

Rationale

Energy loss is a big concern that greenhouse growers face when managing indoor high relative humidity (RH) levels and regulating air quality by opening the vents.

Dehumidification Methods



Agam

- up to 70% energy saving
- chemical desiccant
- potted flowers, herbs
- effective except in summer



DryGair

- up to 50% energy saving
- mechanical refrigeration
- potted flowers, herbs
- effective except in summer



HRV

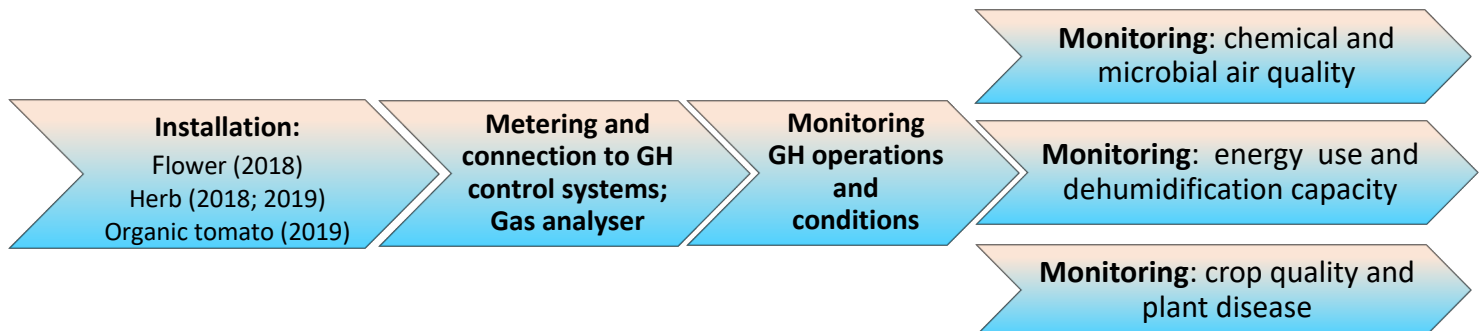
- up to 30 to 40% energy saving
- air-to-air heat exchange
- potted flowers
- effective in cold and dry seasons



ERV

- up to 70% energy saving
- combination of chemical and air heat exchanger
- organic tomato
- effective all year-round

Research Progress



Preliminary Outcomes

Unit performance: goal to keep RH within a 'set' range

- units run late afternoon until early morning
- condensed water re-use
- heating energy & electrical consumption comparison still ongoing
- turn off units to obtain benchmark data
- facility changes = delay in data collection

Microbial air quality: goal to decrease disease pressure

- high population of yeast and mould in zone without any dehumidification or ventilation
- testing complicated by the movement of plants between zones during the day
- more tests required to evaluate dehumidification effects on plant health

