



ORCHID TECHNICAL BULLETIN

Phyton[®]
27
BACTERICIDE & FUNGICIDE

Savvy Growers Rely on Phyton-27[®]

Efficacy & Methods

Erwinia, Pseudomonas, and Xanthomonas

Bacteria often enter plants through wounds, are water-borne, and prefer warm, moist conditions. Bacterial infections are highly contagious. If infection occurs, keep leaves dry, reduce temperature and relative humidity if possible, and increase air circulation. Avoid overhead watering which can facilitate the spread of the bacteria.

The exudate from disease damaged tissue is often laden with infectious bacteria which are easily spread through dripping or splashing water as well as by insect vectors, plant to plant contact, or unclean hands or tools. Remove visibly diseased plants from growing area. Cut away disease damaged tissue and apply Phyton-27® to the remaining plants and plant tissue. Treat all plants to prevent spread of infection but particularly those plants near a center of infection.

For Prevention of Bacterial Diseases, apply 1.5 to 2.0 fluid ounces per 10 gallons every 10 to 14 days. Low volume applicators may be used. Consult your low volume equipment vendor for conversion rates.

When bacterial disease is present, remove severely diseased plants, cut off and destroy all tissue showing infection, and disinfect surfaces in the growing area. Apply a wet foliar spray at the rate of 2.5 to 4.0 fluid ounces per 10 gallons water every 5 to 7 days, depending on the severity of the infection and the environmental conditions. Spray intervals can be shortened to every 3 days under intense disease pressure. Continue to monitor for disease symptoms between spray applications and remove diseased-damaged plants and tissue.

Botrytis

The Botrytis fungus tends to be most active during damp, cool weather, but infection may occur anytime. Careful sanitation, (removing infected plant material and debris to reduce inoculum), increased circulation, (particularly horizontal air movement), reduced humidity and warmer night temperatures along with preventive applications of Phyton-27® can greatly reduce the risk of Botrytis infection.

For Prevention of Botrytis, apply 1.3 to 1.5 fluid ounces per 10 gallons of water every 10 to 14 days. Intervals can be shortened when environmental conditions are conducive to Botrytis infection. Low

volume applications are effective preventively. Consult your low volume equipment vendor for conversion rates.

When Botrytis is present, remove visibly diseased plants and disease damaged tissue. Apply a wet foliar spray at the rate of 1.5 fluid ounces per 10 gallons every 5 to 7 days. Intervals can be shortened to every 3 days under severe disease pressure. Low volume applications may be effective.

Phytotoxicity Parameters

Genera

Phyton-27® has been applied to flowers, buds, and plant tissue with no phytotoxicity except for some reports of damage on very thin leaved plants such as *Miltonia* and *Encyclia*. Proceed with caution when treating these types. Try a reduced rate.

The following genera have been treated successfully with Phyton-27®:

Angulocaste	<i>Miltonia</i>
Angraecum	<i>Miltoniopsis</i>
Ascocenda	<i>Odontoglossum</i>
Brassia	<i>Oncidium</i>
Calanthe	<i>Paphinia</i>
Cattleya	<i>Paphiopedilum</i>
Cirrhopetalum	<i>Phaius</i>
Cycnoches	<i>Phalaenopsis</i>
Cymbidium	<i>Phragmipedium</i>
Dendrobium	<i>Stanhopea</i>
Epidendrum	<i>Vanda</i>
Lycaste	<i>Zygopetalum</i>
Masdevallia	

One grower reported an unusual reaction on a particular type of *Dendrobium* (*Lautoria*). The situation involved application of Phyton-27® on a wide variety of orchid species. The application was made approximately 24 hours after Cygon 2E insecticide was applied. Only the one type of *Dendrobium* was affected.

None of the other orchids were affected including other types of *Dendrobium* and more sensitive genera such as *Zygopetalum*. The reaction was noticed approximately a week after the Phyton-27® application. Fully formed, but not yet hardened off, leaves showed cell tissue collapse. Leaves that were hardened off and meristematic tissue were not affected.

One grower reported root damage when Miltoniopsis were grown in oasis and drenched with Phyton-27®. No damage was seen when Miltoniopsis were grown in sphagnum and drenched with Phyton-27®.

Blooms

Phyton-27® has been tested on various tender open blooms and under varying conditions without phytotoxicity at spray rates of 1.3 to 1.5 fluid ounces per 10 gallons water. However, environmental factors, certain varieties and cultivars, and maturity of blooms could affect sensitivity. Senescing blooms are the first to be desiccated. Test a few plants, including some with mature or senescing flowers, before treating the whole crop.

One grower has reported white or faded spotting on purple and red blooms of Masdevillas after application of Phyton-27®.

Tissue Culture

Although orchid plantlets coming out of the flask are presumed to be very sensitive to chemical application, a grower from an orchid tissue culture lab reports spraying Phyton-27® at the rate of 1.5 fluid ounces per 10 gallons water with no phytotoxicity. A second tissue culture lab reports using Phyton-27® to protect plant pieces during shipping. They were having problems with bacterial infection and "melt-down" in route. The grower dipped the plant pieces in Phyton-27® (2 fluid ounces per 10 gallons water) prior to shipping. The plant pieces actually remain wet during shipping.

A third lab dips plant pieces in Phyton-27® before plating onto the growth medium. A stock solution of 4 parts water to 1 part Phyton-27® was prepared. One ml of this stock solution was mixed with 200 ml distilled water to make the dipping solution. They observed that dipping in Phyton-27® encouraged growth and controlled the bacteria. When using Phyton-27® for dipping plant material, only submerge for a few seconds.

Desiccation of Disease-damaged Plant Tissue

If plant tissue is already partially damaged by disease, applying Phyton-27® may desiccate it. Do not confuse this desiccation with phytotoxicity.

Reminders

Greenhouse cleanliness and good cultural practices along with preventive applications of fungicides, bactericides and insect control optimize plant protection.

- Use new or sterile potting medium.
- Prevent points of entry for pathogens by avoiding physical injury to plants.
- Keep greenhouse clean and debris free.
- Identify and remove, (or isolate), any diseased plants.
- Use periodic applications of Phyton-27® bactericide and fungicide preventively.

Conversion Charts

fl. oz. P-27 per 10 gal.	tsp P-27 per 1 gal.
1.5	1
2.0	1.25
2.5	1.5
3.0	1.75
3.5	2
4.0	2.5

ml P-27 per liter water	PPM	Fl. oz. P-27 per 100 gal. water
1.0	1000	12.8
1.5	1500	19.2
2.0	2000	25.6
2.5	2500	32.0
3.0	3000	38.4

Liquid Equivalents:

- one fl. ounce = 29.5 mL = 6 tsps.
- 3 teaspoons = 1 table spoon
- 1 Liter = 0.2642 gallon
- 1 gallon = 3.785 Liters

Application Guidelines

For foliar applications, spray for thorough coverage; for soil drench applications, saturate growing media thoroughly.

Adjust rates and re-spray intervals according to susceptibility of plant variety and adversity of environmental conditions. In the event of heavy disease pressure, intervals can be shortened to 3-5 days.

Lower rates may be as effective as higher rates and should be tried first.

Routine preventive programs may be maintained at the lower rates.

Open flowers can be sprayed without damage, but should be trialed first. Older or diseased blooms are likely to be desiccated.

Use of low volume equipment is effective against Botrytis but may not be effective against established bacterial infections.

Adjust the pH of the spray, drench or dip solution to 5.5 to 6.5 for optimal plant safety and efficacy.

For additional information, please contact Phyton Corporation's Technical Service at 1-800-356-8733 or info@phytoncorp.com

Read and follow all label directions.

For technical information, contact the manufacturer:

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Many but not all US EPA labeled uses for Phyton-27® are registered with the California EPA.

California residents should consult the current California Phyton-27® label for registered uses.



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