



CO2 GRO Inc.

# CO2 Delivery Solutions™

*Delivering CO2 to Growers Everywhere™.*

## WEBSITE PRESENTATION

**May 2021**

# CO2 GRO's DEDICATION

**CO2 GRO is dedicated** to enhancing plant growth and productivity sustainably, while reducing our partners' carbon footprints by providing our patented revolutionary **CO2 Delivery Solutions™**.



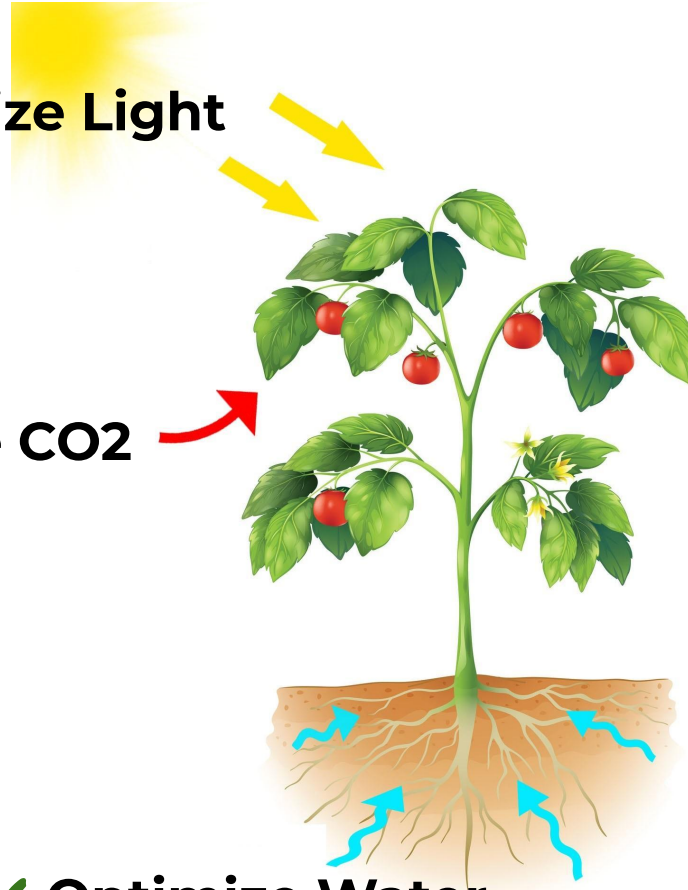
[Click to watch our 3 minute video](#)

# COMMON LIMITING FACTOR

✓ Optimize Light

✗ Optimize CO<sub>2</sub>

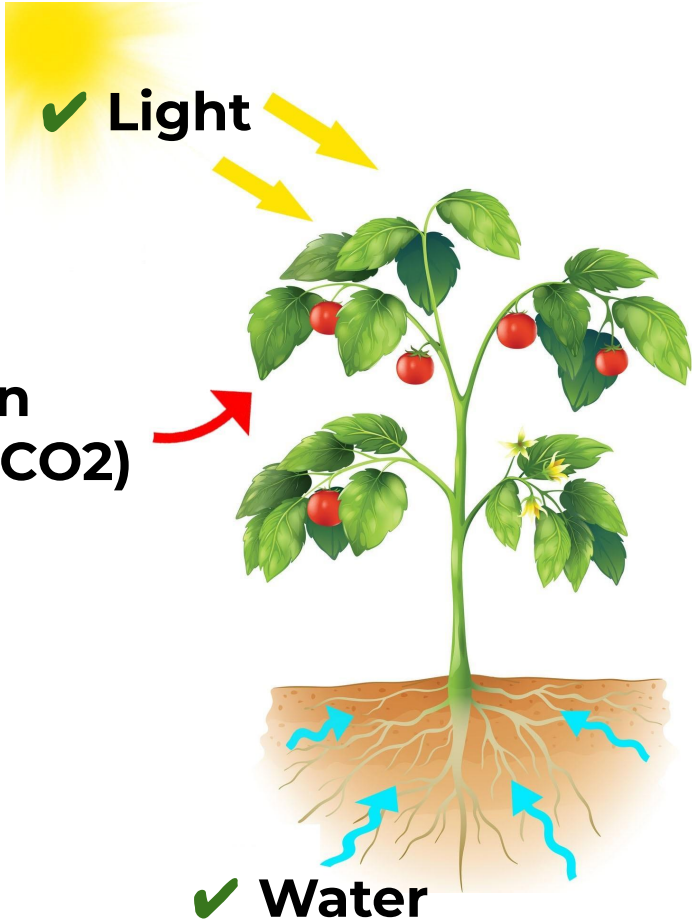
✓ Optimize Water



# FROM A LIMITING FACTOR TO A STRENGTH



✓ Carbon dioxide (CO2)



# CO2 DELIVERY SOLUTIONS™ BENEFITS

- **Increase plant production of flower, fruits & biomass.**
  - **More yield = More revenue.**
- **Life cycle acceleration.**
  - **More harvest turns and faster to market products.**
- **Protection against epiphytic microbial pathogens.**
  - **Save crops from pathogen related losses.**
- **Low CO2 and energy use.**
  - **Reduce your carbon footprint and production cost.**

**UP TO 30% MORE YIELD  
DOUBLE YOUR PROFITS \$\$\$**

# THE PROTECTED GROWER MARKET



- 600 billion sq ft of greenhouses, tunnels, shade & net houses worldwide.
- Protected grow structures are either open or sealed but frequently vent.
- This makes CO<sub>2</sub> gassing very difficult or impossible.
- **Protected growers are missing out on up to 30% more yield.**

# DELIVERING CO2 BENEFITS TO ALL PROTECTED GROWS



High tunnel grows



Net house grows



Shade house grows



Indoor vertical farms

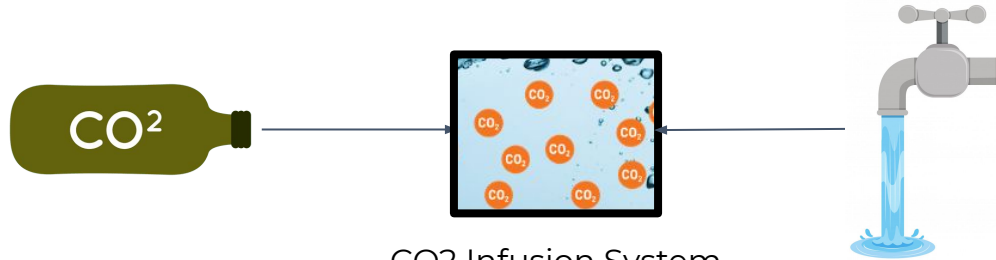


Hoop house grows



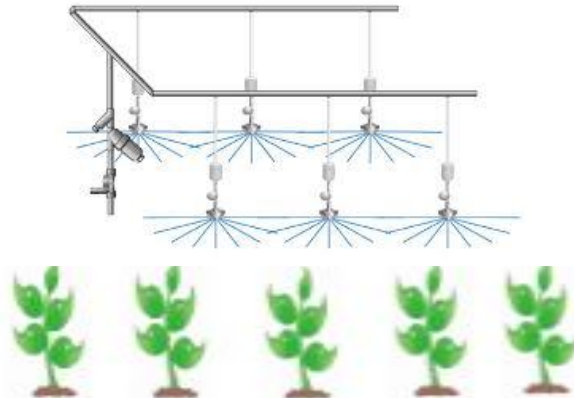
Greenhouses

# HOW CO<sub>2</sub> DELIVERY SOLUTIONS™ WORKS



CO<sub>2</sub> Infusion System  
**dissolves and saturates** CO<sub>2</sub> in water.

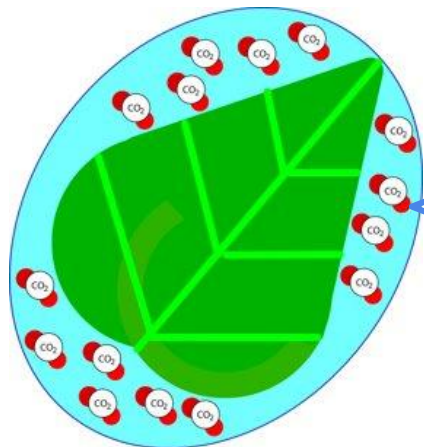
↓  
**Saturated CO<sub>2</sub> solution** is delivered to the plants  
via **misting** through overhead misting systems.





# THE 'MAGIC' IS IN THE MISTING

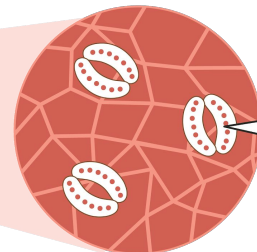
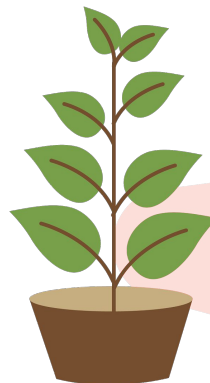
## CO2 SOLUTION MISTING



Misting the CO2 solution creates a microfilm on the leaf surface.

This film isolates the leaf surface from the atmosphere and creates a diffusion gradient that enables the CO2 to diffuse into the leaf.

## Traditional CO2 gassing.

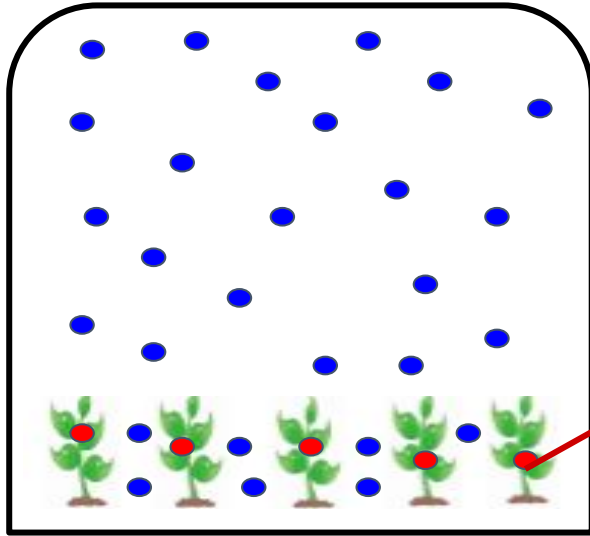


stomata on the underside of a leaf

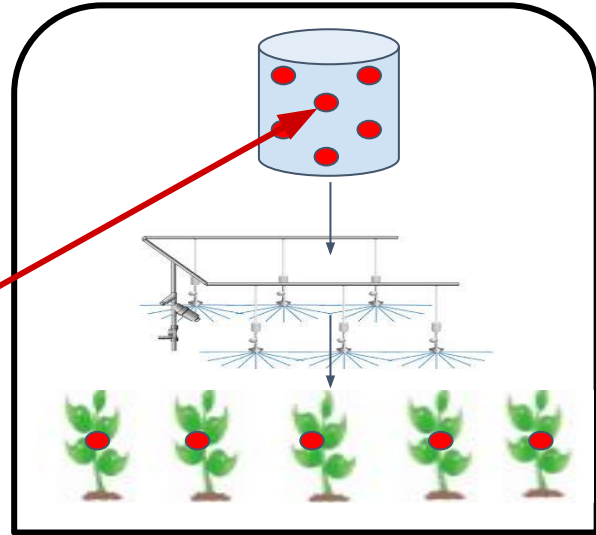
Plants normally take in CO2 from the air through their stomata - tiny pores on the underside of the leaf.

**CO2 is diffused through the leaf's surface.**  
**CO2 does not escape the grow area.**

# REDUCE YOUR CARBON FOOTPRINT



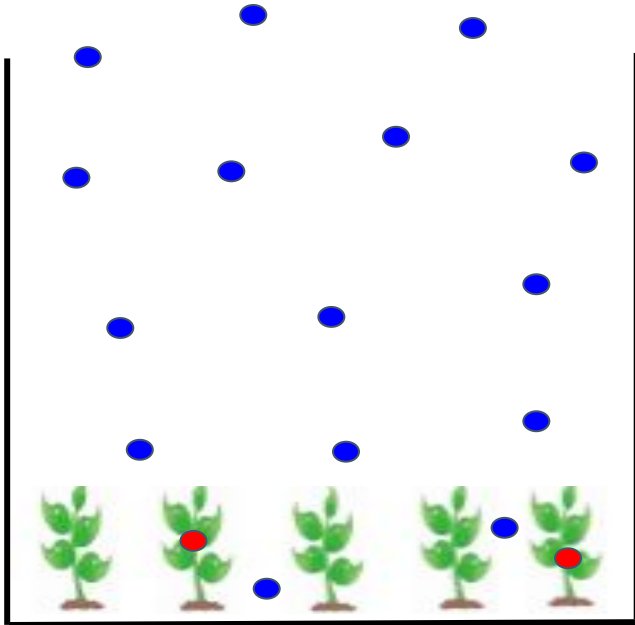
CO2 gassing at 2000 ppm



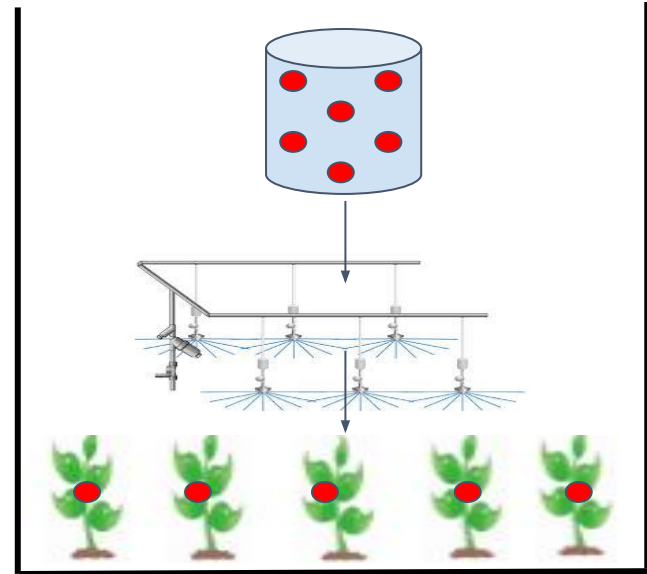
CO2 Delivery Solutions™

- **Blue dots** represent CO2 gas molecules required to fill the entire grow room.
- **Red dots** represent CO2 gas molecules that actually enter the plant.
- **CO2 Delivery Solutions™** dissolves the “red CO2 molecules” in solution, targeting only that amount to the plant. No need for all the other “blue CO2 molecules”.

# WHAT ABOUT DURING VENTING?



CO2 level at 400-500 ppm



**CO2 Delivery Solutions™**

- When greenhouses vent in warm months, CO2 escapes to outside.
- Ambient CO2 levels means less available to the plants and sub-optimal growth.
- **CO2 Delivery Solutions™ continues to provide additional CO2 despite venting.**

# LOW OPERATING COST

From bulk tanks .....



..... to cylinders.



- **Save 95% in CO2 costs** - no more bulk tank rental and wasted CO2.
- **Low energy consumption** - as low as \$0.01/sq ft/year.

# BENCH SCALE STUDY ON PEPPERS

Comparison between CO2 solution vs CO2 gassing vs ambient CO2 on peppers.

Metric	CO2 solution	CO2 gassing*	Ambient CO2
<b>Total Biomass</b>	<b>195 grams</b>	192 grams	132 grams
<b>Fruit Yield</b>	<b>~8.5 fruit/plant</b>	~8 fruit/plant	~7 fruit/plant
<b>Harvest Time</b>	<b>22 days</b>	22 days	25 days
<b>Perimeter Protection™</b>	<b>Yes</b>	No	No

- **20% more pepper fruit production.**
- **10% faster growth.**

# COMMERCIAL FEASIBILITY ON PEPPERS

Comparison between ½ hectare CO2 solution vs ½ hectare ambient CO2 in a 1-hectare open-venting greenhouse growing peppers.

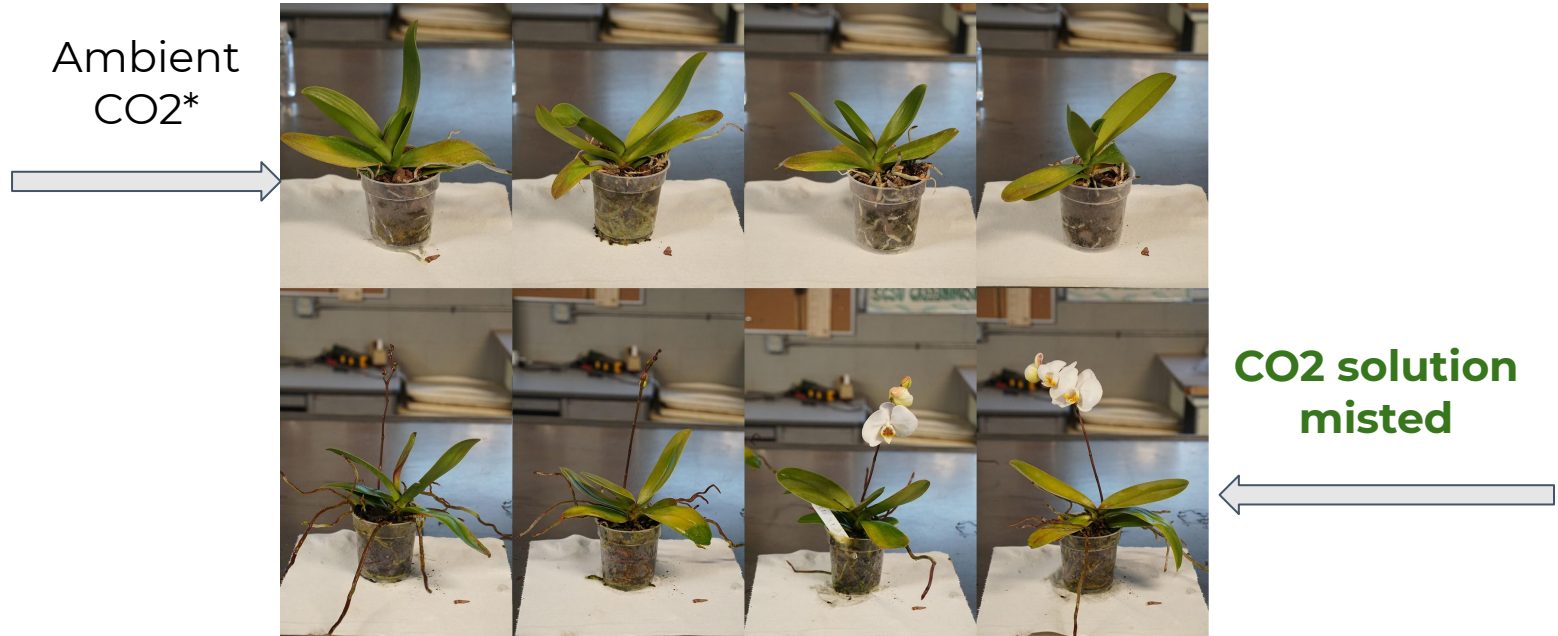
Metric	CO2 solution	Ambient CO2
Cases	4981	4202
Kilos	21,418	18,068

"We are impressed with the nearly **20% yield improvement** as a result of applying CO2 solution through our existing misting systems. The feasibility is being conducted at a scale which provides us the confidence that the results are accurate."

- *Rodrigo Martinez, General Manager, Hidroexpo.*

# BENCH SCALE STUDY ON C4 ORCHIDS

CO2 solution vs ambient CO2 demonstrations on C4 orchids in a greenhouse showed **30% accelerated flower time.**



**Faster to Market = More Profits**

Orchids study at St. Cloud State University; \*Ambient CO2 bloomed in 9 months vs CO2 solution in 6 months.<sup>15</sup>

# COMMERCIAL FEASIBILITY ON CANNABIS

## Hybrid



**25%** increase in bud weight.  
**22%** faster cycle time.  
**No mildew reported.**

## Indica



**20%** increase in bud weight.  
**20%** faster cycle time.  
**No mildew reported.**

## Sativa



**22%** increase in bud weight.  
**33%** faster cycle time.  
**No mildew reported.**

**More Buds + More Harvest Turns + Mildew Protection =  
More Profits**



# COMMERCIAL FEASIBILITY ON KALE

CO2 solution vs ambient CO2 demonstrations on kale in a containerized system showed  
**37% more biomass yield.**



**More Biomass to Sell = More Profits**

# COMMERCIAL FEASIBILITY ON FLOWERS



CO2 solution  
misted



Blue Fan misted with CO2 solution.  
\*Note the **increased number of flowers**  
compared to the surrounding untreated plants.

Periwinkle misted with CO2 solution.  
\*Note the **advanced root structure** in  
young plants.

**More Flowers = More Profits**

**Stronger Plants = More Profits**

# MISTING FOR JUST MINUTES A DAY

Just a few seconds an hour of misting provides the additional CO<sub>2</sub> needed for increased growth equivalent to maintaining CO<sub>2</sub> at >800 ppm.



Kale left and Pepper leaf right misted.

The microfilm is not visible to the naked eye. Only some small visible droplets on the leaves.

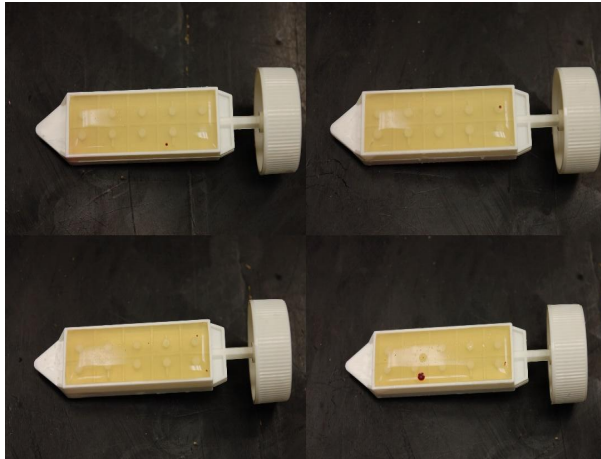


**We do not 'wet' or 'drench' the plant.  
Minimal moisture for Maximum CO<sub>2</sub>.**

# DON'T WORRY ABOUT GETTING PLANTS 'WET'

Despite conventional wisdom, misting plants with CO2 solution also provides the plant with **“Perimeter Protection™”** against micro pathogens.

*E. coli*  
**CO2 solution misted**

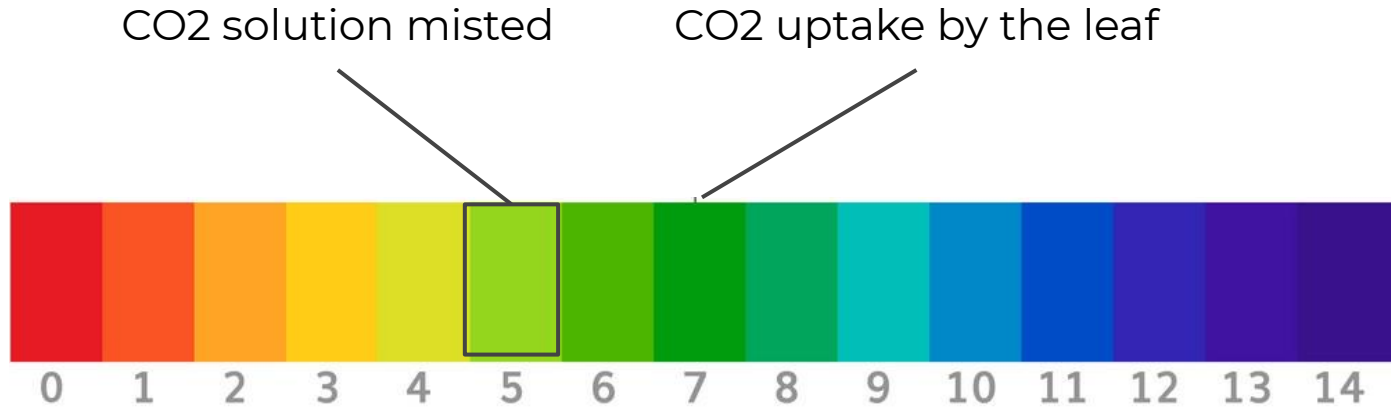


*E. coli*  
CO2 gassed and ambient CO2



**Less Crops Lost = More Profits**

# PERIMETER PROTECTION™



- **pH fluctuation on the leaf surface significantly slows the spread of micro pathogens.**
- **CO2 gassing alone does not provide this protection.**

# PERIMETER PROTECTION™ ON HEMP

No visible powdery mildew where the mist did cover.



Some powdery mildew is visible on the outer edges where the mist did not cover.

Powdery mildew did not spread to the vast majority of plants in this 2,000 sq. ft. hoop house due to **Perimeter Protection™**

# CURRENT CUSTOMERS



**CO2 GRO is a Canadian company with Global customers.**

# PEPPER GREENHOUSE

# TOMATO GREENHOUSE



Clouds of  
CO2 solution  
mist.

Nozzle  
heights can  
be adjusted  
higher or  
lower using  
extension  
hangers.



Nozzles placed higher up create clouds of CO2 solution mist that **enable the microfilm to form from top-to-bottom of taller crops.**



# STRAWBERRY GREENHOUSE



Misting nozzles in a section of the greenhouse.

# LETTUCE GREENHOUSE



**Top left:** CO2 Infusion System installed in a larger two-hundred gallon water tank.



**Top right:** Feasibility set up at lettuce greenhouse in partnership with Gulf Cryo.

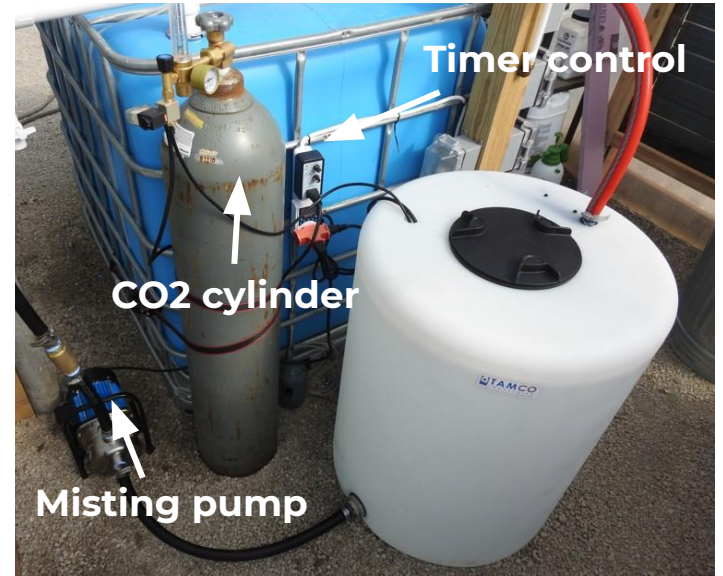


**Bottom right:** Overhead misting nozzles at lettuce greenhouse.

# HEMP HOOP HOUSE



2,000 sq. ft. hoop house.



White tank has our CO2 infuser.

"I am using CO2 Delivery Solutions™ primarily to help prevent the growth of mold and powdery mildew, but let's face it, faster growth and larger plants were huge selling points as well. As of April I have been using the system in two large greenhouses for about a month and I am already seeing improved growth with no signs of stress, mold or mildew." - Owner, Sacred Seeds Farms, MO.

[See this video of the set-up at Sacred Seeds.](#)

# OPTION TO TRY BEFORE YOU BUY

## Commercial Feasibility

## Commercial Installation

## Expansion



A Commercial Feasibility study can be conducted at your facility in order to evaluate the efficacy and economic impact of CO2 Delivery Solutions™ on your plants.

Upon a successful feasibility, CO2 GRO will present a proposal to install CO2 Delivery Solutions™ throughout your entire facility.

As you expand your grow facility, CO2 Delivery Solutions™ can easily expand with you.

# PURCHASE OPTIONS

**Commercial Installation Price based on cultivation area.**

**Flexible Payment options.**

Includes CO2 Infusion System, Technology Site License, Mistig System if required, Maintenance and Support.

# OUR TEAM



**Dr. Matt Julius**  
**Chief Science Officer**



**John Archibald, P.Eng.**  
**Chief Executive Officer**



**Dr. Gord Surgeoner**  
**Director**

**THANK YOU FOR YOUR TIME AND  
INTEREST IN  
CO2 DELIVERY SOLUTIONS™**

Visit [co2delivery.ca](https://co2delivery.ca)  
Email [sales@co2gro.ca](mailto:sales@co2gro.ca)  
Or call 1-888-496-1283