CO2 GRO's CO2 FOLIAR SPRAY EXECUTIVE SUMMARY

We dissolve CO2 gas into water without bubbles so indoor and outdoor growers can maximize plant yields safely, naturally and more profitably.

CO2 is essential for all photosynthetic plant life. When dissolved CO2 water is sprayed on leaves**,** plants can consume **ALL** the carbon their genetics allow for maximum growth. Our CO2 plant grow trials **point to 100% more lettuce biomass growth potential** shown at both the University of Guelph and St Cloud State University (SCSU). Also, SCSU proved **a 400% increase in chlorophyll and 800%+ increases in CO2 gas conductance (transfer) on either side of a leaf surface area.** Our first three cannabis results also showed **a minimum 45% cannabis bud value increase.**

Nature's balancing force dissolves CO2 gas from air's 410 PPM into surface water that cannot exceed 410 PPM. This balancing force also drives dissolved concentrated CO2 gas through semi-permeable leaf membranes when applied by foliar spray on plant leaves.

Greenhouses targeting a 1300 CO2 gassing PPM level **lose an average 60% of their CO2 gas** according to an Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA) study. If CO2 gas is dissolved in water at 1300 PPM, **most of that CO2 gas stays in water.** We expect to help growers save **a majority of this 60% CO2 gas loss when greenhouse grower's use dissolved CO2.**

Our 2018 grow trials to date are on indoor cannabis, lettuce, flowers, peppers and micro greens **ALL 2018 trials show major increases in plant biomass and speed to maturity.**

We increasingly believe indoor growers will get **20% higher plant yields** with dissolved CO2 foliar spray use over CO2 gassing **plus** up to 20% faster plant growth. Outdoor crop yields **could go up from 10%-100%** based on CO2 gassing studies on receptive leafy plants and optimal dissolved CO2 foliar spray use.

We have the first new CO2 gas source for adding to outdoor plant growth.

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DISSOLVED CO2 GAS INFUSION BACKGROUND

EXPERIENCED MANAGEMENT WITH DISSOLVED CO2 GAS INFUSION

Our 2018 Management team is comprised of:

1) John Archibald, CEO, who founded gas infusion companies Canzone and inVentures in 2000 as well as BlueOcean in late 2007,
2) Sam Kanes, VP Business Development who co-founded BlueOcean in late 2007 with John and has been a Director since 2007 as well as an initial Canzone Gas Infusion Patent investor in 2000 and
3) Aaron Archibald as VP Operations who was also VP Operations for inVentures from 2005-2017 commercializing a number of Canzone and inVentures business verticals including groundwater remediation, wellness and aquaculture.
4) 20 CO2 GRO Reps from five Provinces and five US States with one in Germany. Six of the CO2 GRO Reps were engaged with a predecessor CO2GRO company during 2008-2013 including the Company's first two CEOs. Five are agriculture science PHD's or are Professors in Ag Science.

John and Aaron sold gas infusion patent owner Canzone and gas infusion equipment manufacturing company inVentures (a Canzone licensee) in July 2017. They then joined CO2 GRO full time to commercialize a dormant since 2014 CO2 gas infusion license that they assigned to CO2 GRO in 2012.

Strategy. John executes the Board approved Business Strategy.

Development. Sam initiated early CO2 grow trial leads with 20 CO2 GRO reps and heads private and public funding, media, government and IR initiatives. He recruited most of the Company's 20 CO2 GRO reps who are all compensated to date on a 100% commission basis only from commercial CO2 equipment installations.

Operations. CO2 gas infuser trials and installations are performed under Aaron and one of his two master growers (one in Canada and one in the US). Upon sufficient plant growth acceleration trial proof, commercial CO2 system design, installation and long-term site license and royalty negotiations are Aaron and John's responsibilities. A new plant bio-scientist and a project engineer report to Aaron.

CO2 GRO's PATENTED DISSOLVING CO2 TECHNOLOGY

"We" (CO2 GRO Inc. GROW.TSXV, BLONF.OTC, 4021 Frankfurt) dissolve CO2 gas without bubbles into water up to 2000 PPM at one atmosphere, **naturally, safely and economically.** Its use in

dissolved CO2 plant grow trials has proven **sharply higher** lettuce, cannabis, flower and micro green growth. Spraying dissolved CO2 on plant leaves **lets the entire surface leaf area absorb dissolved CO2 versus CO2 gas just through leaf stomata pores.**

We have an exclusive perpetual royalty free global license to use dissolving CO2 gas infusion devices for the growth of all plants. The gas infusion patent owner (Canzone) granted this CO2 gas infusion technology license in 2012.

Since 2000**, over 1600 patented gas infusion devices have been commercially sold or leased** by Canzone and its gas infusion manufacturing affiliate inVentures. **Every Province and State** has had gas infusion installations for mostly groundwater remediation and aquaculture uses.

The first commercial gas infusion success was in 2000 to accelerate bacteria growth via dissolving oxygen into groundwater. The dissolved CO2 accelerated bacteria growth to rapidly eat hydrocarbon spills. In aquaculture, dissolved oxygen is commercially used to accelerate fish growth and reduce death rates in ocean well boat transport of lobster and other high value fish.

OUR CO2 FOLIAR SPRAY PATENT APPLICATION

We have a pending global PCT patent (150 countries) for dissolved CO2 foliar spray to accelerate plant growth using any fogging, misting, spraying or atomizing methods of delivering dissolved CO2 water onto plant leaves. Of the 10M US patents granted, there were **no** similar CO2 foliar spray patents granted to date**.** At the 2017 Las Vegas cannabis growers' conference, there were 673 booths providing services and growing supplies to cannabis growers. **NONE were representing dissolved CO2 foliar spray techniques.**

OUR 2018 CO2 GROW TRIALS

In February we started our first four of 20 potential CO2 grow trials for 2018 using our smallest CO2 gas infusers at grower sites. Monitoring and analysis of the CO2 grow trials is being done by our Canadian and US master growers with guidance from our University and third-party plant science contacts such as Dr. Matt Julius of SCSU based in Minnesota.

We have 60 indoor and outdoor trial opportunities in cannabis, hemp, lettuce, microgreens, flowers, peppers, outdoor potatoes, tobacco, grapes and other produce. We have selected 10 to date with now fifteen cannabis LP companies waiting for final approval from the Office of Medical Cannabis to exempt our dissolved CO2 foliar spray technology from their foliar spray regulations or allow its use for natural water PH balancing. Both Health Canada Pesticide Management (PMRA) and the Canadian Food Inspection Agency (CFIA) have exempted our dissolved CO2 technology. **This now allows ALL Canadian plant food growers to use our CO2 technology.**

All our Canadian cannabis trials to date are with Health Canada licensed medical cannabis growers that have ACMPR licenses to grow approximately 500-2000 plants each. These initial

trials have shown there are no residual effects from spraying dissolved CO2 onto plant leaves. Globally, there is no issue in using dissolved CO2 foliar spray to date on any plants. We have however, avoided any US cannabis trials for now due to the TMX Exchange expressing concerns regarding TSX and TSX-V listed companies conducting business in the United States with cannabis companies and the US Federal Government's negative views.

INITIAL CO2 GROW TRIALS UNDERWAY

Our first four CO2 grow trials in south Ontario on cannabis and micro-greens are complete. In Q2 2018 we initiated another set of lettuce grow trials at SCSU to verify our 2013 University of Guelph lettuce trial results and understand the plant science using dissolved CO2. We have multiple advanced flower grow trials in Michigan and advanced microgreen trials in Ontario with full overhead irrigation booms delivering dissolved CO2. A pepper grow trial is also underway at SCSU to maximize growth.

For cannabis, our first set of scientific analysis on three strains of cannabis buds grown using CO2 foliar spray versus no CO2 gas as a control group showed no ill bud effects. There were no issues with powdery mildew or bugs. Average increase in bud weight (more buds plus heavier weight) was 21% in a 20-22% range. Average faster growth to plant maturity from seedlings was 30% in a 28-33% range. Health Canada approved SGS Canada Inc. provided these bud THC results:

	THC with Dissolved CO2	**THC without CO2 Dissolved**	**% Increases**
Sativa strain	10.3%	8.6%	20%
Indica strain	14.4%	8.2%	75%
Hybrid strain	12.3%	10.3%	22%

GROW TRIAL COSTS

Most of our CO2 grow trials directly on client premises cost $2,000-$10,000 per trial depending on scope, scale, number of plants to trial and location. We expect growers to CO2 spray/mist their plant leaves in mostly AM daylight at a minimum of 1x/hour when plant growth is fastest based on our grow trial experience, scientific advice, plant species and plant maturity stages. We expect daily communication with our Canadian or US master grower concerning best application timing, volume and dissolved CO2 concentration. We have a biology field worker doing multiple micro green trials at a client's facilities that we will retain at other client sites shortly.

We have proof of much higher cannabis bud values that we give to growers in our first trials with them. Going forward, new cannabis trial costs will be paid for by clients with us providing the equipment and set-up only.

GLOBAL MARKETS FOR DISSOLVED CO2 FOLIAR SPRAY

THE OPPORTUNITY

Our dissolved CO2 foliar spray technology will increase the globe's food production and plant yield potential. **There is no photosynthetic plant species that we could not enhance with dissolved CO2 at up to 2000 PPM without bubbles applied to leaves if plant growth is limited by CO2 availability.**

The global plant markets are enormous. We are in discussions with global irrigation, industrial CO2 gas producers, wholesale/retail agriculture entities, greenhouse infrastructure and irrigation systems companies to be our Agri-Industrial partners to help us penetrate global markets faster.

THE RISKS

Our primary risk is whether we get enough value-added plant growth to more offset the cost to growers for us to install our commercial dissolving CO2 systems and pay for delivered CO2 gas.

Indoor moisture mildew risk. We have not seen any indoor trials have this issue to date. For advanced trials we apply the exact same amount of CO2 enriched moisture onto plant leaves that is applied to the control group. Our two master growers are keenly aware of this risk as are our indoor clients. Optimal trial design on cannabis plants whose moisture is mostly root fed, how much to allow the plants to dry overnight prior to morning only CO2 foliar spraying and what the spray doses and frequencies is evolving. **For overhead booms and water spray systems on lettuce/microgreen/plug/early stage flowers, we are simply integrating dissolved CO2 into their normal daily watering rates.**

Optimizing dissolved CO2 to targeted plant grow curve profile risk. Plant responses will vary by crop and species, their maturity and their leaf size to the amount of dissolved CO2 they can consume. We do not yet know what plant toxicity limits are if any to dissolved CO2 using 800 PPM, 1200 PPM, 1500 PPM or 2000 PPM of dissolved CO2 water. **We have to date, proven that hydroponic lettuce, algae, cannabis, micro greens and flowers thrive with 2000 PPM CO2 enriched water.**

Outdoor moisture risk is same as indoors. If we tap in dissolved CO2 to existing irrigation systems and do not apply any additional CO2 enriched moisture, **there is NO risk of powdery mildew above normal irrigation conditions.** We would gradually increase brief spraying intervals of CO2 enriched water in between irrigation cycles where appropriate if initial yield results are positive. Less water sprayed on leaves more frequently is more optimal with dissolved CO2.

We have NO CO2 gas infusion technology or commercialization risk as it has been commercially proven since 2000 with over 1600 commercial dissolving gas infusion installations. Some early applications were for dissolving CO2 gas to capture chlorinated solvents.

We have NO CO2 feedstock supply risk. CO2 gas is plentiful. However, industrial gas companies delivering CO2 gas to certain outdoor and indoor farming locations may prove to be too expensive relative to higher yield values via using CO2 foliar spray in certain crops.

THE GLOBAL CO2 RETAIL OPPORTUNITY

Our estimates and percentages of the addressable global retail markets for dissolved CO2 foliar spray are:

1) 10% of $8 Trillion/y of food grown outdoors favoring leafy greens
2) 25% of $400 Billion/y of food grown indoors favoring leafy greens
3) 25% of $800 Billion/y of tobacco grown indoors and outdoors
4) 25% of $200 Billion/y of flowers and non-food plants grown indoors and outdoors
5) 50% of $50Billion/y (by 2022) legal cannabis grown indoors and outdoors

OUTDOOR CO2 FOLIAR SPRAY MARKET

About 40% of all food grown outdoors is irrigated, either by sub-irrigation, drip irrigation to the roots or captured in tidal or monsoon areas or by canal. Dissolved CO2 **does not work on roots** so these root irrigation methods (half of irrigation or 20%) are **not** CO2 opportunities.

That leaves 20% overhead foliar sprayed where our dissolved CO2 will work. Foliar spray systems vary from pressurized sprinkler systems and pivots, water wheels, hoses, misters, foggers, atomizers etc. **Dissolved CO2 irrigation works best applied to plant leaves above ground. We have scientific proof that the top side of leaves absorb dissolved CO2 like the bottom side so any overhead irrigation system will work using dissolved CO2.**
We assume **half** of this above ground foliar spray irrigation for typically high value vegetables and other cash crops is available to us for CO2 foliar spray. **That nets to 10% of the $8 Trillion global retail food market or $800B/y of addressable outdoor irrigated food production land.**

INDOOR CO2 FOLIAR SPRAY MARKET

We conservatively assume 25% of the greenhouse food grown can profitably use dissolved CO2. We prefer using clean food grade CO2 gas delivered by industrial gas companies to greenhouse adjacent CO2 towers for CO2 gassing and organic certification. We can tap into any CO2 gas source and irrigation system but some greenhouses may need irrigation retrofits. Here is one that will not:

This about to be 230,000 sq. ft. Ontario lettuce/microgreen greenhouse has installed 28 water spray racks over double tables of grow medium. These racks are tied into the main central water supply cross pipes (left picture centered). This grower does mainly daily AM spraying of mostly microgreens, lettuce and basil grown in 10-30 days for major Ontario grocery stores.

In September 2018, we have tied in a larger CO2 gas infusion device into larger dissolved CO2 water storage with a 3/8 high pressure hose into one of the 28 booms. We are looking at **ALL** existing overhead boom and spray configurations as we now know we can tie in our dissolved CO2 systems **with minimal capital and that spraying to top side of plant leaves is as effective as spraying the bottom side only.**

Other existing greenhouse configurations with root feeders only will need to be modified to floor foggers/misters/sprayers in any direction onto the plant canopy. That will require more capital to add our dissolved CO2 foliar spray method or to retrofit an existing one that gasses CO2 (typically from floor level). Plant yield improvement economics will have to be more material to proceed to commercial dissolved CO2 system integrations.

WHOLESALE (WH) GLOBAL REVENUE/EBITDA

We assume wholesale food and non-food plant growers receive 20% of retail revenue other than cannabis growers who receive 50%. We also assume 20% EBITDA is generated by food growers on their wholesale revenue, 15% EBITDA for tobacco and 40% of EBITDA for cannabis bud growers. The wholesale global revenue and EBITDA grow market for CO2 foliar spray potential is therefore:

1) 10% addressable x 20% WH x 20% EBITDA x $8 Trillion = $32B/y of EBITDA
2) 25% addressable x 20% WH x 20% EBITDA x $400 Billion = $4B/y of EBITDA
3) 25% addressable x 15% WH x 20% EBITDA x $800 Billion = $6B/y of EBITDA
4) 25% addressable x 20% WH x 20% EBITDA x $200 Billion = $2B/y of EBITDA
4) 50% addressable x 40% WH x 40% EBITDA x $50 Billion = $4B/y of EBITDA

This is $48 Billion/y of wholesale EBITDA that our dissolved CO2 could materially enhance.

REGIONAL AND GLOBAL LICENSING PROSPECTS

The scope of global market potential for licensing our dissolved CO2 use is therefore huge. We estimate we have eight verticals (plant species) to date in five major geographies we could license or a potential 40 regional plant licensees. We are approaching leaders in these plant and geographic segments now to accelerate global market penetration of our patented and patent pending dissolved CO2 foliar spray technology.

HIGHER CROP YIELDS INDOORS AND OUTDOORS

Indoors, we expect **20%** higher greenhouse crop yields using dissolved CO2 irrigation over established CO2 gassing at 800 PPM and 30-40% higher yields versus no CO2 gassing. Outdoors, we expect **10%-100%** higher yields in dry areas like California's interior where no one CO2 gasses or has any other CO2 delivery option. **Outdoor baseline plant yields are much lower than in greenhouses due to lack of outdoor CO2 options until now.**

DISSOLVED CO2 BUSINESS MODELS

Our outdoor business model differs a little from our indoor business model since no one gasses CO2 outdoors as it dissipates immediately. CO2 gassing usage savings can only occur indoors where CO2 gassing is used.

DISSOLVED CO2 OUTDOORS

We will site license our commercial CO2 irrigation equipment in 5-year term lease arrangements with one to five year extensions. This matches the practices of industrial CO2 gas companies like Linde, Praxair and Air Liquide that lease their CO2 tanks to greenhouse owners for 5 years.

We may charge a fee per dissolved CO2 gallon in the $0.02-3/gallon area for up to 1M gallons/y, $0.01-2/gal area for 1-10M gallons/y and $0.01/gal area for use above that. We will track the gallons used in water meter readers and the amount of CO2 dissolved at a 2000 PPM dissolved CO2 gas level. ALL incremental yield improvement value after our license fees will be to the benefit of the greenhouse/indoor grower.

DISSOLVED CO2 IRRIGATION INDOORS

We will also site license indoor growers for five year lease terms plus one to five year extensions and keep or split CO2 gas savings we expect to achieve. We will charge similar fees per dissolved CO2 gallon used. ALL incremental yield improvement value after our fees will be to the benefit of the greenhouse/indoor grower.

DISSOLVED CO2 DEAL CUSTOMIZATION

All our CO2 gas infusion projects will have some customization based on facility size, plants grown, CO2 needs, irrigation levels and irrigation modifications required etc. We will agree to sharing incremental value once defined via proven CO2 grow trials giving 80%-90% of incremental value to the grower and 10-20% to us prior to any commercial CO2 gas infusion installations. Our licensing fee will be set to cover 100% of our installation and CO2 gas infusion equipment cost in year 1.

KIMBALL CO2 STUDY OF GASSING PLANT YIELD EFFECTS

We focus on B.A. Kimball's 1983 indoor CO2 gassing plant yield study that analyzed 437 CO2 gassing studies on 37 plant species. He concluded that **greenhouses average 33% more yield using 800 PPM of CO2 gassing** above outdoor plant yields without CO2 gassing. Excerpts from his CO2 Study showing lowest to highest CO2 yield response rates to 800 PPM of CO2 gassing:

	Yield at 800 PPM of CO2	Number of Observations
Tomatoes/Peppers	1.20	73
Roses	1.22	20
Strawberries	1.22	10
Cucumbers	1.30	12
Grains (avg.)	1.32	34
Avg of 37 species	**1.33**	**437**
Lettuce	1.35	54
Sativa cannabis	**1.44**	**4**
Potatoes	1.64	12
Beans/Peas	1.85	12
Cotton	2.59	2

We target our dissolved CO2 grow trials on plants yielding 33% or more with 800 PPM of CO2 gassing such as potatoes, lettuce and beans/peas as well as cannabis. Sativa cannabis strains trialed yielded 40%-45% more based on Suran Chandra's 2008-11 scientific work for the US Government (2011 Photosynthetic Response of Cannabis Sativa to Elevated CO2)

Mr. Kimball's conclusion for lettuce was a lettuce grower could not get more than a peak 145% yield increase at 800 PPM of CO2 gassing versus no gassing and a 153% maximum at a 99.9% confidence level. **Our best independent lettuce grow trial at University of Guelph had 100% additional dried lettuce biomass growth ABOVE the CO2 gassing lettuce grow baseline set at 800 PPM.**

The ONLY explanation is that dissolved CO2 water dramatically increases hydroponic lettuce yields over Kimball's maximum CO2 gassing yield improvement limit of 153%. We now have scientific proof this is due to the bottom lettuce leaf surface area sitting in CO2 enriched hydroponic water versus CO2 gassing that can only enter lettuce leaf stomata (pores). We have replicated our best 2013 University of Guelph lettuce trial at SCSU University under Dr. Matt Julius and his biology team with similar 100% biomass increase results.

Based on our cannabis results to date and the size of the cannabis leaf canopy of indica seen in the picture versus sativa and hybrid strains **we are convinced that our greatest dissolved CO2 value will be to growers of indica cannabis and leafy hybrid strains.**

MANIC BOTANIX (www.manicbotanix.com) CANNABIS AND CO2 GAS

According to their CO2 Enrichment - Gaseous Gold article for cannabis using 800 PPM of CO2 gassing:

"over 90% of dry matter in every plant came from CO2"
"elevating CO2 levels in cannabis grow rooms can increase yields by 20-30% and reduce growing time by 10%-30%"
"adding CO2 will thicken stems, and create larger leaves and root systems"
"higher CO2 levels leads to higher trichome production, flavenoids and phenolic content in some cannabis species"

OUR CANNABIS TRIAL OBSERVATIONS

Our first three cannabis grow trials using dissolved CO2 spray showed 90% larger leaves, 45% increased plant size and 20-22% more bud volume which consistently grew 30% faster during the 60% vegetative growth stage only. Quality analysis performed by SGS showed 20%-75% higher THC concentration and similar higher CBD versus plants grown with no CO2 gassing. We have an advancing trial where CO2 gassing is used which we will press release and insert into this document with all other data received from SGS Canada Inc., a Health Canada approved lab.

We have met US and Canadian cannabis growers and toured their indoor Canadian and US cannabis operations cultivating 1,000 to 100,000 cannabis plants. The smaller the facility, the less likely they use CO2 gassing. We have seen CO2 gassing rates from 800 PPM in large open area greenhouses and up to 2000 PPM in small growing room clusters.

As there are now 5,000 cannabis strains, CO2 foliar spray optimization will take several trials as initial results will vary based on indoor/outdoor conditions, grower skills, irrigation needs, nutrient and light availability levels, temperature and humidity variability and control, air movement etc.

We have proven a minimum 45% more bud value creation with minimum 20% higher bud weight and 28% faster plant growth to bud flowering. We believe by using CO2 foliar spray we will add half of that value increase or 22% or the equivalent of one more cannabis crop/y indoors to six from five versus using CO2 gassing. Outdoors we believe we will add 25% more bud yield to the one outdoor cannabis crop nature allows per year based on our first series of indoor cannabis trial results.

OPTIMAL CANNABIS CO2 GASSING AND OTHER GROW VARIABLES

Dissolved CO2 foliar spray is most effective during the four to seven-week vegetative cannabis plant growth period. We stopped dissolved CO2 foliar spray at the onset of flowering in our first three trials. Our next series of trials sprayed CO2 until leaves were about to be taken off the plant stems for final bud harvest. The indoor growers we have met gas CO2 from 800 PPM-2000 PPM in their grow rooms or greenhouses during their typical 18 hour per day vegetative grow periods.

Daylight CO2 Gassing Use Profile. Typically, CO2 gassing levels are raised to targeted PPM levels within thirty minutes of daylight break and dropped to 400-500 PPM by dusk as cannabis and most other photosynthetic plants do not absorb CO2 gas while "sleeping" at night.

Most cannabis growers would like to vary their CO2 gassing levels to the maturity of their plants if they can. "A lot of growers believe" in using CO2 gassing through the vegetative growth period until the last two weeks of bud flowering (growweedeasy.com). Dissolved CO2 foliar spray will allow growers to more accurately tailor their CO2 applications during at minimum, the vegetative growth phase. thereby maximizing their crop growth potential.

Large Open Cannabis Greenhouses. Owners of large open cannabis greenhouses **have no choice** but to keep a constant CO2 gassing level as CO2 gas rapidly spreads out equally in open greenhouses. We visited Aphria that uses an 8-9 week grow rotation from fourteen to eighteen inch potted plants to bud harvesting of 36-42 inch potted plants. All growing and harvesting takes place in the same open greenhouse area that is held to 800 PPM of CO2 gassing in day periods. **That is not ideal for optimal cannabis growth. Dissolved CO2 use can enhance that profile.**

Lighting and Nutrients. For extra CO2 gassing to be effective, a grower has to have the proper light strength between 7500-10,000 lumens and ideal red-blue wavelength. Additional nutrients at a 110% ratio to increased bud yield expectations are also essential to keep the plant growth and quality in balance. If a grower is trying to achieve a 30% yield increase, he/she will need 33% more nutrients to apply with higher CO2 availability.

Temperature and Humidity Levels. Temperatures in control grow rooms using CO2 gassing should be a bit warmer than without CO2 gassing to 90 degrees **BUT CONSTANT**. Humidity should **never exceed** 60% during budding and 70% during vegetative grow cycles or powdery mildew risks come into play. **The more variable room temperatures and humidity are the greater the risk of powdery mildew developing.**

DISSOLVED CO2 TAILORING FOR OPTIMAL CANNABIS YIELDS

Aphria and others with open greenhouses have to fill their entire greenhouse with CO2 gas to the 800 PPM or other level they desire **even thought CO2 is not required during bud flowering and harvesting and less at the earlier seedling grow stage.** Dissolved CO2 foliar spray will allow

growers to more accurately tailor their CO2 applications during the vegetative growth phase thereby maximizing their crop growth potential.

Dissolved CO2 foliar spray will allow open greenhouse cannabis growers to tailor the profile of desired CO2 levels up to1000 PPM on plant seedlings, up to 2000 PPM on juvenile vegetative growth plants and down to 400 PPM at bud harvesting, **all in the same grow room. The flexibility of CO2 concentrations in dissolved CO2 foliar spray is a critical competitive advantage dissolved CO2 foliar spray compared to CO2 gassing.**

HIGH VALUE CANNABIS VERSUS LOW VALUE TOMATOES

Cannabis growers realize 8-10 times more revenue per sq. ft. or $600/sq. ft. to $800/sq. ft. than tomato growers who realize $80-$90/sq. ft. Also, growing cannabis bud yield EBITDA margins are **40-50% while growing tomatoes yields EBITDA margins of 15%-25%.**

This means cannabis growers get about 40X-50X more EBITDA per sq ft than tomato growers. Any yield improvement using dissolved CO2 irrigation will therefore **bring 40X-50X more EBITDA to a cannabis grower than a tomato grower.**

Aphria estimated in October 2017 that it will generate $600M/y from its 1M sq. ft. Leamington greenhouse once finished averaging 5 cannabis crops per year.

We believe using CO2 foliar spray will add a sixth cannabis crop/y due to plant growth acceleration during the vegetative stage. This would add $120M/y of additional bud revenue. **At 50% EBITDA, that is an additional $60M/y to Aphria using dissolved CO2 foliar spray.**

It costs up to C$200M for a new 1M sq. ft. cannabis greenhouse. W**e would also be saving 17% of the cost of a new greenhouse by adding one more crop/year to it providing growers with significant capital cost as well as operating cost benefits.**

Other than several more medical tobacco greenhouses that may be built for high value human flu vaccines and cancer drugs, using dissolved CO2 irrigation to enhance bud yields is **by far the most valuable to cannabis companies per sq. ft. over ALL other non-cannabis plant growers.**

LETTUCE AND MICROGREEN OBSERVATIONS

We have multiple advanced micro green trials underway using a precise automated overhead irrigation boom. Different sets of conditions such as both control and dissolved CO2 getting 25% more nutrients and/or 25% more light strength etc. are being deployed to determine where micro greens that are CO2 gassed reach their maximum growth potential versus precision applied dissolved CO2 foliar spray. This is leading to final value accretion economics and a long-term site license to install a permanent dissolved CO2 system with profit sharing.

We have proven at the University of Guelph that hydroponic lettuce grows much faster and larger than a baseline lettuce growth rate using CO2 gassing at 800 PPM. We are very confident now that lettuce yields will sharply improve both indoors and outdoors with dissolved CO2 foliar spray **adding 1-2 more lettuce crops/y outdoors in areas like California and 3-4 more lettuce crops/y indoors.**

Within the five types of lettuce – looseleaf, crisphead, butterhead, romaine and bavarian there are about 20 sub-varieties that need grow periods of between 45 days (green ice and red salt looseleaf) to as long as 120 days (arctic king butterhead) outdoors. We expect to grow those lettuce varieties 25%-33% faster with dissolved CO2 foliar spray.

There are **numerous other leafy greens** that should benefit including a few spices like leafy basil and some other microgreens and sprouts that are cut early before maturity.

Besides greenhouse lettuce nurseries and outdoor lettuce growers in California that we met with, we are in discussions with several indoor vertical and horizontal lettuce growers in Canada and the US and have reached out to US horizontal and vertical indoor lettuce growers to see if integrating our dissolved CO2 technology has yield merit.

We are working with major industrial CO2 gas companies for future California and Western US CO2 supply. They will deliver CO2 gas for our initial CO2 grow trials at no cost. We also are connecting with global irrigation companies who have installed the overhead and ground sprinklers in outdoor California and elsewhere. Overhead Irrigation systems are the lowest cost for us to tap dissolved CO2 into.

POTATO OBSERVATIONS

Tubers like potatoes respond extremely well to CO2 gassing. They have a very large leaf canopy and their fruit is about 80% pure carbohydrate (carbon sugar).

We have delayed outdoor potato grow trials into the spring of 2019 to focus on indoor overhead irrigation. We have trials lined up to date in BC and South Alberta with initial interest in Manitoba, Idaho, South Ontario, New Brunswick and PEI as well as sweet potatoes in California. We have also approached US and Canadian potato organizations like the University of North Dakota willing to do research for us and the Alberta's Potato Growers Association.

Optimal potato photosynthetic growth is 8-10 AM and in 80 to 90 degree temperatures. One low cost/free source of CO2 gas is at the South Alberta biogas plants in Lethbridge and Coaldale (the Perry family) for 2019 We could connect our CO2 gas infusers to these biogas plants capturing and dissolving some of their waste 40% CO2 gas from their raw biogas streams. The biogas plant owners would benefit from getting purified pipe or at least truck grade methane while we would get free or near free dissolved CO2 gas to use for outdoor potato irrigation.

The CO2 enriched water could also be used on adjacent potato rotation crops like sugar beets, peas and bean farms to increase those plant yields. We proved we can separate CO2 from biogas in 2013 at the Grand Falls New Brunswick biogas plant that uses McCains' potato waste.

Based on potato CO2 gassing studies which demonstrated increasing the size of potatoes by up to 50%, **we believe we could do the same outdoors** in sub-10 inch rainfall areas like Alberta and Idaho that frequently irrigate their potato fields. While football sized potatoes will not appeal directly to consumers, they will be very valuable potato processors of French fries and potato chips for the potato processors.

MEDICAL TOBACCO OBSERVATIONS

We are interested in doing a dissolved CO2 grow trial at Medicago's Quebec City tobacco sprout greenhouse after meeting a Medicago consultant year ago. Their 100,000 sq. ft greenhouse grows tobacco sprouts for human flu vaccine from genetically modified tobacco sprouts harvested at only 17 days of growth. Medicago is looking to build a new 300,000 sq ft greenhouse in Quebec.

Chicken egg flu vaccines have not changed for decades with only partial human protection success. Flu vaccine success varies from 10% (Australia 2017 and North America 2017-2018) to 60% effective depending on the success of the Disease Control Centers estimating the prominent virus strain **six months prior to the actual flu season.**

Medicago estimates a 60%-80% success ratio for its tobacco-based flu vaccines as it only takes one month from tobacco plant harvest to final flu vaccine shots. The significantly shorter vaccine production period eliminates most of the guessing of the prominent virus strains in upcoming flu seasons and allows a more targeted approach to flu and other viral illnesses. The ability to dramatically shorten the vaccine production time frame and more accurately target flu and other viral diseases has enormous positive implications for public health safety and health care costs. We hope to be part of the growing medical tobacco plant market.

Nick Madeiros, who represents Medicago after building the world's largest chicken egg vaccine plant for Sanofi, believes that tobacco plant-based vaccines **will wipe out less effective chicken egg vaccines in 10 years.** The global vaccine market is $7B/y.

We are convinced we could accelerate Medicago's tobacco sprout plant growth from 17 days to a potential 11-12 days using dissolved CO2 foliar spray. If we proceed and are successful and fully implement a system, **it could save Medicago 40% of the cost of building a new tobacco greenhouse.**

OUTDOOR TOBACCO OBSERVATIONS

Since the retail global tobacco business is still $800B/y, we have pursued outdoor tobacco grow trials as well, initially in South Ontario. We advanced on one small outdoor tobacco grow trial with the Ontario Tobacco Research Centre in Tilsonburg, Ontario but have delayed a start until spring 2019.

FLOWER OBSERVATIONS

We have a large flower grow trial using an overhead irrigation boom system running with dissolved CO2 on 42,000 plug flowers. The potential list of flowers that we may trial on has 30 varieties and five strawberry varieties. This work is being done in the Kalamazoo Michigan area. Flower trial results to date show about a 20% faster growth to maturity with stronger root formation. Flower growers wish to improve yield/acre and better manage maturity timing as prices are higher before peak flower harvest periods.

USA DISSOLVED CO2 IRRIGATION TARGET MARKETS

Our 2019 US outdoor CO2 grow trial focus is in these SW US States:

State	Percentage total withdrawals	Cumulative total withdrawals
California	20.5%	20.5%
Idaho	12.5%	33%
Colorado	8%	41%

The three Western US States listed use 41% of all US irrigation water which is where we are focused. California is #1 producing $50B/y in fruits, vegetables, nuts and other crops. Legal California now has as of January 1, 2018 a $5B-$6B legal retail market. **California is therefore our #1 US market focus** for dissolved outdoor CO2 year-round. Colorado is #2 for summer outdoor hemp growth (we have three trials there for 2019) and Idaho is #3 for outdoor potatoes.

The drier the outdoor grow area the more effective dissolved CO2 foliar spray will be. The arid Interior of BC and South Alberta in Canada, SW US in California and Idaho, Australia and Middle East look to be the most promising for best yield increases using commercial dissolved CO2 irrigation.

California lettuce growers use 18 to 24 inches of drip line and sprinkler irrigation water per lettuce crop. They produce 3-4 lettuce crops per year. We want to tap existing lettuce irrigation systems

and dissolve CO2 gas into those systems prior to irrigation to accelerate lettuce growth. We believe we can add 1-2 more lettuce crops/year. **If successful, that would add another $1-$2B/y to California's $4B/y lettuce crop.**

LIKELY BEST OUTDOOR PLANTS FOR DISSOLVED CO2 FOLIAR SPRAY

We expect the best plant yield increases with dissolved CO2 foliar spray to be for dark, big leafy green plants such as lettuce, tobacco, indica cannabis, hemp, spinach, kale, cabbage, leafy micro greens, broccoli, cucumbers, peppers and leafy spices like basil. **The more surface area leaves have the more dissolved CO2 gas we can apply to the entire leaf surface area.**

Also, lettuce and tobacco leaves and micro greens are picked before they flower as finished products. Dissolved CO2 is the most effective during the immature vegetative growth stage of these plants.

In dry areas, outdoor growers will only get partial yield success using dissolved CO2 in only their regular watering schedules of 3-4 times per week. Maximum yield benefits require more frequent early day lighter spraying of dissolved CO2 water onto leaves as the sun comes up. About 80% of daily plant growth is typically over by Noon.

The more automated grower sprinkler systems are, the more valuable the crop is and/or the more responsive the crop is to dissolved CO2, the more frequently growers will add lighter more frequent daily CO2 sprays between their regular irrigation cycles to maximize their plant yields.

HALF THE INDOOR CO2 GASSING USE FOR MORE INDOOR CROP YIELD

We will also cut the cost of greenhouse CO2 gassing in half. We are far more precise applying CO2 foliar spray on plant leaves than CO2 gassing. The CO2 conductance of the **entire plant leaf** being coated with dissolved CO2 is 700% (top) - 800% (bottom) greater than the conductance on just the leaf stomata (pores) which are the only part of a plant that takes up CO2 gas from the air.

Indoor growers will no longer need to CO2 gas their entire greenhouse to reach their desired constant PPM levels and lose 60% of the CO2 gas they use (OMAFRA) doing so. This major CO2 cost saving using dissolved CO2 foliar spray will appeal more to lower revenue/EBITDA growers and companies that grow lower margin lettuce, peppers, cucumbers, tomatoes, flowers etc. At the same time the benefits to higher margin growers are significant both in terms of enhanced crop values and CO2 gassing savings defined in dollar terms.

INDOOR DISSOLVED CO2 IRRIGATION MOISTURE RISKS

There is no issue using dissolved CO2 with excess moisture outside as growers will only irrigate when their soil and plants are dry. Excess moisture indoors can however, lead to powdery mildew and other moisture related plant diseases.

We recommend an indoor grower has to spray pulse a mist of dissolved CO2 water on younger plant leaves using high pressure low volume (HPLV) units that use 10-40 times less water than wide aperture sprinklers. **Peak economic yield improvements need 5-10 AM CO2 sprays per day when plants are growing the fastest in morning light.**

We also now know leaves absorb all the dissolved CO2 gas they can handle for chlorophyll production **in less than 90 seconds due to how thin most leaves are.** The trick then is to get the "spent" moisture off the leaves with strong dehumidifiers or fans before the onset of moisture related plant diseases indoors if a plant is vulnerable to moisture issues like powdery mildew. We have had no issues with powdery mildew to date in any trial we have done.

Each plant species and strain require trial and error using dissolved CO2 foliar spray to balance maximum yield improvement potential with minimum moisture related disease risk. What we know from science literature is **the rate of water vapor transpiration through plant leaves falls in the presence of more CO2 gassing.** We are proving that in our current science trials at St. Cloud State University.

This reduced transpiration process is via the guard cells on the outside of plant stoma that narrow if they have more CO2 availability, thereby reducing the outflow of water vapor. **This will be important in dry grow areas as less water will be required/unit of higher plant yield.**

In plants like leaf lettuce or algae that thrive in water **there is no moisture issue with dissolved CO2.** Hydroponic leaf and algae growth should therefore have **the maximum** yield improvements over CO2 gassing as has already been proven in independent grow trials.

DISSOLVED CO2 FOLIAR SPRAY SAFETY VERSUS CO2 GASSING

CO2 gas is essential for all photosynthetic plants but can **disorient or kill humans** at higher 10,000 PPM plus levels. Nevada and California mandate CO2 alarms that trigger when CO2 concentration goes above 5000 PPM in US grow rooms. There must be immediate pre-determined venting capacity triggered by such CO2 alarms going off. **At the Ontario Vineland Research Center, CO2 alarms go off above 1500 PPM.**

Astronaut Scott Kelly from his book "Endurance" stated the worst aggravation for him at the Space Station for one year was breathing his own excess CO2. "As the levels crept up he'd suffer from headaches and congestion followed by burning eyes, irritability and thinking straight".

We can eliminate CO2 gassing risk to humans in greenhouses with dissolved CO2 irrigation versus CO2 gassing. We have a 99% CO2 retention rate in water over 24 hours at 2000 PPM at one atmosphere and 15 degrees C versus **100% lost in 2 hours in greenhouses if not used by plants and 60% of CO2 lost if used by plants.**

CO2 FOLIAR SPPRAY SCIENCE ARGUMENTS

1) **Dissolved CO2 leaves no residue** as either a plant leaf takes in CO2 and converts the carbon to sugar or it doesn't,
2) **It is safer for humans to foliar spray** dissolved CO2 than gas an entire greenhouse with CO2,
3) **it is more effective** than CO2 gassing in increasing plant yields,
4) **Water already has dissolved CO2 gas** that Nature dissolves out of air with 410 PPM into water and,
5) **Humans drink CO2 carbonated pop, water and beer without health consequences.**

To date, Health Canada has approved over 15**,000 Canadian medical cannabis grow licensees** for growing 140,000 cannabis plants. This was 8% of Canada's overall 2017 cannabis production. There are now over 250,000 approved medical cannabis patients in Canada that have the right to grow only the amount they consume. With the advent of recreational legalization October 17 2018 another four plants per household can be grown or a maximum of 60M more plants per year.

PLANT LEAF PHYSIOLOGY

Leaves can only absorb CO2 gas via their stoma into their tissue cells as pictured below:

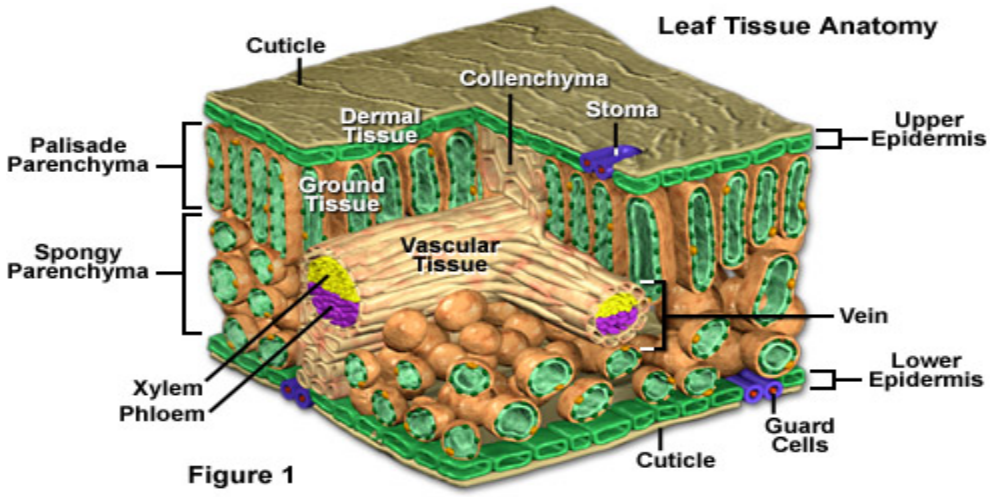
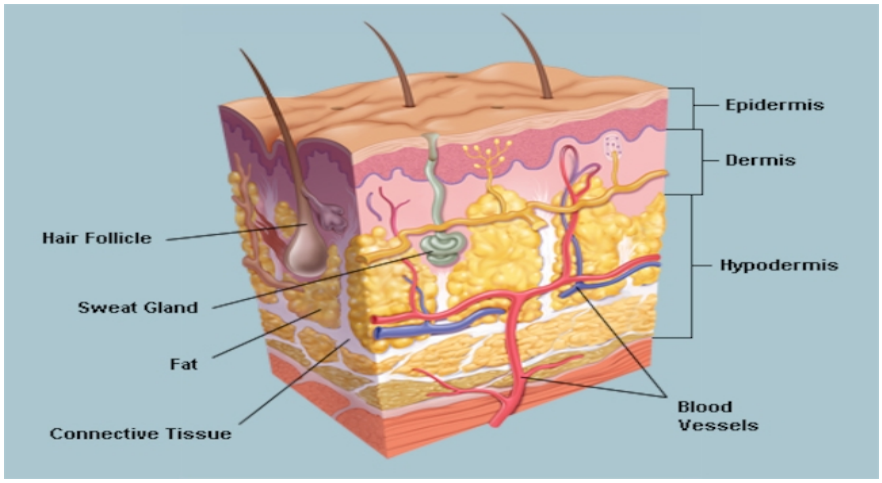


Figure 1

However, when dissolved CO2 water is applied to a plant leaf, **the entire leaf dermal tissue becomes a big stoma as it is semi-porous like human skin.** The osmotic pressure on the outside of the leaf due to the dissolved CO2 concentration and the small size of CO2 molecules is why Nature forces dissolved CO2 into leaf membranes. A key plant leaf enzyme (Rubisco) attaches to CO2 molecules entering a leaf and delivers the CO2 for photosynthesis in chloroplast cells.

HUMAN SKIN PHYSIOLOGY

We expect the same osmotic effect in plant leaf dermis with dissolved CO2 **except faster than human skin absorbing dissolved oxygen** as plant leaves are thinner. Human skin layers:



We know from 500 human skin trials that dissolved oxygen in water applied via a shower or bath without any additional pressure **goes right through human skin, through human dermis and right into human blood capillaries in less than two minutes (Dr. Stacy Reading's White Paper peer reviewed)**.

The osmotic effect of dissolved oxygen passing through human skin is similar to how liquid nicotine in nicotine patches pass through human skin. However, it takes several hours due to nicotine being a larger molecule than several minutes for dissolved oxygen.

TESTING GENETIC PLANT LIMITS WITH DISSOLVED CO2

The peak of earth's air CO2 gas concentration over the past 500 million years according to scientists **was 5000 PPM**. A peer reviewed Live Science article (Nov 2014) from the National Academy of Science estimated the level of CO2 gas in the air during the 100M year Jurassic dinosaur period **was 5 times today's CO2 level or 2000 PPM.**

Plants in Action estimates 1500-3000 PPM of CO2 gas was in the atmosphere during the mid-Cretaceous period (100M years ago). At that CO2 gas level, global temperatures were 90 to 100 Fahrenheit at the North and South poles.

The herbivorous dinosaur pictured (diplodocus) was 100 feet long with a forty-foot neck so it could eat the tops of plants and trees where new plant growth is the most nutritious, like giant modern day giraffes.

Over 85% of plants today (C3's) still have genetic codes tied to that Jurassic era 100M years ago. These plants consume CO2 gas via their stoma from the atmosphere while some newer C4 plants do not. However, our SCSU scientists believe C4 plants will also benefit from CO@ foliar spray even though they have evolved different processes for absorbing CO2 gas to make their food/glucose sugars.

CO2 GASSING ECONOMICS

Ontario's OMAFRA estimates 60% of CO2 gassing in greenhouses is LOST to the atmosphere at 1300 PPM via air exchange, humidification, dehumidification and porous greenhouse leakage. If no plants were in a typical greenhouse absorbing CO2 gassed, **the CO2 would be 100% gone in 2-3 hours**. Dissolved CO2 in water at 2000 PPM **will stay in water saving most of that lost 60% until used by plants via their leaves or until exposed dissolved CO2 water evaporates.**

OMAFRA's estimates of CO2 gassing lost at a 500,000 sq ft Ontario greenhouse is:

1) 0.37 KG or 60% of CO2 per hour for 100 M2 is required to maintain gaseous CO2 at a 1300 PPM level without any plant use **therefore 100% is lost.**
2) 0.24 KG of 40% of CO2 per hour for 100 M2 is 100% consumed by plant leaves.

This equals 0.61 KG of CO2 gassing/hour to fill a 100 M2 greenhouse grow space to 1300 PPM of CO2 gas. An average Ontario greenhouse is 13 acres or 500,000 sq ft (45,000 M2 at 11 sq ft/M2).

Annual Ontario 500K sq ft greenhouse CO2 gas usage and cost is therefore:

3) 0.61 KG/hr of CO2 gassing x 15 average daylight grow hours x 45,000 M2 (500,000 sq ft/11) x 300 days of growing at 1300 PPM) =
4) 1,235,250 KG/y of CO2 used (1,235 CO2 tonnes/y) to gas CO2 at 1300 PPM during light grow periods.

Assuming a $120/tonne delivered bulk CO2 cost, annual Ontario greenhouse CO2 gassing cost at 1300 PPM would be **$150,000/yr** (1,235 tonnes x $120/CO2 tonne).

SOURCES OF CO2 GAS

Increasingly, large greenhouses are contracting for delivered food grade industrial CO2 gas from Linde, Praxair, and Air Products etc. who install onsite CO2 storage towers. If ethanol plants are nearby, their CO2 emissions from corn fermentation **are a cheaper source of CO2 than from refineries.** Older greenhouses still burn natural gas or propane for their CO2 emissions as well as heat and power.

While relatively clean, there are chemical reactions from burning natural gas or propane and injecting the exhaust into greenhouses. These reactions cause humidity to rise, add particulates, ethylene and traces of formaldehyde into the air **that greenhouse workers are constantly breathing.** This is why more greenhouses are switching to clean food grade CO2.

WIDE RANGE IN DELIVERED CO2 COST

The US Midwest and south Ontario are blessed with numerous mostly corn based ethanol plants recently built. CO2 users nearby have the lowest locally priced delivered CO2 gas. About 33% of the weight of corn kernels used in ethanol fermentation is emitted as clean CO2 gas. Industrial CO2 gas companies will construct CO2 capture units adjacent to ethanol plants to liquefy their low-cost CO2 emissions if there is nearby CO2 demand as is the case with southwest Ontario greenhouses.

All the CO2 gas about to be captured at a new Aylmer Ontario Air Liquide CO2 facility being connected to IGPC's Aylmer ethanol plant **is destined for the Leamington greenhouses**. Transport will be via 20 tonne compressed CO2 tankers.

Leamington greenhouses are two hours away from Aylmer so a supply cycle is a four hour round trip plus an hour to unload or five hours in total. We estimate Leamington greenhouse owners will pay C$120/tonne in Ontario for this new ethanol-based CO2 supply.

CO2 buyers in the US Midwest pay even less than C$100/CO2 tonne delivered as they have far more ethanol plants with CO2 emissions than local CO2 demand. However, in California, we have seen bulk food grade delivered CO2 quotes **up to US$300/tonne** as there are very few ethanol plants there.

Greenhouse CO2 gas savings in California could therefore be much higher using dissolved CO2 irrigation and more expensive for outdoor CO2 irrigation. However, we also priced delivered CO2 food grade during our visit to Bakersfield outdoor farmers.

Bakersfield is California's major oil production area that is served with a CO2 pipeline for enhanced oil recovery. **Delivered cost per tonne of CO2 FOB Bakersfield is less than US$50/tonne.** All else equal, we will likely start indoor and outdoor dissolved CO2 grow trials in this area of California first based mostly on that exceptionally low CO2 gas cost.

CANADIAN CO2 GAS EMISSION COSTS RISING

Canada's Federal government is demanding **all provinces charge $50/CO2 tonne emitted as of 1/1/22. T**he 0.37 KG lost per hour attaining a 1300 PPM level in 500,000 sq ft greenhouses **is 750 CO2 tonnes lost/y.** At $50/tonne in 2022, **it will cost an additional $37,500/y** for Canada greenhouses losing the CO2 gas they bought to reach their desired CO2 gassing levels. This carbon tax cost is now being fought by Ontario and Saskatchewan.

DISSOLVED ONTARIO CO2 COST SAVING SUMMARY

We will save a 500,000K sq ft Ontario greenhouse $100,000/y of their total $187,500/y CO2 cost starting in 2022 ($150,000/y lost CO2 gas cost plus $37,500/y CO2 emission cost) using targeted dissolved CO2 foliar spray versus CO2 gassing. **This savings number will also increase as delivered CO2 gas costs increase.**

OVERALL SUMMARY

We have substantial scientific and grow trial proof that dissolved CO2 up to 2000 PPM applied by foliar spray sharply enhances indoor food and non-food plant growth and speed to plant maturity beyond CO2 gassing. We are also convinced that outdoor plant yields limited to Nature's 410 PPM of CO2 will have even greater yield effects than plants gassed with CO2 indoors.