

Case Study: CO2 Foliar Spray Effects on Flower Growth

Indoor use of CO2 gassing has enhanced plant yields for over 60 years. However, over 50% of the CO2 gas is typically lost through ventilation. Current greenhouse CO2 gassing levels of up to 1500 PPM are also not ideal for worker health and safety. GRO's safer dissolved CO2 foliar spray can be used by indoor and outdoor plant growers with minimal CO2 gas lost and greater plant bioavailability resulting in higher yields as shown in this case study.

Benefits:

- More branching & side shoots
- Bigger, thicker leaves
- More advanced root systems (improved nutrient transport)
- No undue stretching of the plant
- Commercially ready to ship 7-10 days sooner than the control flowers

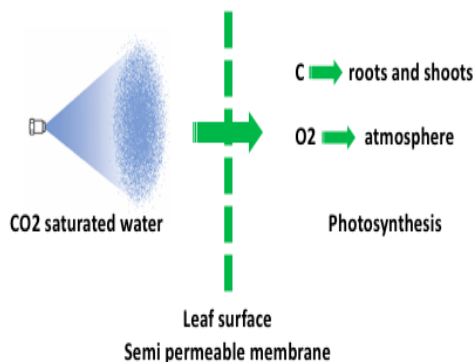


Foliar Spray Nozzle equipped with CO2 diffusion



Angelonia treated with CO2 foliar spray (right) and untreated (left)

Michigan Flower Trials



The first two trials were done on Vinca Minor flowers that were sprayed with CO₂ in a large commercial greenhouse that does not use CO₂ gassing. These flowers were healthier, showing: more branching, larger leaves, more advanced root systems, and no undue stretching. This all contributes to an increase in value per flower plant.

The third and fourth trials were on chrysanthemums resulting in bushier plants without additional stretching with deeper, more vibrant flower coloring. Propagation times were consistently reduced by one-third to 14 days versus the control flowers requiring 21 days.

The fifth flower trial is currently underway. The trial will span a period of 5 weeks and will be conducted on 42,000 cordyline juvenile plants. A fully automated overhead irrigation system is systematically pulsing dissolved CO₂ foliar spray on these flowers. Early results are very promising and complete results will be ready in 2 months.

About CO2 GRO

GRO's mission is to accelerate all indoor and outdoor value plant growth naturally, safely, and economically using its patented advanced CO₂ foliar technologies. GRO's global target plant markets are retail food at \$8 trillion per year (Plunkett Mar 2017), retail non-food plants at an estimated \$1 trillion per year and legal retail cannabis that may reach \$50 billion per year by 2022 (Bay St Analyst estimates).

The CO₂ technologies work by transferring CO₂ gas into water and foliar spraying across the entire plant leaf surface area, which is a semi permeable membrane. The dissolved concentrated CO₂ then penetrates a leaf's surface area naturally like nicotine naturally dissolves through human skin from a nicotine patch.



Vinca Cora treated with CO₂ foliar spray (left) and untreated (right). Note: the advanced root structure of the treated plant.