



February 13, 2019

The Growers Network is the first vetted and exclusive community that connects the world's cannabis professionals to make them more productive and successful. The community facilitates communication between commercial cannabis professionals, including grow operation owners, master growers, academics, dispensary owners, equipment manufacturers and more.

Below is a copy of a question and answer forum with members of the Growers Network and management of CO2 GRO Inc. US GROWERS NETWORK CO2 GRO INC. DISSOLVED CO2 FOLIAR SPRAY ASK ME ANYTHING ABOUT DISSOLVED CO2 FOLIAR SPRAY QUESTION AND ANSWER – February 13, 2019:

1) How do you add value with your CO2 Foliar Spray technology to cannabis?

We add value in three ways: 1) faster cannabis veg growth, 2) more buds and weight per bud and 3) more THC and CBD per bud unit of weight. Our best trial was with indica versus sativa or hybrids that totalled 250% more value versus growing cannabis without CO2 gassing. We also have proof from trials on pepper and lettuce plants of dramatically lower E. coli and wilt fusarium counts (99%+) longer survivability from powdery mildew infections and fewer aphids.

2) Can you explain how you got to your 250% increased indica cannabis value estimate?

Veg plant growth speed to plant maturity pre-flowering was 33% faster or about 20% overall. Once we stopped CO2 Foliar Spray during flowering, time to final maturity was constant. We got 20% more overall bud weight. So, in a greenhouse setting where we can take 5 crops per year to six re faster growth plus 20% more bud weight equals about 45% more value. In the case of indica with larger leaves, our THC and CBD concentration soared 75% and 89% respectively. The value combination of all the above gave us about a 250% indica plant value increase.

3) How exactly do you accomplish this? Does the product form a barrier around the leaf surface like some kind of foliar prophylactic?

We prefer to use the term “micro-environment”. We apply a thin layer of water which is loaded with dissolved CO2 onto plant leaves. We drive ALL of the dissolved gases in water including oxygen out when we dissolve CO2 into water. Our gas infusion technology is therefore a two-way portal for gases to insert and leave.

The CO2 coated plant leaf surface then absorbs CO2 through its semi-permeable leaf surface area until full. That leads to maximum plant leaf chlorophyll production potential which under light, then leads to C6 glucose sugar creation.

Outdoors, CO2 gas from the air is the only way plants can make C6 glucose molecules, the plant fuel resource for bio-metabolism. More plant fuel resources lead to more plant metabolic activity. There is only 400 PPM of CO2 in the atmosphere. We can provide about 2000 PPM dissolved in a form that upon application, is initially 800% more bioavailable (plant leaf conductance) than gaseous CO2 is in the air.

CO2 is the lifeblood of ALL photosynthetic plants. We use aeroponic principles with fine misting of dissolved CO2 onto plant leaves. This is very similar to aeroponics applications used on plant roots. For our 2018 cannabis grow trials, we were spraying several seconds in one-hour intervals for mostly AM grow periods.

- 4) **Thanks for this AMA @sam.kanes! There are systems that increase CO2 concentration in the air. How does liquid foliar application compare to systems like that in terms of efficacy, price, convenience, and so on?**

The key difference between aqueous and gaseous CO2 is we are ONLY dosing the aqueous CO2 on the plant leaves versus CO2 gassing the entire greenhouse macro environment that has to be 100% gassed due to rapid spreading throughout the entire greenhouse. Aqueous CO2 stays in water until used when applied to plant leaves. If some CO2 spray misses leaf foliage, it will evaporate back into inert CO2 gas.

We have scientifically proven that only half the CO2 usage is required in aqueous form to add 20% more plant value. For convenience, once fully automated, our systems can be controlled from a beach.

For human and plant safety, atmospherically no one should go past 2000 PPM of CO2 gassing in greenhouses. We can meet/exceed those levels in the micro-environment on plant leaves without affecting the surrounding macro atmosphere.

- 5) **Do you have knock-off competitors with lesser quality systems?**

Not as yet that we have seen commercially. We are PCT patent pending since mid-2018. We are fast tracking our US PTO application for a Method of Use patent for any and all methods of dissolved CO2 gas for any and all methods of applying dissolved CO2 gas onto any and all plants. If granted, that would allow us to sue anyone for treble damages in the US if they choose to compete with similar CO2 systems.

We use sub two-micron microporous hollow fibre patented for the purpose of dissolving CO2 gas to enhance plant growth. We own this exclusive royalty free global license in perpetuity. Typical CO2 gas diffusers are in the 100-micron area that waste a lot of CO2. We do not. Delivered CO2 is not free.

- 6) **Interesting! How has that patent process been for you?**

Our previous CEO is still a patent attorney with a micro-biology background. We are comfortable with him and his team of U.S. patent attorney colleagues representing our filings. It is what it is re timing and process with Government bodies.

The best most effective to defend patents are the simplest. We believe ours is. After 18 years of accelerating bacteria (oxygen), algae (CO₂), fish fry growth (oxygen) etc. we finally got around to plants.

We liken our breakthrough aha to the original Velcro patent which was a similar simple method of use patent. In the 1950's, a Swiss hunter went into a bush for a bird and came out with burrs stuck to his clothes. Millions before him have had burrs stuck to clothing. However, he thought about it and patented the method of use idea of creating barb like nylon to mimic natural burrs. Voila – Velcro.

7) How does your CO₂ Foliar Spray technology work on aphids and pathogens?

Based on our scientific experiments to date, we believe that extremely low levels of oxygen in our CO₂ Foliar spray has a material impact on certain aphids. Our excellent aphid results on a particular aphid insect herbivore we trialed may have only worked due to its unusual feeding strategy. We are still working scientifically to understand the complete plant mechanism for our aphid results.

For pathogens like E. coli and wilt Fusarium (common wilt), we have proven two orders of magnitude lower counts (99%) using CO₂ Foliar Spray on lettuce and pepper plants. We are finishing similar scientific trials on cannabis E. coli and wilt Fusarium shortly.

We believe pathogens hate the sharp PH volatility we create on plant leaf surfaces. Our applied low PH water filled with acidic dissolved CO₂ rapidly turns more alkaline as plant leaves rapidly absorb the dissolved CO₂ they need for their next leg of growth. We have proven we can fill up leaves (saturate) with aqueous CO₂ in 90 seconds.

Our CO₂ Foliar Spray technology draws out all dissolved gases at the same time it dissolves CO₂ gas into water. This makes irrigation water completely oxygen free. This is one reason we only lightly spray aqueous CO₂ onto leaves as roots need aqueous oxygen. The dead New Orleans Mississippi Delta and Florida's massive red tide in 2018-9 that killed dolphins, manatees, fish etc. are oxygen hypoxic at under 2 PPM versus normal of 8 PPM. Certain oxygen using cyanobacteria drain the dissolved oxygen out of water that has a food source of man made soluble fertilizer run-off nutrients, hydrocarbon spills etc.

8) Does the Dissolved CO₂ pose any risk to wildlife from runoff?

No. In dry conditions, aqueous CO₂ simply evaporates back into inert CO₂ gas. In wet conditions (rain) our 2000 PPM dissolved CO₂ concentration on plant leaves will wash away with rapid CO₂ dilution from rain water run off.

9) Can you share a bit more about this automation process? Do you have pics or visuals?

We are fully automating our commercial installations of CO₂ Foliar Spray Systems with appropriate overhead, sideways or bottom-up misters, pop-up sprinklers and overhead booms that best fit our customer's facilities. A slide shown was from our Michigan flower grow trials on 42,000 flowers using various pop-ups and overhead booms tied to a one tonne tote of dissolved CO₂ water and our dissolving

CO2 technology interconnected to a CO2 gas source. Otherwise basic pop-up Netafim clover head sprinklers with overhead booms.

10) Are any of our identified growers (700 out of our 5000 members) using your CO2 Foliar Spray Systems?

Yes several. One liked it so much he joined us full time to speed US Midwest penetration of our CO2 Foliar Spray Systems.

11) Wow that's fantastic! That's a testament to the efficacy of the CO2 GRO product!

David Marshall reached out to me via your Network 15 months ago well before our last July 25 Ask Me Anything Webinar on CO2 Foliar Spray. CO2 GRO joined the Growers' Network after attending MJ Biz Con 2017 in Las Vegas. There were not one out of 700 booths offering a CO2 Foliar Spray product for cannabis growers. That was when we stepped up our efforts to raise funds to commercialize our provisionally patented CO2 Foliar Spray technology and see what we can do for cannabis grower yields and quality.

12) Was nature your inspiration for product development?

Yes. John Archibald our CEO left a major U.S. multi-national position to commercialize this gas dissolving technology in 1999. His first commercial success was accelerating oxygen consuming bacteria growth by dissolving pure oxygen into groundwater to accelerate hydrocarbon spill clean-up. Helping nature clean up human messes.

Dr. Matt Julius has been with us since our 2012 IPO. He is an avid plant scientist focusing on mostly algae for the past 20 years. He is "bio-inspired for creating sustainable bio-derived products". So am I. I sit on the Bio-Industrial Innovations Canada Board and have been an investor in this sustainable natural technology for 18 years.

Our first "plant" focus was algae starting in late 2007. Algae are the most photosynthetic species consuming CO2 on the planet. We proved we can triple-to-quadruple algae's growth rate consuming dissolved CO2. This was the basis for our 2012 IPO of CO2 GRO (GROW.TSXV, BLONF.OTCQB). Then oil prices crashed along with algae company prospects. Matt was instrumental in our early algae work. He is joining us full-time as acting Chief Science Officer for his 14-month Sabbatical starting May 1, 2019.

13) Interesting that you mention algae. With a little help from genetic modification, scientists have actually managed to grow THC using algae. The beauty of this process is it takes only a few days to populate billions of THC molecules in the biomass. Many of us in the cannabis community believe this will bring forth the age where we no longer even need to grow cannabis plants anymore. I would be interested to know what you and Dr. Julius think about that? Are there promising applications for your product in algae growth and accelerated THC production?

Great observation and question about the future growth of THC through growing micro-organisms (carriers). Matt is working on algae applications such as bone graft algae material and other medical algae applications.

With genetic modification it is always a trick to see if the algae modification stays stable or deteriorates with future generations (selective drift). If it is stable in the GMO algae it would be great re THC cell growth as you can get a double of algae biomass every 24-48 hours, incredibly reducing grow time.

14) How does the application of your CO2 product affect stomatal abundance of treated plants over time? Have you measured plant uptake efficiency with your formulation and recommended application, if so, what is it? What's the cost per acre per recommended application? Thanks! Very interesting product

We are counting the stomata in the experimentation. No definitive answer yet. The current literature suggests there should be a reduction though over time.

RE plant uptake efficiency, we add 110% of the additional nutrient package required to keep the plant health profile when growing 25%-33% faster to maturity with 90% larger leaves and 45% overall additional plant size.

For the raw cost per acre planted outdoors, our first CO2 use estimate is about 1 tonne of CO2 dissolved per two acre-feet of irrigation. As we spray a fine mist indoors with no wind, we will need a heavier mist outdoors in windier conditions. We will need more frequent use of mobile irrigation equipment for maximum outdoor plant yield and health benefits.

Our service charge is 20% of the incremental value we prove to indoor and outdoor growers via proof from our library of CO2 grow trials or new commercial trials tailored to new customer premises. We then work to a per square foot (indoors) or per acre (outdoors) charge with our customers to cover our site technology license, dissolving CO2 and monitoring equipment, installations etc. Different crops have different values and profitability that we take into account with our customers.
