



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

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

May 1, 2023

Ms. Audrey Sehn
Regional Regulatory Manager
UPL NA, Inc.
630 Freedom Business Center, Suite 402
King of Prussia, Penn. 19405

Subject: Labeling Notification per Pesticide Registration Notice (PRN) 98-10 – Adding additional container size; revising storage and disposal section
Product Name: Vacciplant
EPA Registration Number: 70506-608
EPA Receipt Date: 04/20/2023
Action Case Number: 00448726

Dear Ms. Sehn:

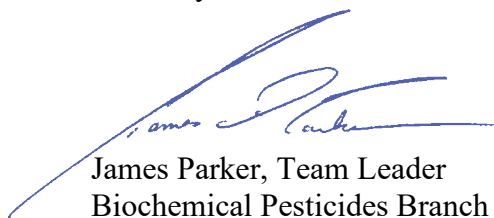
The U.S. Environmental Protection Agency (EPA) is in receipt of your application for notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Biopesticides and Pollution Prevention Division (BPPD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the actions requested fall within the scope of PRN 98-10.

The labeling submitted with this application has been stamped “Notification” and will be placed in our records. You must submit one (1) copy of the final printed labeling with the modifications.

Should you wish to add/retain a reference to your company’s website on your label, then please be aware that the website becomes labeling under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) and is subject to review by the EPA. If the website is false or misleading, the product will be considered to be misbranded and sale or distribution of the product is unlawful under FIFRA section 12(a)(1)(E). 40 CFR § 156.10(a)(5) lists examples of statements the EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the EPA find or if it is brought to our attention that a website contains statements or claims substantially differing from statements or claims made in connection with obtaining a FIFRA section 3 registration, the website will be referred to the EPA’s Office of Enforcement and Compliance Assurance.

If you have any questions, please contact Nina Naimy via email at naimy.nina@epa.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read "James Parker", is written over the typed name and title.

James Parker, Team Leader
Biochemical Pesticides Branch
Biopesticides and Pollution
Prevention Division (7511M)
Office of Pesticide Programs

Enclosure



NOTIFICATION

70506-608

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

05/01/2023

STIMULANT OF PLANT DEFENSE REACTIONS

Active Ingredient:

Laminarin 3.51%

Other Ingredients: 96.49%

Total..... 100.00%

KEEP OUT OF REACH OF CHILDREN CAUTION

Table with 2 columns: Condition (IF SWALLOWED, IF ON SKIN OR CLOTHING, IF INHALED) and First Aid instructions.

EPA Reg. No. 70506-608
EPA Est. No.
NET CONTENTS: 2.5 gallons
Lot/batch No.

[optional wording for use on commercial labeling; location on printed labels may vary:
"See inside for additional Precautionary Statements and complete Directions for Use";
"See attached booklet for additional Precautionary Statements and complete Directions For Use";
"See containers inside for additional Precautionary Statements and complete Directions For Use"
"See inside booklet for additional Precautionary Statements".
"See inside for complete Directions For Use, including Conditions of Sale and Warranty."]

Produced for: UPL NA Inc.
630 Freedom Business Center Drive, Suite 402
King of Prussia, PA 19406
1-800-438-6071

PRECAUTIONARY STATEMENTS HAZARDS TO HUMANS AND DOMESTIC ANIMALS

Caution. Harmful if swallowed, absorbed through skin, or inhaled. Avoid contact with 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.

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 disposing of equipment wash water or rinsate.

PHYSICAL AND CHEMICAL HAZARDS

FOR CHEMICAL EMERGENCY: spill, leak, fire, exposure, or accident call CHEMTREC 1-800-424-9300.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Applicators and other handlers must wear long pants, long-sleeved shirt, shoes plus socks, and chemical-resistant gloves. 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.

USER SAFETY RECOMMENDATIONS

Users should:

- Remove PPE clothing 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.

DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling. Read entire label before using. 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. Do not apply this product through any type of irrigation system. Do not apply this product when raining.

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 (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.

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
- Shoes plus socks
- Chemical-resistant gloves made of any waterproof material

PRODUCT INFORMATION

Vacciplant® is an extract from the plant *Laminaria digitata* for use on food and non-food crops. Vacciplant applied to actively growing plants (see DIRECTIONS FOR USE) will improve plant health, and will help make the treated portions resistant to certain plant diseases. Plant health benefits often result in greater yields at harvest. Use Vacciplant as a preventative rather than a curative application. Apply prior to disease infestation to protect the growing leaf tissue. See specific information for diseases controlled and use rates on food and non-food crops.

Vacciplant can be used as a foliar spray, plant dip, and soil drench to control or suppress certain soil-borne diseases and to promote healthy root growth.

MODE OF ACTION

The extract obtained from *Laminaria digitata* plant material contains active biological compounds. The extract, when applied to the host plant, increases the plant's natural defense system and strengthens cell walls. This induced resistance against important diseases is systemic. Repeat applications according to the Application Instructions to maintain induction and to protect new plant growth. The resistance induction takes place within one to two days. Use Vacciplant, therefore, as a preventative treatment.

PREPARATION OF THE MIXTURE

Shake the container and pour the required amount of Vacciplant into the sprayer tank partially filled with water while filling with the appropriate amount of water. Maintain good agitation. Do not store the mixture overnight.

GENERAL APPLICATION INSTRUCTIONS

Do not apply this product post-harvest. Apply the required amount of Vacciplant according to the table below.

PRE-PLANT DIP / SOIL DRENCH USE DIRECTIONS

Vacciplant can be applied as a pre-plant dip or soil drench application for improved plant health and suppression of certain soil-borne diseases. Apply Vacciplant in a 0.15% v / v solution as a pre-plant dip or soil drench immediately prior to transplanting, unless specified differently in the SELECTED CROPS section.

GREENHOUSE APPLICATION INSTRUCTIONS

Vacciplant can be used in greenhouse applications prior to transplant. At low water volumes, where acreage calculations do not apply, mix Vacciplant at 0.15% v / v solution. Start applications preventatively before the onset of disease.

AERIAL APPLICATION INSTRUCTIONS

Vacciplant may be applied aerially in low volume applications. For any water volume less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre.

APPLICATION RATES FOR SELECTED CROPS

[Note to Reviewer: bracketed text is Optional]

Crop	Target Disease	Application method	Product Use Rate Per Application/acre	Application Instructions
Artichoke [*]	Powdery Mildew[*] [<i>Erysiphe cichoracearum</i>] [<i>Leveillula Taurica</i>] Ramularia Leaf Spot[*] [<i>Ramularia cynarae</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Reapply every 7 – 14 days. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

Vacciplant® has a **pre-harvest interval (PHI)** of **0 days**.

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

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Asparagus [*]	Botrytis Blight[*] [<i>Botrytis cinerea</i>] Rust[*] [<i>Puccinia asparagi</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Reapply every 7 – 14 days. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

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Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Bushberries and Caneberries [*] Blueberry[*] Blackberry[*] (all varieties)	Mummy Berry[*] [<i>Monilinia vaccinii-corymbosi</i>] Alternaria Fruit Rot[*] [<i>Alternaria</i> spp.]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70

<p>Cranberry[*] Currant[*] Elderberry[*] Gooseberry[*] Huckleberry[*] Juneberry[*] Ligonberry[*] Loganberry[*] Raspberry, Black[*] Raspberry, Red[*] Sala[*] and other berry crops[*]</p>	<p>Anthracnose Fruit Rot[*] [<i>Colletotrichum acutatum</i>] Bacterial Canker[*] [<i>Pseudomonas syringae</i>-] Botrytis Blight[*] [<i>Botrytis cinerea</i>] Leaf Rust[*] [<i>Pucciniastrum vaccinii</i>] Leaf Spot and Blotch[*] [<i>Mycosphaerella</i> spp.] [<i>Septoria</i> spp.] Phomopsis Leaf Spot, Twig Blight, and Fruit Rot[*] [<i>Phomopsis</i> spp.] Powdery Mildew[*] [<i>Microsphaera</i> alni] Spur Blight[*] [<i>Didymella</i> spp.] [<i>Phoma</i> spp.]</p>		<p>gallons per acre apply Vacciplant at 0.15% v / v. Reapply every 7 – 14 days. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide. Mummy Berry – Initiate application at bud break stage of development. Apply this product preventatively and repeat on a 7- 14 day interval or as needed. For best performance, tank mix this product with other registered fungicides for Mummy Berry control. Botrytis Blight – Apply this product preventatively when the first disease symptoms are visible and reapply every 7- 14 days. Bacterial Canker – Apply this product prior to Fall rains and repeat applications during dormancy before Spring growth. This product can be tank mixed with another registered fungicide for improved control of bacterial canker. Anthracnose Fruit Rot and Alternaria Fruit Rot on blueberries – Initiate application at green tip and continue applications on a 7- 14 day interval.</p>
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Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
<p>Bulb Vegetables[*] Onion[*] (Bulb and Green) Garlic[*] Leek[*] Shallot[*] and other bulb vegetable crops[*]</p>	<p>Bacterial leaf streak[*] [<i>Xanthomonas</i> spp] Botrytis Leaf Blight[*] [<i>Botrytis squamosa</i>] Botrytis Neck Rot[*] [<i>Botrytis</i> spp.] Downy Mildew[*] [<i>Peronospora</i> spp.] Onion Purple Blotch[*] [<i>Alternaria porri</i>] Powdery Mildew[*] [<i>Erysiphe</i> spp.] Rust[*] [<i>Puccinia porri</i>] Stemphyllium Leaf Blight[*] [<i>Stemphyllium vesicarium</i>] <i>Fusarium</i> spp.[*] <i>Pythium</i> spp.[*] <i>Rhizoctonia</i> spp.[*] Yellow soft virus</p>	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Reapply every 7 – 14 days. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
		Plant Dip / Soil Drench	0.15% v / v solution	For plant dip and soil drench applications, apply this product in a 0.15% v/v solution (15 fl oz of product per 100 gallons water) as a pre-plant dip or soil drench immediately prior to transplanting.
<p>Vacciplant has a pre-harvest interval (PHI) of 0 days. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.</p>				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
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Cereal Grains[*] Barley[*] Buckwheat[*] Grain[*] Milo[*] Oat[*] Millets[*] Rice[*] Rye[*] Sorghum[*] Triticale[*] Wheat[*] and other cereal grain crops[*]	Powdery Mildew[*] [<i>Erysiphe graminis</i>] Bacterial Blight and Streak[*][<i>Xanthomonas</i> spp.] Brown Rot, Leaf Spots & Smuts[*] [<i>Ceratobasidium</i> spp.][(<i>Cercospora</i> spp.) [<i>Cochliobolus</i> spp.] [<i>Drechslera</i> spp.] Rice Blast[*] [<i>Pyricularia grisea</i>] Rust[*] [<i>Puccinia</i> spp.] Septoria Leaf Spot[*][<i>Septoria</i> spp.] Sheath Spot and Blight[*][<i>Rhizoctonia</i> <i>oryzae</i>] [<i>Thanatephorus</i> <i>cucumberis</i>] Stem Rot[*] [<i>Sclerotium oryzae</i>] Smut[*] [<i>Tilletia barclayana</i>]	Foliar	14 fl oz - 22 fl oz	To optimize disease control and maximize yields, begin applications prior to flag leaf / panicle initiation / floral initiation. Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Reapply every 7 – 14 days. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
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Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Citrus Crops[*] Orange[*] Grapefruit[*] Lemon[*] Tangelo[*] Tangerine[*] Pummelo[*] and other citrus crops[*]	Bacterial Canker[*] [<i>Xanthomonas</i> spp.] Alternaria Brown Spot[*] [<i>Alternaria alternata</i>] Bacterial Blast[*] [<i>Pseudomonas syringae</i>] Black Spot[*] [<i>Guignardia citricarpa</i>] [<i>Phyllosticta citricarpa</i>] Greasy Spot[*] [<i>Mycosphaerella citri</i>] Melanose[*] [<i>Diaporthe citri</i>] Postbloom Fruit Drop[*] [<i>Colletotrichum acutatum</i>] Scab[*] [<i>Elsinoe australis</i>] [<i>Elsinoe fawcetti</i>]	Foliar	14 fl oz – 60 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 100 gallons per acre apply Vacciplant at 14 fl oz per acre. For high water volume applications (100 – 400 gpa), mix Vacciplant in a 0.15% v / v solution. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

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Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Cole Crops (Brassicas)[*] Broccoli[*] Broccoli Rabe[*] Brussels Sprouts[*] Cabbage[*] Chinese Broccoli[*]	Powdery Mildew[*] [<i>Erysiphe cruciferarum</i>] [<i>Erysiphe polygoni</i>] Alternaria Leaf Spot[*] [<i>Alternaria</i> spp.] Downy Mildew[*] [<i>Peronospora parasitica</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v.

Chinese Cabbage (Bok Choy) [*] Chinese Cabbage (Napa) [*] Chinese Mustard[*] Cabbage (Gai Choy) [*] Cauliflower[*] Cavalo[*] Collards[*] Kale[*] Kohlrabi[*] Mizuna[*] Mustard Greens[*] Mustard Spinach[*] Rape Greens[*] and other cole crops[*]	Pin Rot Complex[*] [<i>Alternaria/Xanthomonas</i>] Xanthomonas Leaf Spot[*] [<i>Xanthomonas campestris</i>]		Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
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Crop	Target Disease	Application method	Product Use Rate per Application / acre	Application Instructions
Corn [*] Sweet Corn[*] Field Corn[*] Popcorn[*] Silage Corn[*] Seed Corn[*] and other corn crops[*] (includes crops grown for seed)	Anthracnose Leaf Blight[*] [<i>Colletotrichum graminicola</i>] Eye Spot[*] [<i>Aureobasidium zeae</i>] Grey leafspot[*] [<i>Cercospora zeae-maydis</i>] Rusts[*] [<i>Puccinia</i> spp.] Northern Leaf Blight[*] [<i>Exserohilum turcicum</i>] Northern Leaf Spot[*] [<i>Cochliobus carbonum</i>] Southern Leaf Blight[*] [<i>Cochliobolus heterostrophus</i>]	Foliar	14 fl oz - 22 fl oz	To optimize disease control and maximize yields, apply Vacciplant prior to Tassel. Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Reapply every 7 – 14 days. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

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Cotton [*]	Alternaria Leaf Spot[*] [Alternaria spp.] Anthracnose[*] [Glomeria spp.] Ascochyta Blight[*] [Ascochyta spp.] Cercospora Leaf Spot[*] [Cercospora spp.] Diplodia[*] [Diplodia spp.] Hard Lock[*] [Fusarium spp.] Leaf Spot[*] [Corynespora cassicola] Phoma Blight[*] [Phoma spp.] Rust[*] [Puccinia spp.] [Phykopsora spp.] Stemphyllium Leaf Spot[*] [Stemphyllium spp.]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
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Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Cucurbits [*] Includes all types and hybrids of: Chayote[*] Chinese waxgourd[*] Cucumber[*] Citron melon[*] Gherkin[*] Pumpkin[*] Watermelon[*] Edible Gourd: Chinese okra[*] Cucuzza[*] Hyotan[*] Mormordica spp.: Balsam apple[*] Balsam pear[*] Bitter melon[*]	Powdery Mildew[*] [Erysiphe cichoracearum] [Sphaerotheca fuliginea] Anthracnose[*] [Colletotrichum lagenarium] Alternaria Blight[*] [Alternaria cucumerina] Cercospora Leaf Spot[*] [Cercospora citrulina] Downy Mildew[*] [Pseudoperonospora cubensis] Gummy Stem Blight[*] [Didymella bryoniae] Phytophthora Blight[*] [Phytophthora capsici]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7 - 10 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Bitter melon[*] Chinese cucumber[*] Muskmelon: Cantaloupe[*] Casaba[*] Crenshaw melon[*] Golden pershaw[*] melon[*] Honeydew melon[*] Honey balls[*] Mango melon[*] Persian melon[*] Pineapple melon[*] Santa Claus melon[*]	Fusarium spp.[*] Phytophthora spp.[*] Pythium spp.[*] Rhizoctonia spp.[*] Verticillium spp.[*]	Plant Dip / Soil Drench	0.15% v/ v solution	For plant dip and soil drench applications, apply this product in a 0.15% v/v solution (15 fl oz of product per 100 gallons water) as a pre-plant dip or soil drench immediately prior to transplanting

Snake melon[*] Summer Squash: Crookneck squash[*] Scallop squash[*] Straightneck squash[*] Vegetable marrow[*] Zucchini[*] Winter Squash: Acorn squash[*] Butternut squash[*] Calabaza[*] Hubbard squash[*] Spaghetti squash[*] and other cucurbit crops[*]				
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Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Fruiting Vegetables [*] Tomato[*] Pepper[*] Eggplant[*] Ground Cherry[*] Okra[*] Tomatillo[*] and other fruiting	Bacterial Blight[*] [<i>Xanthomonas</i> spp.] Bacterial Spot[*] [<i>Xanthomonas</i> spp.] Bacterial Speck[*] [<i>Pseudomonas syringae</i>] Black Mold[*] [<i>Alternaria alternata</i>] Early Blight[*] Grey Mold[*] [<i>Botrytis cinerea</i>] Late Blight[*] [<i>Phytophthora infestans</i>] Phytophthora Blight[*] [<i>Phytophthora capsici</i>] Powdery Mildew[*] [<i>Erysiphe</i> spp.] [<i>Leveillula taurica</i>] [<i>Oidopsis taurica</i>] [<i>Sphaerotheca</i> spp.] Target Spot[*] [<i>Corynespora cassiicola</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
	<i>Fusarium</i> spp.[*] <i>Phytophthora</i> spp.[*] <i>Pythium</i> spp.[*] <i>Rhizoctonia</i> spp.[*] <i>Verticillium</i> spp.[*]	Plant Dip / Soil Drench	0.15% v/ v solution	For plant dip and soil drench applications, apply this product in a 0.15% v/v solution (15 fl oz of product per 100 gallons water) as a pre-plant dip or soil drench immediately prior to transplanting

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Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Grape[*]	Powdery Mildew[*] [<i>Uncinula necator</i>] Angular Leaf Spot[*] [<i>Mycosphaerella angulata</i>] Anthracnose[*] [<i>Elsinoe ampelina</i>] Botrytis Bunch Rot[*] [<i>Botrytis cinerea</i>] Black Rot[*] [<i>Guignardia bidwellii</i>] Downy Mildew[*] [<i>Plasmopara viticola</i>] Eutypa[*] [<i>Eutypa lata</i>] Leaf Blight[*] [<i>Pseudocercospora vitis</i>] Phomopsis Fruit Rot[*] [<i>Phomopsis viticola</i>] Ripe Rot[*] [<i>Colletotrichum gloeosporioides</i>] Sour Rot[*] [<i>Alternaria tenuis</i>] [<i>Aspergillus spp.</i>] [<i>Cladosporium herbarum</i>] [<i>Penicillium spp.</i>] [<i>Rhizopus arrhizus</i>]	Foliar	14 fl oz - 60 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 100 gallons per acre apply Vacciplant at 14 fl oz per acre. For high water volume applications (100 – 400 gpa), mix Vacciplant in a 0.15% v / v solution. Repeat applications at 10 - 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

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Grass seed[*]	Powdery Mildew[*] [<i>Erysiphe graminis</i>] [<i>Oidium spp.</i>] [<i>Podospaera spp.</i>] [<i>Sphaerotheca spp.</i>] Rust[*] [<i>Puccinia spp.</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7 - 10 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

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

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Hops[*]	Downy Mildew[*] [<i>Pseudoperonospora humuli</i>] Powdery Mildew[*] [<i>Sphaerotheca macularis</i>]	Foliar	14 fl oz - 22 fl oz	<p>Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v.</p> <p>Repeat applications at 7 - 10 day intervals.</p> <p>Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.</p> <p>Minimum spray volumes for hop growth stages are as follows:</p> <p><u>Emergence to Training:</u> Apply 14 fl oz of this product per acre using a minimum spray volume of 20 gallons per acre. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage.</p> <p><u>Training to Wire-Touch:</u> Apply 14 fl oz of this product per acre using a minimum spray volume of 50 gallons per acre. Coverage will vary with the size of the vines and the type of spray equipment. Apply adequate spray volume to achieve complete spray coverage.</p> <p><u>Wire-Touch through Harvest:</u> Apply Vacciplant at 0.15% v / v in volumes above 70 gallons per acre. Higher water volumes may be necessary to achieve thorough coverage.</p> <p><u>For control of Downy Mildew:</u> Tank mix this product with another fungicide labeled for Downy Mildew control and re-apply at a 7-day interval or according to the label directions of the tank mix partner. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.</p>
<p>Vacciplant has a pre-harvest interval (PHI) of 0 days. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.</p>				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Leafy Vegetable Crops [**] Arugula Celery[*] Corn Salad[*] Cress[*] Dandelion[*] Dock Edible[*] Chrysanthemum[*] Endive[*] Fennel[*] Head Lettuce[*] Leaf Lettuce[*] Parsley[*] Purslane[*] Radicchio[*] Rhubarb [*] Spinach[*] Swiss Chard[*] and other leafy vegetable crops[*]	Bacterial Blight/Rot[¶] [Xanthomonas spp.] Cercospora leafspot[¶] [Cercospora spp.] Downy Mildew[*] [Bremia lactuca] [Peronospora spp.] Drop[*] [Sclerotinia minor] [Sclerotinia sclerotiorum] Grey mold[*] [Botrytis cinerea] Late Blight[*] [Septoria apiicola] Pink Rot[*] [Sclerotinia sclerotiorum] Powdery Mildew[*] [Erysiphe cichoracearum] Sclerotinia Head and Leaf White Rust[*] [Albugo occidentalis]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7 - 10 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Vacciplant has a pre-harvest interval (PHI) of 0 days. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Legume Vegetables [*] (not including soybeans and peanuts) Chick Peas[*] Dry Beans[*] Garbanzo Beans[*] Green Beans[*] Lentils[*] Lima Beans[*] Peas[*] Shell Beans[*] Snap Beans[*] Split Peas[*] and other legume crops[*] (including those grown for seed or oil production)	Bacterial Blight[*] [Xanthomonas campestris] Grey Mold[*] [Botrytis cinerea] Pythium[*] (aerial blight phase) [Pythium spp.] Powdery Mildew[*] [Erysiphe spp.] Rust[*] [Puccinia spp.] [Uromyces appendiculatus] White Mold[*] [Sclerotinia sclerotiorum]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Vacciplant has a pre-harvest interval (PHI) of 0 days. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Mint and Other Herbs/Spices[*] Angelica[*] Balm[*] Basil[*] Borage[*] Burnet[*] Chamomile[*] Catnip[*] Chervil[*] Chive[*] Clary[*] Coriander[*] Costmary[*] Cilantro[*] Curry[*] Dillweed[*] Horehound[*] Hyssop[*] Lavender[*] Lemongrass[*] Lovage[*] Marjoram[*] Nasturtium[*] Parsley (dried) [*] Peppermint[*] Rosemary[*] Sage[*] Savory[*] (summer and winter) Sweet Bay[*] Tansy[*] Tarragon[*] Thyme[*] Wintergreen[*] Woodruff[*] Wormwood[*] and other herbs/spices[*]	Downy Mildew[*] [<i>Peronospora</i> spp.] Powdery Mildew[*] [<i>Erysiphe</i> spp.] Rust[*] [<i>Puccinia menthae</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Vacciplant has a pre-harvest interval (PHI) of 0 days. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.				

Crop	Target Disease	Application method	Product Use Rate per Application/ acre	Application Instructions
Oil Seed Crops[*] (not including cotton, peanut, or soybean) Canola[*] Castor[*] Flax[*] Rapeseed[*] Safflower[*] Sesame[*] Sunflower[*] and other oil seed crops[*]	Bacterial Pustule[*] [<i>Xanthomonas</i> spp.] Bacterial Speck[*] [<i>Pseudomonas syringae</i> pv. <i>glycinea</i>] Brown Spot[*] [<i>Septoria glycines</i>] Cercospora Leaf Spot[*] [<i>Cercospora</i> spp.] Downy Mildew[*] [<i>Peronospora mansherica</i>] Pod and Stem Blight[*] [<i>Diaporthe phaseolorum</i> var. <i>sojae</i>] [<i>Phomopsis longicola</i>] White Mold/ Sclerotinia Stem Rot[*] [<i>Sclerotinia sclerotiorum</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Vacciplant has a pre-harvest interval (PHI) of 0 days . Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours .				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Olive[*]	Olive Knot[*] [<i>Pseudomonas savastanoi</i>]	Foliar	14 fl oz – 60 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 100 gallons per acre apply Vacciplant at 14 fl oz per acre. For high water volume applications (100 – 400 gpa), mix Vacciplant in a 0.15% v / v solution. Repeat applications at 10 - 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Vacciplant has a pre-harvest interval (PHI) of 0 days . Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours .				

Crop	Target Disease	Application Method	Product Use Rate per Application/acre	Application Instructions
Ornamentals[*] Herbaceous Ornamentals[*] Flowering Plants Foliage Plants Woody Ornamentals[*] Broadleaves, Shrubs and Trees Conifers, Shrubs and Trees	Anthracnose[*] [<i>Colletotrichum</i> spp.] Bacteria[*] [<i>Erwinia</i> spp.] [<i>Pseudomonas</i> spp.] [<i>Xanthomonas</i> spp.] Black Spot of Rose[*] [<i>Diplocarpon rosae</i>] Blossom Blight[*] [<i>Monilinia</i> spp.] Downy Mildew[*] [<i>Peronospora</i> spp.] [<i>Plasmopara viburni</i>] Grey Mold[*] [<i>Botrytis cinerea</i>] Leaf Spot[*] [<i>Alternaria</i> spp.] [<i>Cercospora</i> spp.] [<i>Entomosporium</i> spp.] [<i>Myrothecium</i> spp.] [<i>Septoria</i> spp.] Powdery Mildew[*] [<i>Erysiphe</i> spp.] [<i>Oidium</i> spp.] [<i>Podosphaera</i> spp.] [<i>Sphaerotheca</i> spp.] Rust[*] [<i>Puccinia</i> spp.] Scab[*] [<i>Venturia</i> spp.]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively at the 4 – 6 leaf stage or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide. This product may be used to control certain diseases of container, bench, flat, plug, bed, or field-grown ornamentals in greenhouses, shade-houses, outdoor nurseries, retail nurseries, and other landscape areas.
	<i>Fusarium</i> spp.[*] <i>Phytophthora</i> spp.[*] <i>Pythium</i> spp.[*] <i>Rhizoctonia</i> spp.[*] <i>Verticillium</i> spp.[*]	Plant Dip / Soil Drench	0.15% v / v solution	For plant dip and soil drench applications, apply this product in a 0.15% v/v solution (15 fl oz of product per 100 gallons water) as a pre-plant dip or soil drench immediately prior to transplanting.
<p>Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours. The following plant species have been treated with Vacciplant to prevent disease. Plants investigated: Annual and Perennial Flowering Plants Begonias, Freesias, Geraniums, Gerbera, Impatiens, <i>Lamium</i>, Lisianthus, Petunias, Poinsettias, Roses, Salvias, Snapdragons, Zinnias. Trees and Shrubs Azalea, Boxwood, Crape Myrtle, Dogwood, Indian Hawthorne, Jumbo Azalea, Lilac, Loropetalum, Japanese Maple, Japanese Privet, <i>Photinia</i>, Rhododendron, <i>Rosaceae</i>, Soft Touch Holly, Spirea, <i>Viburnum</i>. Tropical Foliage <i>Aglaonema</i>, <i>Dieffenbachia</i>, <i>Dracaena</i>, English Ivy, <i>Hibiscus</i>, Leatherleaf Fern, <i>Spathiphyllum</i>. Since it is not possible to test all ornamental species or varieties grown in the greenhouse, test Vacciplant on a few plants prior to large-scale usage.</p>				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Peanut[*]	Aspergillus Crown Rot[*] [<i>Aspergillus niger</i>] Rhizoctonia Foliar Blight, Peg, and Root Rot[*] [<i>Rhizoctonia solani</i>] White Mold[*] [<i>Sclerotium rolfsii</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.
Do not enter or allow worker entry into treated areas during the **restricted-entry interval (REI)** of **4 hours**.

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Pome Fruits[*] Apple[*] Crabapple[*] Loquat[*] Oriental Pear[*] Pear[*] Quince[*] Mayhaw[*] and other pome fruit crops[*]	Powdery Mildew[*] [<i>Podosphaera leucotricha</i>] Alternaria Blotch[*] [<i>Alternaria mali</i>] Apple Scab[*] [<i>Venturia inaequalis</i>] Suppression only Bitter Rot[*] [<i>Colletotrichum</i> spp.] Black Rot/Frogeye Leaf Spot[*] [<i>Botryosphaeria obtusa</i>] Bot Rot[*] [<i>Botryosphaeria dothidea</i>] Brooks Spot[*] [<i>Mycosphaerella pomi</i>] Bull's Eye Rot[*] [<i>Neofabraea</i> spp.] Cedar-Apple Rust[*] [<i>Gymnosporangium juniperi-virginianae</i>] Suppression only Fire Blight[*] [<i>Erwinia amylovora</i>] Suppression only Flyspeck[*] [<i>Zygothiala jamaicensis</i>] Sooty Blotch[*] [<i>Geastrumia polystigmati</i>] [<i>Leptodontium elatius</i>] [<i>Peltaster fructicola</i>] White Rot[*] [<i>Botryosphaeria dothidea</i>]	Foliar	14 fl oz – 60 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 100 gallons per acre apply Vacciplant at 14 fl oz per acre. For high water volume applications (100 – 400 gpa), mix Vacciplant in a 0.15% v / v solution. Repeat applications at 10 - 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide. Fire Blight – Apply Vacciplant in the appropriate volume of water in combination with an appropriate registered bactericide from green bud stage to petal fall stage on one year old wood. After blooming period continue Vacciplant applications if disease conditions are favorable. Scab – After primary disease contamination, or in situations favorable for disease development, apply Vacciplant in the appropriate amount of water until conditions for development have subsided.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.
Do not enter or allow worker entry into treated areas during the **restricted-entry interval (REI)** of **4 hours**.

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Root, Tuber and Corm Crops [*] Potato [*] Beet [*] Carrot [*] Cassava [*] Ginger [*] Ginseng [*] Horseradish [*] Radish [*] Sweet Potato [*] Turnip [*] and other root crops (including those for seed production) [*]	Bacterial Leaf Blight [*] [<i>Xanthomonas campestris</i>] Black Root Rot / Black Crown Rot [*] [<i>Alternaria</i> spp.] Downy Mildew [*] [<i>Peronospora</i> spp.] Early Blight [*] [<i>Alternaria solani</i>] Grey Mold [*] [<i>Botrytis</i> spp.] Late Blight [*] [<i>Phytophthora infestans</i>] Powdery Mildew (<i>Erysiphe</i> spp.) [*] White Mold [*] [<i>Sclerotinia sclerotiorum</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Vacciplant has a pre-harvest interval (PHI) of 0 days . Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours .				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Soybean [*]	Aerial Web Blight [*] [<i>Rhizoctonia solani</i>] Alternaria Leafspot [*] [<i>Alternaria</i> spp.] Anthracnose [*] [<i>Colletotrichum truncatum</i>] Asian Soybean Rust [*] [<i>Phakopsora pachyrhizi</i>] Brown Spot [*] [<i>Septoria glycines</i>] Cercospora Blight [*] [<i>Cercospora kikuchii</i>] Frog-eyed Leaf Spot [*] [<i>Cercospora sojina</i>] Pod and Stem Blight [*] [<i>Diaporthe</i> spp.] Septoria Brown Spot [*] [<i>Septoria glycines</i>] White Mold [*] [<i>Sclerotinia sclerotiorum</i>]	Foliar	14 fl oz - 22 fl oz	To optimize disease control and maximize yields, apply Vacciplant prior to flowering. Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Reapply every 7 – 14 days. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
Vacciplant has a pre-harvest interval (PHI) of 0 days . Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours .				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
<p>Stone Fruits[*] Apricot[*] Cherry (sweet)[*] Cherry (tart)[*] Nectarine[*] Peach[*] Plum[*] Pumcot[*] Prune [*] and other stone fruit crops[*]</p>	<p>Alternaria Spot/Fruit Rot[*] [Alternaria alternata] Anthracnose[*] [Colletotrichum spp.] Bacterial Canker[*] [Pseudomonas spp.] Bacterial Spot[*] [Xanthomonas pruni] Brown Rot Blossom Blight[*] [Monilinia laxa] Brown Rot Fruit Rot[*] [Monilinia fruticola] Cercospora Leaf Spot[*] [Cercospora spp.] Cherry Leaf Spot[*] [Blumeriella jaapii] Grey Mold[*] [Botrytis cinerea] Powdery Mildew[*] [Podosphaera spp.] [Sphaerotheca pannosa] Rust[*] [Tranzschelia discolor] Rusty Spot[*] [Podosphaera leucotricha] Scab[*] [Cladosporium carpophilum] Shot Hole[*] [Wilsonomyces carpophilus]</p>	<p>Foliar</p>	<p>14 fl oz – 60 fl oz</p>	<p>Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide. Bacterial Blight – Apply Vacciplant in the appropriate volume of water. Begin applications pre-harvest before fall rains. Brown Rot Blossom Blight – Apply Vacciplant in appropriate volume of water. Begin applications at early bloom and repeat through petal fall on a 7 – 10 day interval. Powdery Mildew – Apply Vacciplant in appropriate volume of water. Begin applications at popcorn stage and continue as needed on a 7 – 10 day interval. Scab – Apply Vacciplant in appropriate volume of water. Begin applications at petal fall and continue on a 7 – 10 day interval until conditions favorable for disease development have diminished. For all other diseases – Begin applications when conditions favorable for disease development are present. Apply Vacciplant in the appropriate volume of water on a 7 – 14 day interval. For high water volume applications (100 – 400 gpa), mix Vacciplant in a 0.15% v / v solution. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.</p>
<p>Vacciplant has a pre-harvest interval (PHI) of 0 days. Do not enter or allow worker entry into treated areas during the restricted-entry interval (REI) of 4 hours.</p>				

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Strawberry[*]	Anthracnose[*] [<i>Collectotrichum</i> spp.] Suppression only Botrytis[*] [<i>Botrytis cinerea</i>] Leaf Spot[*] [<i>Mycosphaerella fragariae</i>] Phomopsis Leaf Blight[*] [<i>Phomopsis obscurans</i>] Powdery Mildew[*] [<i>Sphaerotheca macularis</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively immediately after transplant or prior to bloom. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
	Black Root Rot[*] [<i>Rhizoctonia</i> spp.] [<i>Pythium</i> spp.] [<i>Fusarium</i> spp.] [<i>Cylindrocarpon</i> spp.] Phytophthora Root Rot and Crown Rot[*] [<i>Phytophthora</i> spp.] Verticillium Wilt[*] [<i>Verticillium</i> spp.] <i>Fusarium</i> spp.[*] <i>Pythium</i> spp.[*] <i>Rhizoctonia</i> spp.[*]	Plant Dip / Soil Drench	0.15% v / v solution	For plant dip and soil drench applications, apply this product in a 0.15% v/v solution (15 fl oz of product per 100 gallons water) as a pre-plant dip or soil drench immediately prior to transplanting.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.

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

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Sugarcane[*]	Brown Rust[*] [<i>Puccinia melanocephala</i>] Orange Rust[*] [<i>Puccinia kuehnii</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.

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

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Tobacco[*]	Blue Mold[*] [<i>Peronospora tabacina</i>]	Foliar	14 fl oz - 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 70 gallons per acre apply Vacciplant at 14 fl oz per acre. At water volumes above 70 gallons per acre apply Vacciplant at 0.15% v / v. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.
	<i>Fusarium</i> spp.[*] <i>Phytophthora</i> spp.[*] <i>Pythium</i> spp.[*] <i>Rhizoctonia</i> spp.[*] <i>Verticillium</i> spp.[*]	Plant Dip / Soil Drench	0.15% v / v solution	For plant dip and soil drench applications, apply this product in a 0.15% v/v solution (15 fl oz of product per 100 gallons water) as a pre-plant dip or soil drench immediately prior to transplanting.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.
Do not enter or allow worker entry into treated areas during the **restricted-entry interval (REI)** of **4 hours**.

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Tree nut crops[*] Walnut (Black) [*] Walnut (English) [*] Almond[*] Beech nut[*] Brazil nut[*] Butternut[*] Cashew[*] Chestnut[*] Chinquapin[*] Filbert[*] Hickory nut[*] Macadamia nut[*] Pecan[*] Pistachio[*] and other tree nut crops[*]	Walnut Blight[*] [<i>Xanthomonas campestris</i>] Alternaria Late Blight[*] Alternaria Leaf Spot[*] [<i>Alternaria</i> spp.] Anthracnose[*] [<i>Collectotrichum</i> spp.] [<i>Gnomonia leptostyla</i>] Bacterial Canker[*] [<i>Erwinia nigrifluens</i>] [<i>Pseudomonas syringae</i>] Botryosphaeria Blight[*] [<i>Botryosphaeria dothidea</i>] Brown Rot[*] [<i>Monilinia</i> spp.] Eastern Filbert Blight[*] [<i>Anisogramma anomala</i>] Green Fruit Rot[*] [<i>Botrytis cinerea</i>] Leaf Rust[*] [<i>Tranzschelia discolor</i>] Scab[*] [<i>Cladosporium carpophilum</i>] [<i>Sphaceloma perseae</i>] Shot Hole[*] [<i>Wilsonomyces carpophilus</i>]	Foliar	14 fl oz - 60 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 100 gallons per acre apply Vacciplant at 14 fl oz per acre. For high water volume applications (100 – 400 gpa), mix Vacciplant in a 0.15% v / v solution. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.
Do not enter or allow worker entry into treated areas during the **restricted-entry interval (REI)** of **4 hours**.

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Tropical Fruits [*] Avocado[*] Banana[*] Kiwi[*] Mango[*] Papaya[*] Plantain[*] Pineapple[*] Pomegranate[*] and other tropical fruit[*] crops[*]	Anthracnose[*] [<i>Colletotrichu</i> <i>m</i> <i>gloeosporioide</i> <i>s</i>] Bacterial Blight[*] [<i>Pseudomonas</i> <i>syringae</i>] [<i>Pseudomonas</i> <i>viridiflava</i>] Bacterial Canker[*] [<i>Xanthomonas</i> <i>campestris</i>] Botrytis Fruit Rot[*] [<i>Botrytis</i> <i>cinerea</i>] Scab[*] [<i>Elsinoe</i> <i>mangiferae</i>] Sigatoka[*] [<i>Mycosphaerella</i> <i>fijiensis</i>]	Foliar	14 fl oz - 60 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 100 gallons per acre apply Vacciplant at 14 fl oz per acre. For high water volume applications (100 – 400gpa), mix Vacciplant in a 0.15% v / v solution. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.

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

Crop	Target Disease	Application method	Product Use Rate per Application/acre	Application Instructions
Cool Season Turf Grasses [*] Warm Season Grasses [*]	Anthracnose[*] [<i>Colletotrichumgraminicola</i>] Bentgrass Dead Spot[*] [<i>Opiosphaerella agrostis</i>] Bermudagrass Decline[*] [<i>Gaeumannomyces graminis</i> <i>var. graminis</i>] Dollar Spot[*] [<i>Sclerotinia homoeocarpa</i>] Suppression only Fairy Ring[*] [<i>various Basidiomy</i> <i>cete fungi</i>] Grey Leaf Spot[*] [<i>Pyricularia grisea</i>] Powdery Mildew[*] [<i>Blumeriagraminis</i>] Rust[*] [<i>Puccinia spp, Uromyces</i> <i>spp.</i>] Yellow Tuft[*] [<i>Downy Mildew</i>] [<i>Sclerophthora</i>]	Foliar	14 fl oz – 22 fl oz	Start Vacciplant applications preventatively or when conditions for disease development become favorable. At water volumes less than 100 gallons per acre apply Vacciplant at 14 fl oz per acre. For high water volume applications (100 – 400 gpa), mix Vacciplant in a 0.15% v / v solution. Repeat applications at 7- 14 day intervals. Under moderate to heavy disease pressure, tank mix this product with another registered fungicide.

Vacciplant has a **pre-harvest interval (PHI)** of **0 days**.

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

[* Not for use in California.]

** Not for use in California except on lettuce [and spinach] to control downy mildew.]

INTEGRATED PEST MANAGEMENT (IPM)

Many conventional fungicides have been tested in an IPM regime with Vacciplant with very satisfactory results. One of the major objectives of IPM has been to reduce the probability of disease resistance development to a particular active ingredient. The alternate use of (1-2 sprays) followed by a conventional, registered fungicide (1-2 sprays) has been successfully used in many crops. In addition, the use of tank mixes with a conventional fungicide has also been successful. Follow label instructions of the particular registered product: Do not exceed amounts or treatment intervals on the label.

COMPATIBILITY

Vacciplant is compatible with many commonly used crop protection and crop production products, but has not been fully evaluated with all. Evaluate tank-mix compatibility prior to use. Observe the most restrictive of the labeling limitations and precautions of all products used in mixtures. Apply to a small area of the crop to ensure there are no phytotoxic effects. Contact your Vacciplant representative for additional details.

- Vacciplant acts early against specified plant diseases inducing plant defense reactions.
- Vacciplant induces systemic resistance, which allows protection during growth.

STORAGE AND DISPOSAL

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

Pesticide Storage: Keep container tightly closed when not in use.

Pesticide Disposal: Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility.

Container Handling: **Nonrefillable containers equal to or less than 5 gallons:-** Do not reuse or refill this container. Triple rinse (or equivalent) promptly after emptying. Triple rinse as follows: Empty the remaining contents into the 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 ~~or~~ and dispose of in a sanitary landfill, or by incineration. Do not burn unless allowed by state and local ordinances.

Nonrefillable containers greater than 5 gallons: 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. Fill the container 1/4 full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. 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

CONDITIONS OF SALE AND WARRANTY

UPL NA Inc.. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated on the label when used according to the directions under normal use conditions.

To the extent consistent with applicable law, neither this warranty nor any other warranty of merchantability or fitness for a particular purpose, expressed or implied, extends to the use of this product contrary to the label instructions; the buyer assumes the risk of any such uses.

[Optional Warranty Statement:]

Warranty and Disclaimer Statement

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. Such risks may arise from weather conditions, soil factors, off-target movement, unconventional farming techniques, the presence of other materials, the manner of use or application, or other unknown factors, all of which are beyond the control of UPL NA Inc, and can cause crop injury, injury to non-target crops or plants, ineffectiveness of the product, or other unintended consequences. All such risks shall be assumed by the user or buyer.

UPL NA Inc. warrants that this product conforms to the chemical description on the label and is reasonably fit for the purposes stated in the Directions for Use, subject to the inherent risks described above, when used in accordance with the Directions for Use under normal conditions. This warranty does not extend to the use of this product contrary to label instructions or under conditions not reasonably foreseeable to UPL NA Inc., and is subject to the inherent risks described above.

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Optional Marketing Language

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ESL041615-9664-111921