

# Bora HC

*For the Suppression of Root rot caused by Pythium spp., Rhizoctonia spp. and Fusarium spp. in Greenhouse l Crops, Greenhouse Vegetable Transplants, Greenhouse Vegetables, Outdoor Nursery Plants, and Agricultural Field Crops; Foliar Diseases caused by Botrytis cinerea in Greenhouse Crops, Greenhouse Vegetable Transplants, Outdoor Nursery Plants, Strawberry, Lettuce, and Geranium,*

COMMERCIAL

## READ THE LABEL BEFORE USING

**ACTIVE INGREDIENT:** *Trichoderma harzianum* Rifai strain KRL-AG2 contains a minimum of  $1.0 \times 10^7$  colony forming units per gram of dry weight

Warning, contains the allergens wheat and sulfites

POTENTIAL SENSITIZER

LIVE ORGANISMS

REGISTRATION No. 31103 PEST CONTROL PRODUCTS ACT

NET CONTENTS: 0.453 – 90.9 kg

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Lot No.:

Date of Manufacture: Use within 12 months of date of manufacture.

**GENERAL INFORMATION:** Bora HC is a biological fungicide for the suppression of root or foliar diseases in greenhouse and outdoor ornamental crops, greenhouse vegetable transplants, greenhouse vegetables outdoor nursery plants, agricultural field crops, strawberries, lettuce, fruiting vegetables and cucurbits. The active ingredient is a beneficial microbe *Trichoderma harzianum* strain T-22 (KRL-AG2). When applied to seeds, transplants, greenhouse planting mix or soil, Bora HC actively grows onto plant roots as they develop and protects roots against *Pythium*, *Rhizoctonia* and *Fusarium*. As a foliar application, Bora HC also suppresses *Botrytis cinerea*.

Bora HC can be used alone or in conjunction with certain chemical fungicides; contact manufacturer or distributor for compatibility Technical Bulletin.

For control of seed rot and damping off of internally infected cuttings, use chemical fungicides or other appropriate measures in addition to Bora HC.

**Note:** Bora HC contains live spores of a beneficial microbe. Bora HC becomes active when soil temperatures are above 10 degrees C. Control is not effective while soils remain cold and is more effective in neutral or acidic soils than in alkaline soils.

## **DIRECTIONS FOR USE:**

### **DRENCH APPLICATION TO POTTING MIX OR SOIL**

*Greenhouse Peppers, Tomatoes, and Cucumbers*  
*Greenhouse Ornamental Crops*  
*Greenhouse Vegetable Transplants*  
*Outdoor Nursery Crops*

**POTTING MIX:** Suspend Bora HC in sufficient water (eg. 30-45 g/100L) to achieve uniform application and apply at the rate of 55-110 g per cubic metre (loose) of greenhouse potting mix, soil or planting beds. Bora HC can be applied through low pressure watering nozzles such as fan nozzles or other watering systems. Agitate to maintain suspension.

### **NURSERY DRENCH:**

Suspend Bora HC in sufficient water (eg. 30 – 45 g/100 L) to achieve uniform application and apply at the rate of 55 – 110 g per cubic metre (loose) of nursery potting mix, soil or planting beds. Bora HC can be applied through low pressure watering nozzles such as fan nozzles or other watering systems. Agitate to maintain suspension.

### **DIP APPLICATION**

*Bulbs: All Ornamental Crops*

Dip bulbs in suspension of 60 g/L Bora HC prior to planting.

### **FOLIAR APPLICATION:**

Bora HC should be applied preventatively prior to onset of disease.

*Greenhouse Vegetable Transplants:* For suppression of *Botrytis cinerea*, apply 10 grams per liter of water to foliage every 7-14 days depending upon disease pressure.

*Strawberry (Greenhouse and Field):* For suppression of *Botrytis cinerea* on strawberry, apply 10 grams per liter of water to foliage and blossoms every 7-14 days depending upon disease pressure.

*Lettuce (Field):* For suppression of botrytis blight (*B. cinerea*), apply 10 grams per liter of water to foliage every 7-14 days depending upon disease pressure.

*Tomato (greenhouse and Field):* For suppression of *Botrytis cinerea* on tomatoes apply 3.75-7.5 grams per liter of water to foliage every 7-14 days depending upon disease pressure.

*Fruiting Vegetables (Field):* For suppression of *Botrytis cinerea* apply 3.75-7.5 grams per liter of water to foliage every 7-14 days depending upon disease pressure.

*Cucurbits vegetables (Field):* For suppression of *Botrytis cinerea* apply 3.75-7.5 grams per liter of water to foliage every 7-14 days depending upon disease pressure.

*Outdoor Ornamental Crops:* For suppression of *Botrytis cinerea* on outdoor ornamental crops apply 7.5 grams per liter of water to foliage every 7-14 days.

It is not possible to test all ornamental varieties, and some may show delayed growth. Bora HC should first be tested on small lot of plants, if the response of the variety is not known, before using it for commercial scale production.

### SEED TREATMENT (ONSITE APPLICATION TO SEED)

*Pea, Lima Bean, Bean, Lentil, and Soybean*

Bora HC is applied to seeds at the rate of 60 - 125 grams per 50 kg of seed for protection against root rot. To assure uniform application, add half the required amount of Bora HC to half the seed in the hopper, mix with a wooden paddle, and then add the remaining seed and Bora HC. Bora HC can be applied in sufficient water to coat seeds. [4 oz/100 lb seed (cwt) = 125 g/50 kg of seed]

DRENCH APPLICATION TO POTTING SOIL OR MIX					
Crops	Disease	Pathogens	Rate	Spray volume	Control/Suppression
<b>Greenhouse Ornamental Crops</b>	<b>Root rot</b>	<i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Fusarium</i> spp.	55-110 g/m <sup>3</sup>	30-45 g/100L	Suppression
<b>Outdoor Nursery Crops</b>					
<b>Greenhouse Vegetable Transplants</b> Bulb vegetables Leafy vegetables Brassica vegetables Fruiting vegetables Cucurbit vegetables Herbs					
<b>Greenhouse Peppers, Tomatoes, and Cucumbers</b>					

FOLIAR APPLICATION					
Crops	Disease	Pathogens	Rate	Days between application	Control/Suppression
<b>Greenhouse Vegetable Transplants</b> Bulb vegetables Leafy vegetables Brassica vegetables Fruiting vegetables Cucurbit vegetables Herbs	<b>Foliar Disease</b> Botrytis blight	<i>Botrytis cinerea</i>	10 g/L	7-14 days	Suppression
<b>Strawberry</b> (Greenhouse and Field)					
<b>Lettuce</b> (Field)					
<b>Tomato</b> (Greenhouse and			3.75-7.5 g/L	7-14 days	Suppression

Field)					
<b>Fruiting Vegetables</b> (Greenhouse and Field)			3.75-7.5 g/L	7-14 days	Suppression
<b>Cucurbits Vegetables</b> (Field)			3.75-7.5 g/L	7-14 days	Suppression
<b>Outdoor Ornamental Crops</b>			7.5 g/L	7-14 days	Suppression

<b>DIP APPLICATION</b>				
<b>Crops</b>	<b>Disease</b>	<b>Pathogens</b>	<b>Rate</b>	<b>Control/Suppression</b>
<b>Ornamental Bulbs</b>	Root rot	<i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Fusarium</i> spp.	Dip bulbs in 60 g/L suspension	Suppression

<b>SEED TREATMENT (ONSITE APPLICATION TO SEED)</b>				
<b>Crops</b>	<b>Disease</b>	<b>Pathogens</b>	<b>Rate</b>	<b>Control/Suppression</b>
<b>Pea Lima Bean Bean Lentil Soybean</b>	Root rot	<i>Pythium</i> spp. <i>Rhizoctonia</i> spp. <i>Fusarium</i> spp.	60-125 g/50kg seed	Suppression

Bulb vegetables: chive, Chinese chive, daylily, Elegans hosta, fritillaria, garlic (bulb, greatheaded, serpent), onion (bulb, green), kurrat, leek, lady's leek, wild leek, lily, onion (bulb, Chinese, green, macrostem, pearl, potato, tree, Welsh), shallot

Leafy vegetables: amaranth, arugula, cardoon, celery, Chinese celery, celtuce, chervil, chrysanthemum (edible-leaved, garland), corn salad, cress (garden, upland), dandelion, dock, endive, fennel, lettuce (head, leaf), orach, parsley, purslane (garden, winter), radicchio, rhubarb, spinach, New Zealand spinach, vine spinach, swiss chard

Brassica vegetables: broccoli (Chinese, raab), Brussels sprouts, cabbage, Chinese cabbage, cauliflower, cavolo broccoli, collards, kale, kohlrabi, mizuna, mustard greens, mustard spinach, rape greens

Fruiting vegetables: cocona, eggplant (including African, pea, scarlet), groundcherry, martynia, okra, pepino, pepper (bell, non-bell), sunberry, tomatillo, tamarillo, goji berry, tomato (including bush, currant)

Cucurbit vegetables: Chinese waxgourd, citron melon, cucumber, gherkin, gourd (edible), momordica, muskmelon (cantaloupe, casaba, crenshaw, golden pershaw, honeydew, honey balls, mango Persian, pineapple, Santa Claus, snake), pumpkin, squash (winter, summer), watermelon

Herbs: angelica, anise (anise seed), balm (lemon balm), basil, borage, burnet, chamomile, caraway, black caraway, catnip, celery seed, chervil (dried), chive, Chinese chive, clary, coriander (cilantro or Chinese parsley), costmary, culantro, cumin, dill, fennel, fenugreek, horehound, hyssop, juniper berry, lavender, lemongrass, lovage, marigold, marjoram, mustard, nasturtium, parsley, pennyroyal,

poppy, rosemary, rue, sage, savory (summer, winter), sweet bay (bay leaf), tansy, tarragon, thyme, wintergreen, woodruff, wormwood.

## **GENERAL APPLICATION INSTRUCTIONS**

Use a quantity of spray solution to thoroughly cover foliage. Crop size, spray equipment and local practice will determine the volume of water needed. Spray to wet, but avoid run-off. Use higher rates when conditions favour disease development or high disease pressure is anticipated.

Bora HC can be applied using hand-held backpack or ground spray equipment. Do not use with low-volume sprayers. AGITATION IS REQUIRED TO MAINTAIN SUSPENSION. Application equipment should be cleaned before use of this product, and prepared sprays should be used within 4 hours of preparation. To prevent nozzle tip clogging the manufacturer recommends using 50 – 100 mesh inlet screens in all spray equipment.

**FIELD SPRAYER APPLICATION:** DO NOT applying during periods of dead calm. Avoid application of this product when winds are gusty. DO NOT apply with spray droplets smaller than the American Society of Agricultural Engineers (ASAE) fine/medium/coarse classification. Boom height must be 60 cm or less above the crop or ground.

**PRECAUTIONS:** KEEP OUT OF THE REACH OF CHILDREN. May cause sensitization. Avoid contact with skin, eyes or clothing. Avoid breathing dust or spray mist. Wear a long-sleeved shirt, long pants, water proof gloves, shoes plus socks, eye goggles and a dust/mist filtering respirator/mask (MSH/NIOSH approval number prefix TC-21C) or a NIOSH approved respirator with any N -95, R-95, P-95 or HE filter for biological products 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. For Greenhouse application, keep unprotected persons out of the treated areas for 4 hours after treatment.

## **ENVIRONMENTAL PRECAUTIONS:**

As this pesticide 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 with this product. DO NOT clean equipment or dispose of wastes in any water supply.

To reduce runoff from treated areas into aquatic habitats, consider the characteristics and conditions of the site before treatment. Site characteristics and conditions that may lead to runoff include, but are not limited to: heavy rainfall, moderate to steep slope, bare soil, poorly draining soil (e.g. soils that are compacted, fine textured, or low in organic matter such as clay).

DO NOT apply this product by air.

## **FIRST AID:**

- |                             |   |
|-----------------------------|---|
| <b>IF SWALLOWED:</b>        | Rinse mouth and throat with copious amounts of water. Do not induce vomiting.                                       |
| <b>IF ON SKIN/CLOTHING:</b> | Take off contaminated clothing. Wash with plenty of soap and water.   |
| <b>IF INHALED:</b>          | Move to fresh air.  |
| <b>IF IN EYES:</b>          | Hold eye open and rinse slowly and gently with water. Remove contact lenses, if present, then continue rinsing eye. |

**GENERAL:** Seek medical attention immediately if irritation or signs of toxicity occur and persist or is severe. 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 2°C and 5°C. Do not contaminate water, food, or feed during storage. Keep product in original container during storage and keep container lid tightly closed when not in use. This product should be used within 12 months of the date of manufacture when stored under refrigerated conditions.

**DISPOSAL/ DECONTAMINATION:**

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