

# BREAKDOWN OF FOG MACHINES

## Fogging

### *Defining Fogging Machines:*

Ultra-Low Volume (ULV) machines are commonly known as foggers. They use very small quantities of water, generally ½ gallon per 10,000 sq ft and they generate very small spray droplets. The fog is effective on both the top and underside of the leaf as well as the open spaces around the greenhouse. Because of the small droplets, foggers need to be used in an enclosed space to contain the fog. All vents and doors will need to be closed. Foggers can be very effective as a preventative tool, they are easy to use and because of the time savings they get used more regularly. For best results, HAF fans should be used to help push the fog through the canopy and around the greenhouse. The denser the canopy is, the more important air circulation is.

There are two main types of foggers: Automatic and Thermal. Automatic foggers (such as AutoFog) use an air source such as a compressor, to funnel air at a specific pressure and rate through a venturi nozzle. The resulting low pressure created at the nozzle tip syphons chemical into the air stream where it is atomized. It is then blown out of the fogger and spread across the greenhouse. Thermal foggers use jet propulsion as their air source. Utilizing a combustion chamber, we are able to create pulse jet explosions inside of a resonator. The resonator channels this force down the barrel to the nozzle where the velocity of the air stream atomizes the droplets. Also, heat from the combustion helps create the fog by thermally exciting the fog droplets. This atomization method creates a thick fog very quickly. Thermal foggers require the use of a carrier to atomize the water droplets.

### **Pros & Cons to Fogging:**

#### **Pros:**

- Reduce application time by operating very quickly or automatically
- Eliminate the need for an applicator (with AutoFog)
- Reduce or eliminate exposure during fogging
- Use far less water than regular sprayers
- Fogging ensures even distribution and application around the entire greenhouse and leaf surface
- Thermal foggers provide speed and portability for fogging multiple areas quickly



#### **Cons:**

- When making applications to only specific parts of a greenhouse, fogging should not be used due to its drift component. Hydraulic sprays or cold foggers should be used.
- Fogging may not be preferred during the warmer times of the year when the vents or louvers cannot be closed for multiple hours.
- Fogging may not be the preferred method of application of chemistries with a mode of action of suffocant or smothering of pest or disease using high volumes of water (such as oils or soaps)
- Water Soluble Packets should not be used in any fogger. (Packaging not designed to dilute in low volumes of water)
- Bio-chemistry or living chemicals will not be suitable with foggers that add heat (Thermal Foggers)

### *Types of Foggers and General Recommendations:*

Consulting your BFG sales rep or Dramm rep when choosing fogger type, size and prior to purchase, would be ideal. There are many types of foggers for many situations in a greenhouse. Selecting which unit should be based on many factors including greenhouse size or quantity, crop type, and pest or disease. It is also best to remember that some chemicals when they have a high spray rate, or are a powder or granular, may require more water for dilution. This may affect the treatment size based on the tank size of the fogger. Below are a few examples of the types of foggers and some general recommendations for each one.



#### **Autofog (5 to 10 micron size droplets):**

- No Carrier Needed
- Low labor
- Zero Exposure
- Suitable for live or biological chemistries
- Available for use with oxidizers (with stainless steel nozzle)
- Usable from small to very large spaces



#### **Thermal Foggers (10 to 20 micron size droplets):**

- All PulsFogs require the use of NutriFog carrier
- Fast Application time
- Very Portable
- Great for Multi Space Applications (Large Quantity of Hoop Houses)
- Bio-PulsFog available for use with live or biological chemistries
- Can be used with Oxidizers



#### **ColdFogger – Low Volume Applicator (40 to 50 micron size droplets)**

- No Carrier Needed
- The Dramm ColdFogger creates low volume particles using a 3,000psi pump
- Blends directional nature of a hydraulic spray with the small particle size of a fog
- Fogging without the drift
- Deep penetration into a canopy without a high volume of water
- Fast Application Time and Even Coverage