

Basic Operation Guidelines

The following guidelines provides information on the basic operation method for using the DryGair dehumidifying unit.

DryGair is designed to control humidity according to the nighttime plant transpiration rate, to allow maximum efficiency for the grower. These guidelines showcase the operation methods for DryGair's most common use - to provide dehumidification at the hours when humidity control with traditional method of ventilation is hard to do because of the outside conditions. These are night times, cloudy days, and rainy days. Guidelines may differ depending on the climate goals and facility operation, for specific guidelines contact the DryGair team.

Common Operating Method	 NIGHT	 DAY	 CLOUDY/RAINY DAY
 GREENHOUSE	 CLOSED	 OPEN	 CLOSED *
 DryGair UNIT	ON	OFF	ON/OFF*

*AS NEEDED. On cloudy/rainy days the outside air is humid, which makes ventilation less effective; DryGair should be activated.

Due to the heightened levels of humidity caused by daytime plant transpiration, it is important to monitor humidity levels during the day and supplement DryGair's operation with ventilation—if needed.



During the nighttime, plant transpiration releases water vapor into the air. Simultaneously, temperatures drop during the night. This leads to higher relative humidity.

At lower temperatures, the air cannot hold as much water in vapor form and below a certain temperature called the dew point, water will condense into liquid form. This happens on colder surfaces

first, such as leaves and greenhouse structures, and this surface water is what triggers the development of plant disease.

To prevent reaching the dewpoint, **the greenhouse must be completely closed (vents and thermal screens, if applicable) and the DryGair system must be operated throughout the night.** At 18°C (64°F) and 80% RH, the DryGair DG-12 EU unit can extract 48L (13G) (DG-12 will extract 45L (12G)) of water per hour from the greenhouse air and ensure uniform conditions throughout the growing space, which will prevent wet microclimates from forming.

DryGair extracts more water than any other greenhouse dehumidifier on the market!



In the morning, the sun rises, and its rays hit the surfaces of the plants. The presence of sunlight during the day generates photosynthetic activity which leads to daytime transpiration rates that are **ten times higher than those occurring at night.**

The greenhouse temperature increases, and additional water vapor is released into the air from the heat absorbed into the soil. Very high amounts of water-vapor are released into the greenhouse during the day.

Ventilation is often used to release heat which collects in the growing facility during the day, and given the appropriate outdoor humidity levels, also expels excess humidity from the growing facility in the process. **Because of this, ventilation is the most economical option for reducing humidity during the day.**



In the case of cloudy or rainy days, when the outside air is humid, **it is possible to operate the DryGair around the clock and ventilate as necessary to reach optimum levels.**

NOTE

During sunrise/sunset, if needed, DryGair's operation can be supplemented with *ventilation*.

- **Sunrise:** Once the plants receive any solar radiation, they begin to transpire at a very high rate. DryGair can remain operating in addition to ventilation to help treat the high quantities of water released into the air.
- **Sunset:** The sudden drop in outside temperature can cause spikes in the relative humidity. DryGair can be turned on before , when vents are still on, to prevent the sudden spike.



The operation protocol depends on different elements in the greenhouse. If needed, we recommend consulting with the DryGair team.