

GROUP	BM02	FUNGICIDE
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**TRIANUM P Biological Fungicide**  
Water Dispersible Granule

For the suppression of post-emergence damping off (*Rhizoctonia solani*, *Pythium ultimum*), fusarium root rot (*Fusarium oxysporum*) and cavity spot (*Pythium violae*) on listed greenhouse and field vegetables, herbs, cannabis, field hemp, greenhouse strawberries, ginseng and greenhouse ornamentals, and for the reduction in symptoms of dollar spot (*Sclerotinia homoeocarpa*) and microdochium patch (*Microdochium nivale*) on turf

COMMERCIAL  
**READ THE LABEL BEFORE USING**

ACTIVE INGREDIENT: *Trichoderma harzianum* Rifai strain T22 contains a minimum of  $1 \times 10^9$  colony forming units per gram of dry weight

POTENTIAL SENSITIZER  
LIVE ORGANISM

REG. No. 31502 *PEST CONTROL PRODUCTS ACT*

NET CONTENTS: 0.25 – 20 kg

Manufactured by:  
Koppert Canada Limited  
40 Ironside Cres., Unit # 3  
Scarborough, Ontario  
M1X 1G4  
1-800-567-4195

Lot No.:

Date of Manufacture: Use within 6 months of date of manufacture.

**GENERAL INFORMATION:** TRIANUM P Biological Fungicide (*Trichoderma harzianum* Rifai strain T-22) is a biofungicide for the suppression of post-emergence damping off and root rot (*Rhizoctonia solani*, *Pythium ultimum*) and fusarium root rot (*Fusarium oxysporum*) on greenhouse vegetables, herbs, greenhouse strawberries, ginseng, indoor-grown cannabis and ornamentals and for suppression of cavity spot (*Pythium violae*) on carrots as well as for the suppression of post-emergence damping off and root rot (*Rhizoctonia solani*) in field-grown vegetables, herbs, cannabis and hemp. The active ingredient is a beneficial microbe *Trichoderma harzianum* Rifai strain T-22. When applied to transplants, greenhouse planting mix or soil, TRIANUM P Biological Fungicide actively grows onto plant roots as they develop and protect roots against *Pythium ultimum*, *Pythium violae*, *Fusarium oxysporum* and *Rhizoctonia solani*. TRIANUM P Biological Fungicide also reduces the symptoms of dollar spot (*Sclerotinia homoeocarpa*) and microdochium patch (*Microdochium nivale*) in turf. It can be applied by drench application to the growing medium or by spray at sowing. TRIANUM P Biological Fungicide can be used alone or in conjunction with certain chemical fungicides.

TRIANUM P Biological Fungicide protects plants against infection by soil-borne pathogens via the root system. TRIANUM P Biological Fungicide performs well under various environmental conditions. It grows under a wide temperature range (10°-34°C), at a pH between 4-8, in many types of growing media, and on the roots of a wide range of plants.

For control of seed rot and damping off of internally infected cuttings, use chemical fungicides or other appropriate measures in addition to TRIANUM P Biological Fungicide.

**Note:** TRIANUM P Biological Fungicide contains live spores of a beneficial microbe. TRIANUM P Biological Fungicide becomes active when soil temperatures are above 10°C. Disease suppression is not effective while soils remain cold and is more effective in neutral or acidic soils than in alkaline soils.

**Disease suppression:** The beneficial fungus *Trichoderma harzianum* Rifai strain T-22 out competes plant pathogenic fungi for space and nutrients, colonizing the plant roots ahead of the pathogens. It acts as a mycoparasite by producing enzymes which break down the hyphae of the plant pathogenic fungi.

## **DIRECTIONS FOR USE**

### **For use on:**

*Greenhouse: Bulb vegetables (CG3-07), Leafy vegetables (CG4-13), Brassica vegetables (CG5-13), Fruiting vegetables (CG8-09), Cucurbit vegetables (CG9), Herbs (CG19A), greenhouse strawberries, indoor-grown cannabis and ornamentals*

*Outdoor: Turf, Field-grown vegetables, Herbs, Cannabis, Hemp and Ginseng*

- 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 allow effluent or runoff from greenhouses containing this product to enter lakes, streams, ponds or other waters.

## **PREPARATION OF SUSPENSION**

- Suspend 1 volume of TRIANUM P Biological Fungicide in 5 volumes of water.
- Mix thoroughly.
- Add suspension to required amount of water to obtain final drench volume (see below).
- Agitate continuously to maintain an even distribution of TRIANUM P Biological Fungicide spores, as they can precipitate out.
- Apply the suspension on the day of preparation.

## **APPLICATION AND DOSE**

TRIANUM P Biological Fungicide should be used preventatively. For the best results, always use TRIANUM P Biological Fungicide from propagation onwards, before occurrence of disease.

Use sufficient suspension to guarantee good penetration of the growing medium, but to maximize spore attachment to the plant roots, avoid run-off and excessive drainage for the first two days following application.

TRIANUM P Biological Fungicide is not a systemic product, and is therefore not taken up by the roots.

**Specific Directions for Ornamentals:** The large number of existing ornamental species and their varieties and cultivars coupled with the constant introduction of new varieties makes it impossible to field test TRIANUM P Biological Fungicide in every locale where it is sold or in all the combinations of location and plant varieties. To ensure that TRIANUM P Biological Fungicide is compatible with the ornamental plant variety or cultivar under your specific conditions, test on a limited scale and observe for phytotoxicity or other unintended side effects for two weeks before making large-scale applications.

The DIRECTIONS FOR USE for the uses without a (\*) described in this section of the label were developed by persons other than Koppert Canada Limited under the User Requested Minor Use Label Expansion program. For these uses, Koppert Canada Limited has not fully assessed performance (efficacy) and/or crop tolerance (phytotoxicity) under all environmental conditions or for all crop varieties when used in accordance with the label. The user should test the product on a small area first, under local conditions and using standard practices, to confirm the product is suitable for widespread application.

### **Sowing of greenhouse vegetables (including bulb vegetables, leafy vegetables, Brassica vegetables, fruiting vegetables, cucurbit vegetables), greenhouse herbs and greenhouse ornamentals**

<b>Crops</b>	<b>Diseases Suppressed</b>	<b>Application Timing</b>	<b>Rate</b>
<u>Greenhouse vegetables:</u> Bulb vegetables (CG3-07) <sup>1</sup> , Leafy vegetables (CG4-13) <sup>1</sup> , Brassica vegetables (CG5-13) <sup>1</sup> , Fruiting vegetables (CG8-09) <sup>1</sup> , Cucurbit vegetables (CG9) <sup>1</sup>	Post-emergence damping off caused by <i>Rhizoctonia solani</i> and <i>Pythium ultimum</i>	Once drench application immediately after sowing seeds or sticking cuttings	1.5 g/m <sup>2</sup> of cultivated area, suspended in 2.5-5 L of water
Greenhouse herbs (CG19A) <sup>1</sup>	Fusarium root rot caused by <i>Fusarium oxysporum</i>		
Greenhouse ornamentals*			

**Transplanting and repotting of greenhouse vegetables (including bulb vegetables, leafy vegetables, Brassica vegetables, fruiting vegetables, cucurbit vegetables), greenhouse herbs, greenhouse strawberries, indoor-grown cannabis and ornamentals**

Crops	Diseases Suppressed	Application Timing	Rate
Greenhouse vegetables: Bulb vegetables (CG3-07) <sup>1</sup> , Leafy vegetables (CG4-13) <sup>1</sup> , Brassica vegetables (CG5-13) <sup>1</sup> , Fruiting vegetables (CG8-09) <sup>1</sup> , Cucurbit vegetables (CG9) <sup>1</sup>	Post-emergence damping off caused by <i>Rhizoctonia solani</i> and <i>Pythium ultimum</i>  Fusarium root rot caused by <i>Fusarium oxysporum</i>	Starting drench application directly after planting	<b>High Crop Density:</b>  Apply 3 g/m <sup>2</sup> of cultivated area. Use a water volume equivalent to 10% of the substrate volume or 2-5 L/m <sup>2</sup> . Use a half-rate dose (1.5 g/m <sup>2</sup> ) if plants have been treated with TRIANUM P previously. Repeat the half-rate booster dose every 10 weeks or after potting-on.
Greenhouse strawberries			<b>Low Crop Density or in Rows:</b>  Apply 30 g/1000 plants. Use a water volume equivalent to 10% of the substrate volume or 100 litres/1000 plants. Use a half-rate dose (15 g/1000 plants) if plants have been treated with TRIANUM P previously. Repeat the half-rate booster dose every 10 weeks or after potting-on.
Greenhouse herbs (CG19A) <sup>1</sup>			
Indoor-grown ornamentals*			
Indoor-grown cannabis			

**Field-grown vegetables (including bulb vegetables, leafy vegetables, Brassica vegetables, fruiting vegetables, cucurbit vegetables), herbs, cannabis and hemp**

Crops	Diseases Suppressed	Application Timing	Rate
Field-grown vegetables: Bulb vegetables (CG3-07) <sup>1</sup> , Leafy vegetables (CG4-13) <sup>1</sup> , Brassica vegetables (CG5-13) <sup>1</sup> , Fruiting vegetables (CG8-09) <sup>1</sup> , Cucurbit vegetables (CG9) <sup>1</sup>	Post-emergence damping off caused by <i>Rhizoctonia solani</i>	Starting drench application immediately after sowing seeds or transplanting, repeat every 10 weeks.	<b>After Sowing:</b> 1.5 g/m <sup>2</sup> of cultivated area in 1.33 L of water.
Herbs (CG19A) <sup>1</sup>			<b>After transplanting:</b> 6 g in 1 L of water and apply 500 L/ha of suspension.
Cannabis and Hemp			
Carrots*	Cavity spot ( <i>Pythium violae</i> )		<b>In furrows:</b> 1.5 kg/ha in 50-200 L of water <b>In beds:</b> 2.5 kg/ha in 50-200 L of water

**Crop list of Bulb Vegetables (CG3-07) <sup>1</sup>:** Chinese chive (fresh leaves), chive (fresh leaves), bulb daylily, elegans hosta, fritillaria, garlic (bulb, great-headed bulb, serpent bulb), kurrat, lady's leek, leek, Lily, onion (bulb, Chinese bulb, fresh, green, macrostem, pearl, potato bulb, tree, tree tops, Welsh tops), shallot (bulb and fresh leaves), wild leek.

**Crop list of Leafy Vegetables (CG4-13) <sup>1</sup>:** amaranth (Chinese, leafy), arugula, Indian aster, blackjack, broccoli (raab, Chinese), cabbage (Abyssinian, seakale), cat's whiskers, cham-chwi, cham-na-mul, chervil (fresh leaves), Chinese cabbage (bok choy), chipilin, garland chrysanthemum, cilantro (fresh leaves), corn salad, cosmos, cress (garden, upland), dandelion, dang-gwi, dillweed (fresh leaves), dock, dol-nam-mul, ebolo, endive, escarole, fameflower, feather cockscomb, good King Henry, hanover salad, huauzontle, jute leaves, kale, lettuce (bitter, head, leaf)\*, maca, mizuna, mustard greens, orach, parsley (fresh leaves), buckhorn plantain, English Primrose, purslane (garden, winter), radicchio (red chicory), radish leaves, rape greens, wild rocket, shepherd's purse, spinach (Malabar, New Zealand, tree), Swiss chard, tanier spinach, turnip greens, Chinese violet, watercress.

**Crop list of Brassica Vegetables (CG5-13) <sup>1</sup>:** broccoli, Brussels sprouts, cabbage, cabbage (Chinese, napa), cauliflower.

**Crop list of Fruiting Vegetables (CG8-09) <sup>1</sup>:** African eggplant, bush tomato, currant tomato, eggplant, garden huckleberry, goji berry, groundcherry, martynia, okra, pea eggplant, pepino, pepper (bell, nonbell), roselle, scarlet eggplant, sunberry, tomatillo, tomato\*.

**Crop list of Cucurbit Vegetables (CG9) <sup>1</sup>:** chayote (fruit), Chinese waxgourd, citron melon, cucumber\*, gherkin, edible gourd (hyotan, cucuzza, hechima, Chinese okra), *Momordica* spp. (balsam apple, balsam pear, bitter melon, Chinese cucumber), muskmelon (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 (crookneck squash, scallop squash, straightneck squash, vegetable marrow, zucchini), winter squash (butternut squash, calabaza, hubbard squash, acorn squash, spaghetti squash), watermelon.

**Crop list of Greenhouse Herbs (CG19A) <sup>1</sup>:** angelica, balm (lemon balm), basil, borage, burnet, camomile, catnip, chervil (dried), chive, Chinese chive, clary, cilantro (leaf), costmary, culantro (leaf), curry (leaf), dill (dillweed), horehound, hyssop, lavender, lemongrass, lovage (leaf), marigold, marjoram (sweet or annual marjoram, wild marjoram or oregano and pot marjoram), nasturtium, parsley (dried), pennyroyal, rosemary, rue, sage, savory (summer and winter), sweet bay (bay leaf), tansy, tarragon, thyme, wintergreen, woodruff, wormwood.

### SPECIALTY CROPS\*

Crops	Diseases	Application Timing and Rate
Turf*	For the reduction in symptoms due to dollar spot ( <i>Sclerotinia homoeocarpa</i> )	<b>Early Spring:</b> Apply twice at a one-month interval, at

	For the reduction in symptoms due to microdochium patch ( <i>Microdochium nivale</i> )	a dose of 30g/100m <sup>2</sup> . <b>Summer and Autumn:</b> Continue applications at dose of 15 g/100m <sup>2</sup> on a monthly interval.
Ginseng*	For suppression of root rot caused by <i>Pythium</i> spp., <i>Rhizoctonia</i> spp. or <i>Fusarium</i> spp.	<b>At sowing in furrows:</b> 1.5 kg/ha in 1000 L of water. <b>At sowing in beds:</b> 2.5 kg/ha in 1000 L of water.

### COMPATIBILITY

In some cases, tank mixing a pest control product with another pest control product or a fertilizer can result in biological effects that could include, but are not limited to: reduced pest efficacy or increased host crop injury. The user should contact Koppert Canada Limited at 1-800-567-4195 for information before mixing any pesticide or fertilizer that is not specifically recommended on this label.

### PRECAUTIONS:

May cause sensitization. Avoid contact with skin, eyes and clothing. Avoid breathing dust or spray mist.

**KEEP OUT OF REACH OF CHILDREN.** Wear waterproof gloves, a long-sleeved shirt, long pants, a dust-mist filtering respirator/mask (NIOSH approval number prefix TC-21C) or NIOSH approved respirators (with any N-95, P-95, R-95 or HE filter for biological products), and shoes plus socks when handling, mixing/loading or applying the product and during all clean-up and repair activities. For soil applications in enclosed areas including greenhouses, keep all unprotected workers out of the treated areas until dusts have settled. Wash thoroughly with soap and water after handling. Remove contaminated clothing and wash before re-use.

### FIRST AID

**IF SWALLOWED:** Call a poison control centre 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 centre 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 further 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:

Store in a secure dry place at temperatures between 8°C and 10°C. Do not freeze. To prevent contamination store this product away from food or feed. Keep product in original container during storage and keep container lid tightly closed when not in use. This product should be used within 6 months of the date of manufacture.

### DISPOSAL/ DECONTAMINATION:

1. Thoroughly empty the contents of the container into the application device or medium.
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 and 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.

Koppert Canada Limited guarantees that TRIANUM P Biological Fungicide is fit for the purpose and conforms to the specifications contained on this label.