When in doubt, use the high rate.

Be sure to follow all restrictions regarding re-applications and maximum annual application rates given on this label.

Foliar Insect Pests (Beetle Adults)	**Foliar Application Timing of beetleTERMINATOR**	**Foliar Application Rate of beetleTERMINATOR**
Asiatic garden beetle (*Maladera castanea*) Japanese beetle (*Popillia japonica*) Oriental beetle (*Anomala orientalis*) Rose chafer (*Macrodactylus subspinosus*)	Begin applications when adult beetles emerge and reach threshold levels on susceptible plants. For optimum control, repeat applications as often as necessary to reduce beetle populations to threshold levels through the season.	Apply 1.5-3.0 kg of **beetleTERMINATOR** per 100 litres of water. Apply in an adequate amount of water to obtain thorough coverage of plant foliage without excessive runoff.

SOIL DRENCH APPLICATION TO ORNAMENTAL PLANTS

Sites of Application: beetleTERMINATOR can be used for drench applications to field grown or potted plants. Use sites include golf courses, residential and commercial grounds (e.g., office and shopping complexes and airports), parks, nurseries, greenhouses, plantations, agricultural fields and indoor plantscapes. Transplant soil substrate may also be drenched.

Apply **beetleTERMINATOR** as a directed spray by pressurized backpack or other ground application equipment with quantities of water sufficient to provide thorough coverage of the soil surface above the ornamental plant roots. Then immediately follow the application with 0.6-1.2 cm irrigation water and or natural rainfall in order to drench the beetleTERMINATOR into the root zone of the plants where the beetle grubs feed. The minimum amount of water needed per hectare will depend upon the site, ground cover, weather, spray equipment, and local experience. Avoiding spray drift at the application site is the responsibility of the applicator.

Greenhouse and Nursery Drenches and Applications to Ornamental Plants grown in beds, trays or pots with soil substrate: Use 12.5-19.5 kg of **beetleTERMINATOR** per hectare in 400-1,000 litres of water per hectare. Ideally plants grown in trays or pots should be treated until the soil media is saturated. Alternatively, submerge trays or pots of ornamental plants in a **beetleTERMINATOR** suspension for a minimum of 2 minutes and until the **beetleTERMINATOR** suspension thoroughly penetrates into the soil substrate where beetle larvae may feed. Use 0.75-1.5 kg of beetleTERMINATOR per 100 litres of water. The suspension should be recirculated as needed to maintain a homogeneous suspension.

Field Grown Ornamental Soil Drench Application:
Apply 12.5-19.5 kg of **beetleTERMINATOR** per hectare in 400-1,000 litres of water per hectare. Application rates are expressed as a broadcast rate per hectare. **beetleTERMINATOR** may be targeted at the root zone by examining the plant roots to determine what band width is needed to cover the soil surface above the plant roots. If plants are grown in rows the best root coverage may be achieved by directing sprays in a band on each side of the row. Follow with irrigation immediately after application.

Application Timing: To help manage populations of beetle larvae, begin preventative **beetleTERMINATOR** applications when insect pests are present. Optimum control is achieved when applications are made at egg hatch for the target insect species as determined by degree day models, pest surveys or pest trapping programs. Repeat applications may be made as long as the total maximum annual application rate is not exceeded. Curative applications may also be made to 1^{st}-3^{rd} instar larvae. Application to early instars will result in a higher level of larval mortality. Consult with local horticultural specialists to access information related to predictive models and/or pest surveys that predict the best timing of applications against target insect pests.

Soil Insect Pests (Beetle Larvae)	**Soil Drench Application Timing of beetleTERMINATOR**	**Soil Drench Application Rate of beetleTERMINATOR**
Asiatic garden beetle (*Maladera castanea*) European chafer (*Amphimallon majalis*) Green June beetle (*Cotinis nitida*)	Apply when the insect pest species being targeted are present. For optimum control, apply from peak adult flight to peak egg hatch of the primary insect pest	Submerge trays or pots of ornamental plants in a suspension of 0.75-1.5 kg of beetleTERMINATOR per 100 litres of water. Apply 12.5-19.5 kg of **beetleTERMINATOR** per

Japanese beetle (*Popillia japonica*) May or June beetles (*Phyllophaga* spp.) Northern masked chafer (*Cyclocephala borealis*) Oriental beetle (*Anomala orientalis*) Southern masked chafer (*Cyclocephala lurida*)	species being targeted. Additional applications may be made no earlier than 7 days after the preceding application as long as the annual maximum of 390 g of **beetleTERMINATOR** per 100 square metres,(equivalent to 39 kg of **beetleTERMINATOR** per hectare) is not exceeded.	hectare in 400 litres to 1000 litres of water per hectare to plants grown in the field or greenhouse or nursery plants grown in beds, trays or pots. Follow with irrigation immediately after application to drench the **beetleTERMINATOR** into the root zone. Do not apply more than 390 g of **beetleTERMINATOR** per 100 square metres (equivalent to 39 kg of **beetleTERMINATOR** per hectare) of ornamental plants per year.

APPLICATION TO TURF GRASS

Sites of Application: beetleTERMINATOR can be used for applications to landscape and recreational turf grasses. Use sites include golf courses (e.g., greens, tees, collars, roughs, and fairways), residential lawns, commercial grounds (e.g., office and shopping complexes and airports), parks, athletic fields, pet care facilities, cemeteries, sod farms, and other turf grass-covered areas.

beetleTERMINATOR is not known to be phytotoxic to any turf grass species.

Application Methods: Apply **beetleTERMINATOR** as a broadcast application to turf grass for control of listed beetle larvae and to prevent their damage to turf grasses. With calibrated equipment, uniformly broadcast **beetleTERMINATOR** over the area being treated. Maintain adequate soil moisture before and after application for optimum control of insect pests and healthy turf grass growth. Excessively wet or dry conditions may impact the performance of **beetleTERMINATOR**. **beetleTERMINATOR** must move to the site of infestation, such as in the root zone of the host plant.

Sprinkler irrigation of about 1.25 cm or moderate rainfall shortly after application improves performance for all applications by moving **beetleTERMINATOR** into the root zone where the grubs feed. Do not mow the turf until the treated area has been irrigated or moderate rainfall has occurred so that spray deposits are not removed from the treated area.

Application Timing: beetleTERMINATOR is effective when applied at label rates (see table directly below) to control the listed beetle larvae and prevent their damage to turf. Apply **beetleTERMINATOR** when target insect pests are present. For optimum control, apply **beetleTERMINATOR** from adult flight through egg hatch of the primary insect species being targeted. Consult with local horticultural specialists to access information related

to predictive models and/or pest surveys that predict the best timing of applications against target insect pests.

Insect Pests	**Application Timing of beetleTERMINATOR to Turf Grass**	**Application Rate of beetleTERMINATOR to Turf Grass**
Larvae (grubs) of: Asiatic garden beetle (*Maladera castanea*) Black turfgrass ataenius (*Ataenius spretulus*) European chafer (*Amphimallon majalis*) Green June beetle (*Cotinis nitida*) Japanese beetle (*Popillia japonica*) May or June beetles (*Phyllophaga* spp.) Northern masked chafer (*Cyclocephala borealis*) Oriental beetle (*Anomala orientalis*) Southern masked chafer (*Cyclocephala lurida*)	Apply when the insect pest species being targeted are present. For optimum control, apply from adult flight to egg hatch of the primary insect pest species being targeted. Additional applications may be made no earlier than 7 days after the preceding application as long as the annual maximum of 390 g of **beetleTERMINATOR** per 100 square metres, (equivalent to 39 kg of **beetleTERMINATOR** per hectare) is not exceeded.	Apply 12.5-19.5 kg of **beetleTERMINATOR** per hectare in 400 litres to 1000 litres of water per hectare. Follow with 1.25 cm irrigation or natural rainfall immediately after application. Do not apply more than 390 g of **beetleTERMINATOR** per 100 square metres (equivalent to 39 kg of **beetleTERMINATOR** per hectare) of turf grass per year.
Annual bluegrass weevil larvae (*Listronotus maculicollis*)	For annual bluegrass weevil target applications when or soon after larvae emerge from stems.	

Note: For turf grass with heavy thatch (more than 2 cm), use the higher rates within the specified rate range.

RESISTANCE-MANAGEMENT RECOMMENDATIONS

For resistance management, **beetleTERMINATOR** contains a Group 11 insecticide. Any insect population may contain individuals naturally resistant to **beetleTERMINATOR** and other Group 11 insecticides. The resistant individuals may dominate the insect population if this group of insecticides is used repeatedly in the same sites. Other resistance mechanisms that are not linked to site of action but are specific for individual chemicals, such as enhanced metabolism, may also exist. Appropriate resistance-management strategies should be followed.
To delay insecticide resistance:

- Where possible, rotate the use of **beetleTERMINATOR** or other Group 11 insecticides with different groups that control the same pests.
- Use tank mixtures with insecticides from a different group that is effective on the target pest when such use is permitted.
- Insecticide use should be based on an IPM program that includes scouting and record keeping, and considers cultural, biological and other chemical control practices.
- Monitor treated pest populations for resistance development.
- Contact your local extension specialist or certified crop advisors for any additional pesticide resistance-management and/or IPM recommendations for the specific site and pest problems in your area.
- For further information or to report suspected resistance contact Phyllom BioProducts at 1-650-296-2574 or at info@phyllom.com.

PRECAUTIONS:
KEEP OUT OF REACH OF CHILDREN. May cause sensitization. Avoid contact with skin or clothing. Avoid inhaling/breathing spray mist. Wear a long-sleeved shirt, long pants, water-proof gloves, shoes with socks, and a minimum of a NIOSH-approved particulate filtering facepiece respirator with any N, R or P filter when handling, mixing/loading, or applying the product, and during all clean-up/repair activities. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before reuse.

Restricted Entry Interval: DO NOT enter or allow worker entry into treated areas for 4 hours or until sprays have dried, unless wearing waterproof gloves, long-sleeved shirts, long pants, and socks with shoes.

Apply only when the potential for drift to non-target areas of human habitation or areas of human activity is minimal, taking into consideration wind speed, wind direction, temperature inversions, application equipment and sprayer settings.

ENVIRONMENTAL PRECAUTIONS:
To reduce runoff from treated areas into aquatic habitats avoid application to areas with a moderate to steep slope, compacted soil, or clay.

Avoid application when heavy rain is forecast.

Contamination of aquatic areas as a result of runoff may be reduced by including a vegetative strip between the treated area and the edge of the water body.

FIRST AID:
IF SWALLOWED: 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 a poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15 - 20 minutes. Call a poison control centre or doctor for treatment advice.
IF INHALED: Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth, if possible. Call a poison control centre or doctor for treatment advice.
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 centre or doctor for treatment advice.

Take container, label or product name and Pest Control Product Registration Number with you when seeking medical attention.

TOXICOLOGICAL INFORMATION: Treat symptomatically.

STORAGE: Keep in original container during storage. Store product in a cool, dry, well-ventilated place. Keep away from direct sunlight, fire or open flame, or other source of heat. Store at temperatures between 4–25°C. Close opened packages tightly. This product should be used within 16 months from the date of manufacture.

To prevent contamination store this product away from food or feed.

DISPOSAL:
1. Follow provincial instruction for any required additional cleaning of the container prior to its disposal.
2. Make the empty container unsuitable for further use.
3. Dispose of the container in accordance with provincial requirements.
4. For information on disposal of unused, unwanted product, contact the manufacturer or the provincial regulatory agency. Contact the manufacturer or the provincial regulatory agency in case of a spill, and for clean-up of spills.

NOTICE TO USER: This pest control product is to be used only in accordance with the directions on the label. It is an offence under the Pest Control Products Act to use this product in a way that is inconsistent with the directions on the label.