

# LOW VOLUME TECHNICAL BULLETIN

**Phyton<sup>®</sup>**  
**27**  
BACTERICIDE & FUNGICIDE

***Savvy Growers Rely on Phyton-27<sup>®</sup>***



## Benefits

Low-volume (LV) chemical application has become the method of choice for many growers. LV application can improve worker safety by reducing or eliminating the operator's exposure to the chemical, reduce costly chemical runoff, and provide consistently effective application of chemicals. Good plant coverage is essential to maximize the effectiveness of pesticides. The small particle size of the droplets associated with low-volume application along with improved plant surface coverage can in many cases increase the effectiveness of chemical application so a lower dosage may be as effective as a higher dosage applied through high volume equipment.

## Variables

LV chemical application is not a precise science. Many factors effect the application of greenhouse chemicals. Phyton-27® in most cases will produce no problems when applied through any one of the Dramm Low Volume Chemical Applicators.

But when certain conditions exist, such as high and low humidity in the application area, applying Phyton-27® through a fogger may result in some phytotoxicity.

In a warm and arid greenhouse, the high temperatures and low humidity can cause spray particles to evaporate too quickly, resulting in uneven coverage. The effect of the chemical is lost or sometimes amplified due to particle drying. This results in either no effect or too much (phytotoxicity). By adding a small amount of VKII to the solution, these problems can be eliminated.

In an overly humid greenhouse, the small spray particles may recombine and grow in size and deposit too quickly leaving an area of high chemical concentration directly in front of the machine. These higher concentrations have caused some burn on occasion.

Poor air circulation can limit the overall coverage area. Most equipment manuals are written vaguely describing only the size of the area to be treated not taking into account the crop type, height, and maturity. This can lead to over or under coverage.

## Solutions

None of these obstacles is impossible to overcome. There are many "tweaks" that a grower can make to any of the factors causing a problem. In most situations, knowing what variables are contributing to a current problem and how to influence them is 30% experience and 70% common sense. By taking into account all the variables present in a greenhouse and assessing their effect on the chemical application, the grower can often solve any problem easily and quickly.

## Extremes of Relative Humidity

Adding certain adjuvants or dilutants to the chemical solution can greatly aid in reducing the effects of humidity. The Dramm Corporation manufactures VKII as a carrying agent for the PulsFOG% because the effect that it has on water helps to overcome the heat produced by the machine. VKII helps to reduce the surface tension of the water. This prevents the premature evaporation as well as absorption of additional moisture. The addition of a very small amount of VKII or similar adjuvant to the solution in other LV chemical applicators can eliminate humidity problems and also create more evenly sized particles. The addition of VKII will also increase the hang time of chemicals. VKII is the only carrier manufactured by Dramm that should be used with Phyton-27® LV applications.

When using carriers, keep in mind that too much of a good thing can be harmful. When Phyton-27® is used through a PulsFOG™, which always requires a carrier, in certain situation the recommended levels of VKII seem to be too strong for certain plants or flowers. In these instances, the carrier itself is the cause of the burn and the rate of carrier used should be reduced. The typical ratio of 3:1 (3 parts Phyton-27® to 1 part VKII) used in the PulsFOG™ can damage sensitive, open blooms. Using a higher 5:1 ratio will increase safety but will result in 20% less "throw distance".

With the AutoFOG™ machine, a carrier is optional, but recommended for applications in high and low humidity situations. The VKII carrier can be used at a much lower concentration at a 20:1 ratio (20 parts Phyton-27® to 1 part VKII).

## Poor Air Circulation

When poor air circulation is a problem, often boosting the capacity of the fogger being used by adding several simple box fans in strategic locations can dramatically affect chemical coverage.

## Dosage Rate Conversions

A major problem growers have with adjusting to chemical application with LV equipment has been determining the rate of chemical concentrate and dilution within the sprayer tank. The rate is determined on the delivery of the same amount of chemical concentrate to a given area that would be delivered with high volume equipment. Dilution is determined by the speed of application and the volume of liquid dispersed over a given area. For example, if records show that it takes 15 fluid ounces of Phyton-27<sup>®</sup> concentrate in 100 gallons of water to treat an acre with high volume application, calculate LV sprayers by spraying water over the same area (1 acre). If it requires 5 gallons of water to cover the same area, then dilute 15 fluid ounces of Phyton-27<sup>®</sup> concentrate in 5 gallons of water to treat the acre.

The kind crops you grow as well as their heights and maturity will greatly effect the amount of chemical you will need to treat that crop. A house full of plugs needs much less fungicide than a house full of roses grown for cutting. Adjusting the amount of chemical to the area being treated will help to reduce cost, waste, and phytotoxicity.

As a rule of thumb, 100 gallons water high volume application covers an acre of bedding plants and small to medium potted plants. For greenhouse roses, grown for cut flowers, some growers use up to 300 gallons spray solution per acre.

At times, equipment manuals will recommend more Phyton-27<sup>®</sup> than is necessary based on grower coverage. Again, by looking at the crop type and maturity, the grower can make a judgment as to how much chemical to use and still be effective while not over-applying.

Keep in mind that LV applications tend to give increased efficacy for preventive applications and when targeting certain diseases (such as Botrytis). Stay with the low preventive/ Botrytis rates equiv-

alent to 1.3 to 1.5 fluid ounces Phyton-27<sup>®</sup> per 10 gallons water (as applied through high volume equipment).

## Low Volume vs. High Volume

No one type of application device will be the best for all plants and all diseases. Make sure the disease you are targeting can be controlled by low volume delivery before you opt to use it. Low volume applications of Phyton-27<sup>®</sup> work very well to prevent most diseases and to control several of the labeled pathogens, such as Botrytis, once they are present. If you are trying to control an active powdery mildew infection or bacterial infection, high volume or wet applications of Phyton-27<sup>®</sup> are required for maximum effectiveness.

## Technical Support

The technical staff at both Phyton Corporation and The Dramm Corporation are always available for helping with concerns about either product. Please feel free to reach Phyton Corporation at (800) 356-8733 and The Dramm Corporation at (800) 258-0848.

## Credit, Where Credit Is Due

Source Tech Bio would like to thank Kurt Becker and The Dramm Corporation for their major contributions to this Technical Bulletin.

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

California residents should consult the current California Phyton-27<sup>®</sup> label for registered uses.



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