



# CRYOMASS

TECHNOLOGIES

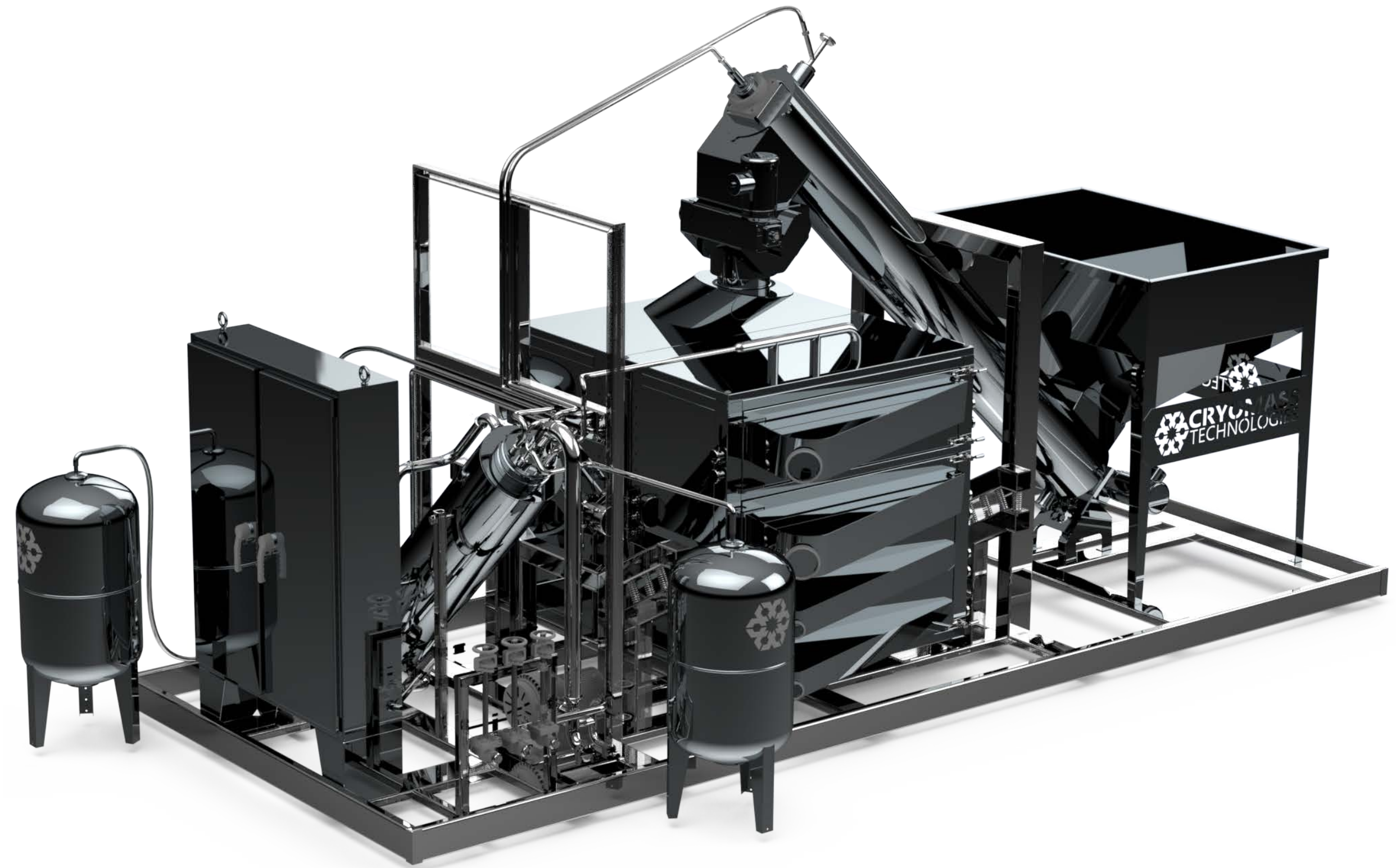
Revolutionizing Harvesting & Refinement  
of Cannabis & High Value Plants

MARCH 2023



# Harvesting & Refinement Done More Efficiently

- CryoMass Technologies Inc. designs, manufactures and licenses cryo-mechanical field-mobile equipment for the handling of harvested cannabis, hemp and other high-value plants.
- The company owns patented technology that utilizes liquid nitrogen to fully separate, collect and protect the high-value compounds from the harvested plant.



# Revolutionizing Harvesting & Refinement Of Cannabis & High Value Plants

- Building on that technology, we have designed and built our first Trichome Separation unit. Our patented cryogenic Trichome Separation system is optimized for the rapid capture of fully intact cannabis and hemp trichomes, as well as terpenes. The process eliminates the need for drying, trimming and milling and also massively reduces the volume of biomass that is meant to be kept under fresh frozen state. This significantly reduces processing time, labor and costs while substantially increasing preservation of value components.
- This Innovative technology empowers cultivators and processors to operate more efficiently by reducing the number of steps in the pre- and post-extraction processes which translates into important cost savings. It also enables them to scale the production of solventless and solvent based products to an industrial capacity that is not currently achievable with existing technology.
- The process results in a product that captures practically all the active compounds present in the biomass at the time of harvest. The resulting CryoSift (trichomes) can be warehoused for extended periods, consumed as Is or further processed into other consumer products.





# Hemp & Marijuana Are The Same Plant; *Cannabis sativa*

All forms of cannabis, including marijuana and hemp, belong to a single species - *cannabis sativa*

## HEMP

A term often used in policy to describe any cannabis variety with less than 0.3% THC.

Traditionally bred for CBD, fiber and seed



## MARIJUANA

A vernacular term typically used to describe cannabis with higher levels of THC (over 10%).

Traditionally bred for cannabinoids – most notably THC





### 1. FLOWER

Often called buds, cannabis flowers vary in appearance depending on their sex and genetic traits. The colours range widely with the most common being green, orange, red and purple. The female flower, having the highest concentration of trichomes, is the part of the plant that is consumed to experience the effects attributed to cannabis.

### 2. TRICHOMES

Cannabis trichomes contain, in varying quantities, several cannabinoid compounds, predominantly tetrahydrocannabinol (THC) and cannabidiol (CBD). Trichomes appear as tiny crystals all over the plant. They are bigger and denser on the flowers than on the leaves.

### 3. LEAF

The symbol of the cannabis and something of an icon, the leaf is easily recognizable by its fan shape, pronounced venation and serrated leaflets. Leaf colour can range from pale green to dark olive green.

### TERPENES

Different strains of cannabis have different sets of terpenes, which are comparable to essential oils. It is mainly the terpenes that give cannabis plants their particular aromas and flavours.



1



2



3







### SEEDS

Seeds are produced in female flowers. They contain a high amount of protein and beneficial fats. Seeds are used for protein powder, vegetable oils, cosmetics including topicals and hair products, energy and biofuels, flour, animal feed, and many other applications.



### LEAVES

Leaves harness energy from the sun for plants to survive. They may be used for energy and biofuels, nutraceuticals, tea, cosmetics, compost, and various agro-chemicals.



### STALKS

Stalks consist of an inner woody hurd fibre, and an outer string-like bast fibre. Hurd can be used for hempcrete, insulation, construction materials, mulch, paper, plastics, particle board, energy and biofuels and many other applications. Bast uses include pulp and paper, biocomposites, textiles, rope, construction materials, and energy and biofuels.



# Importance Of Trichomes

Glandular trichomes are small resin glands found mostly on the surface of female flowers. These chemical factories produce hundreds of compounds including cannabinoids and terpenes. Cannabinoids, including THC and CBD, are responsible for the medicinal and sometimes psychoactive effects of cannabis.

Terpenes (and terpenoids) are largely responsible for the characteristic smell of cannabis as well as contributing to the medicinal effects. Cannabinoids and terpenes are found almost exclusively within the glandular trichomes and nowhere else on the plant. Not only are these compounds very sensitive to environmental factors such as oxygen, heat and light, the trichomes housing these compounds are very delicate and will readily fracture or detach when subjected to physical agitation.





# Traditional Harvesting & Processing Methods Incur Enormous Loss Of Trichomes

Conventional processing methods haven't changed much since the 1960s, when the industry operated illegally out of someone's backyard. **The methods waste a third or more of the plant's most desired elements – the trichomes.**

The trouble starts with the **fragility of trichomes**. They break off easily and are lost forever in the same way a Christmas tree loses its needles when handled and then are gone forever. With conventional handling and drying, every step shakes off more of them. **All in all, roughly one-third of the trichomes are lost.**

**When the plant is handled and trucked to a drying facility, the loss of trichomes accelerates.** Then – midway through drying – the flower becomes extremely brittle and trichome loss becomes exponential, like the needles of a Christmas tree being forced through the front door at the end of the holiday season.

By that point, the plant still needs to be handled and transported to the extraction facility. The biggest challenge in any plant processing is to capture all the valuable elements that are wrapped up inside the plant at the moment of harvest.

**There really was no way to accomplish this...until now.**

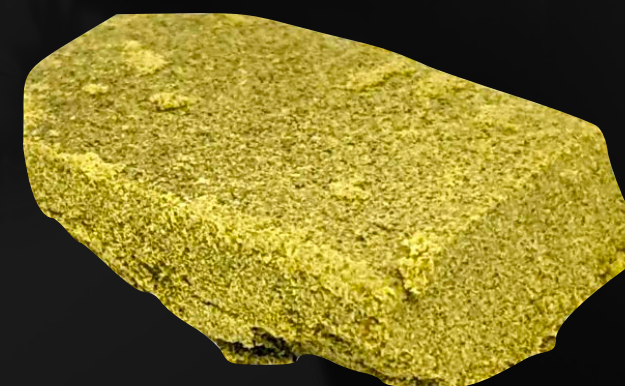




# What Have Trichomes Been Traditionally Used For?

Hashish, also known as hash, is a cannabis concentrate product composed of compressed or purified preparations of stalked resin glands, called trichomes.

Hash has a long history of usage in countries such as Morocco, Afghanistan, India, Iran, Israel, and Lebanon. The sticky resins glands of the fresh flowering female cannabis plant are collected. Traditionally this was, and still is, done in remote locations by pressing or rubbing the flowering plant between two hands and then forming the sticky resins into a small ball of hashish called charas. This method produces the highest amount of cannabinoids (THC content up to 60%) without chemical solvents or distillation.

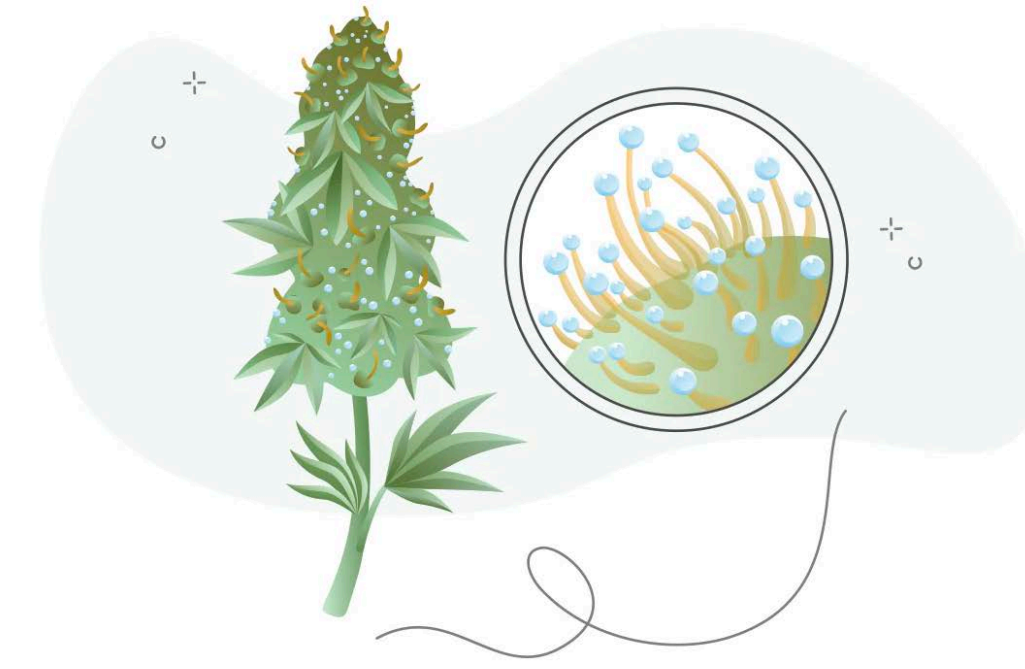


Mechanical separation methods use physical action to remove the trichomes from the dried plant material, such as sieving through a screen by hand or in motorized tumblers. This technique is known as "drysifting". The resulting powder, referred to as "kief" or "drysift", is compressed with the aid of heat into blocks of hashish.

Ice-water separation is another mechanical method of isolating trichomes.



# How Were Trichomes Collected Before CryoMass ?



Traditional trichome separation methods are rudimentary at best.

The cannabis flower is typically placed in a mesh bag, soaked in ice water and then agitated to separate the trichomes.

The careful agitation is done by machine or by hand, using paddles. Trichomes may break away from supporting flower and leaves when plant material becomes brittle at low temperatures. After plant material has been agitated in an icy slush, separated trichomes are often dense enough to sink to the bottom of the ice-water mixture following agitation, while lighter pieces of leaves, stems and other plant particles tend to float. The water is then left to settle and the trichomes at bottom of the tank are isolated using filtration bags with various-sized screens.



**Manual Trichome Separation**



**Traditional Ice Water Trichome Separation System**



# CryoMass vs. Traditional Trichome Separation Systems

When comparing the results of the patented CryoMass system to traditional ice water trichome separation systems, **there is no comparison.**

Based on the processing of **25,000 lbs** of biomass, here is a comparison of our trichome separation system versus nine leading traditional systems that do not and cannot utilize our patented cryogenic, solventless separation process. **They use ice water instead.**

It is important to note that one of the key reasons the CryoMass system is so much more efficient from a process and cost-saving perspective is that it is, to the best of our knowledge, the only continuous-feed separation system while all others are batch-feed systems.

Although the Company's initial focus is on the cannabis and hemp sector, **there is tremendous potential to generate important revenue streams from processing other high-value, trichome-rich plants** where similar cost savings and end-product improvements can be realized.

\* Traditional systems data was gathered from company websites and from conversations with company representatives. This is an average of the 9 leading traditional systems.

■ CRYOMASS  
■ TRADITIONAL

Biomass processed/hour (lbs.)

UP TO 700

12x MORE

60

Separation time in days (based on 12-hour days)

3

22x FASTER

66

Expected average trichome yield (lbs.)

8,000

4.5x MORE

1,750

Operating expenses (\$)

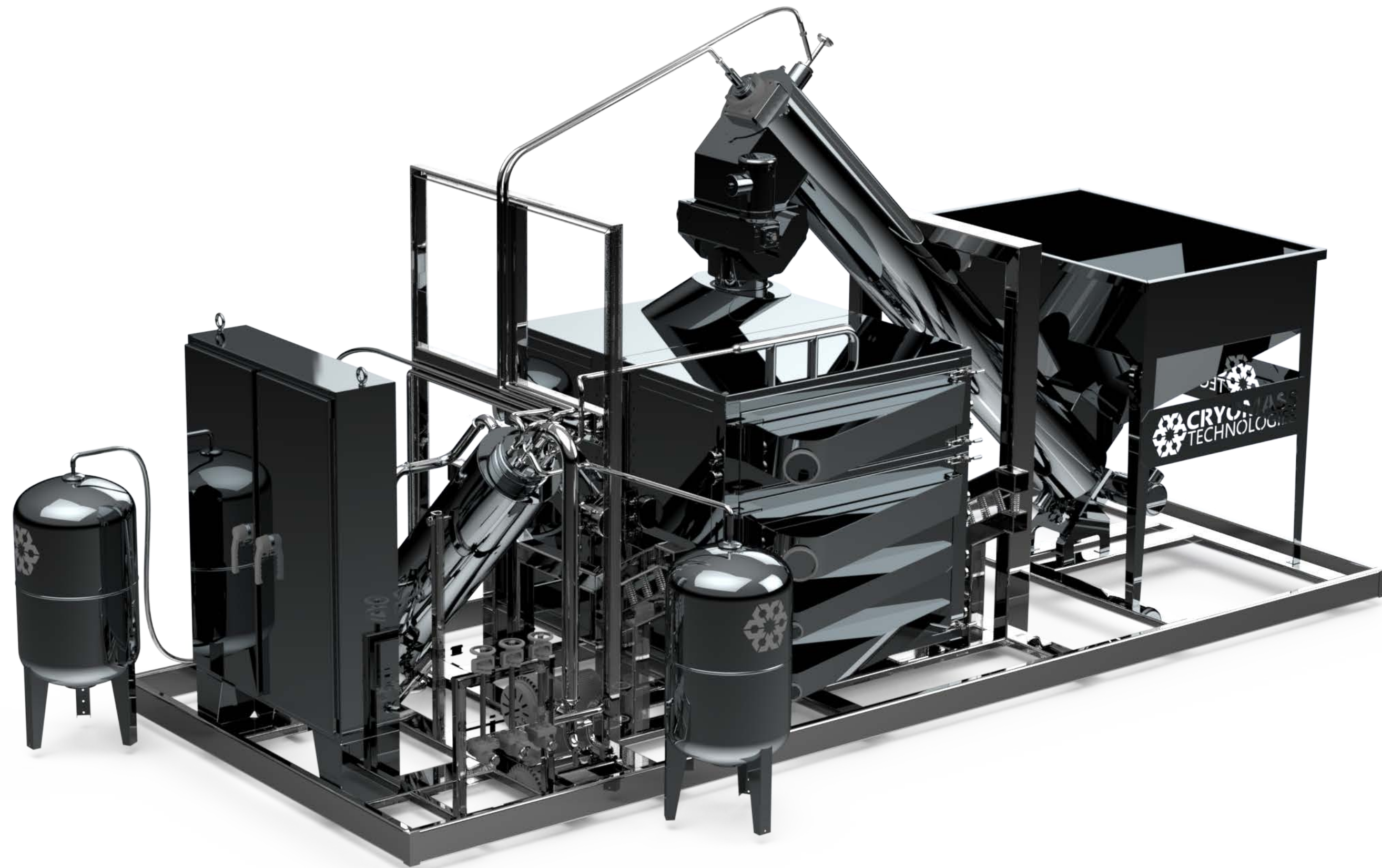
2,816

90% SAVINGS

33,533



# Bringing Never Before Seen Efficiencies & Options To Cannabis & High Value Plant Operators



## ELIMINATE DRYING & TRIMMING

Process fresh whole plants straight from the field and reduce days of work & trichome loss.

## INDUSTRIAL CAPACITY

Process up to 700 lbs/317,500 grams of fresh biomass per hour per system.

## MOBILE OR FIXED UNITS

Our system can be operated at the cultivation site or be permanently installed in a processing facility.

## GREEN PROCESS

Minimal energy usage and no organic solvents. Minimal ecological footprint.

## OUTPUT

Increase cannabinoid and terpene concentration up to 10x.

## BIOMASS VERSATILITY

Process wet or dry, fresh frozen, whole plant, cured flower, trim and everything in between.

## VOLUME

Reduce volume of product up to 80% relative to starting material, making storage and transportation less burdensome.



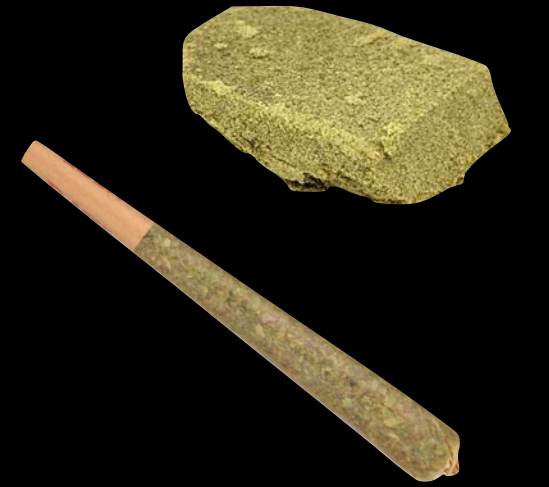
# We Call The Result Of Our Cryogenic Trichome Separation - CryoSift

## CRYOSIFT IS TRICHOMES IN THEIR PUREST FORM

- CryoSift can be used for making THC and CBD products for medicinal, wellness and recreational purposes. It can also be used for making CBD products for animals.
- The quality of CryoSift is superior to sift obtained with traditional dry and water-based trichome separation methods. Cryogenic separation results in increased cannabinoid yields, higher terpene count for a greater retention of the most desirable compounds.
- Though CryoSift can be consumed as is, it is the ideal input for manufacturing superior premium concentrates at scale, without the use of solvents (solventless).
- CryoSift can also be used as a high-quality feedstock for traditional solvent-based extraction methods (such as ethanol, CO2 or hydrocarbon) to create extracts with different flavor, color and aroma profiles like live resin concentrates.



CRYOSIFT



### THC & CBD

Live Rosin Concentrates & Vapes, Hash, Tinctures, Edibles, Gel Caps, Beverages, Pre-Rolls, Etc.



### SOLVENTLESS PRODUCTS



### THC & CBD

Live Resin Concentrates & Vapes, Distillate, Tinctures, Edibles, Gel Caps, Beverages, Etc.



### SOLVENT BASED PRODUCTS



# Industries That Can Use Our Technology

We are also exploring the application of our process to a broad range of industries that handle high-value plants which could benefit from our **precision capture** and **cryo-preservation** and separation technology



## PHARMACEUTICAL

Numerous compounds of medicinal interest grow in trichome-containing plant species including natural fungicides and antibiotics to name a few



## AGRICULTURE

Cryo preservation and refinement of standard agricultural crops



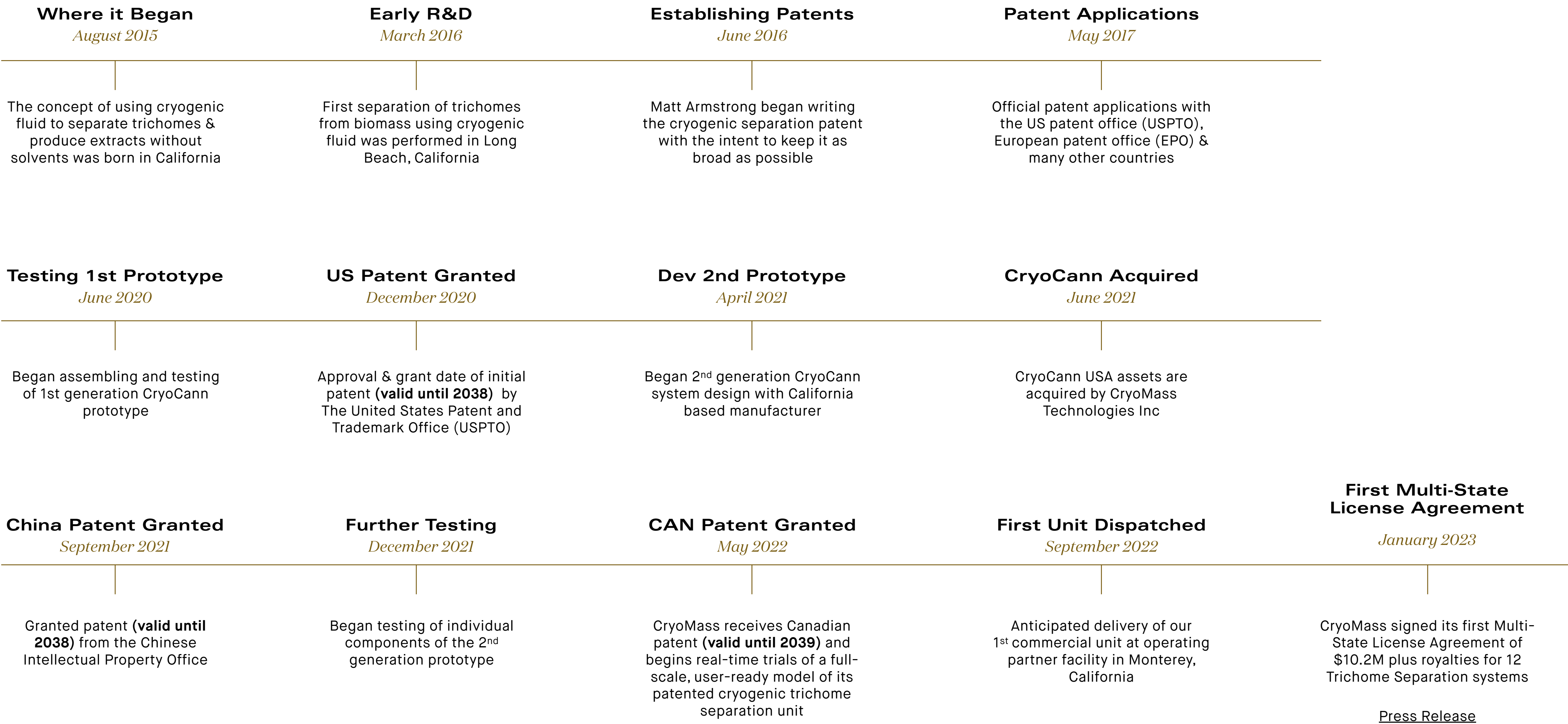
## FOOD & BEVERAGE

Hops for beer and grapes for wine



## NUTRACEUTICALS & COSMETICS







# What Comes Next?

- We are presently in the design phase of the CryoMass harvester module. This purpose-built field equipment is meant to cut fresh plants, flash freeze them and separate the biomass from the stalk, so it is ready to be processed in the CryoMass Trichome Separation unit.
- The company believes that efficiencies delivered by the CryoMass solution will trigger industry-wide changes in the handling and processing of harvested cannabis and hemp.
- CryoMass is also exploring the application of the underlying technology to a broad range of industries that handle high-value materials that could benefit from precision capture methods.



# Initial Market Focus Is North America

## CALIFORNIA

1<sup>st</sup> commercial unit at operating partner facility will cover 60% of California cultivation licences

Legal Cannabis product sales in California totalled US\$431.3 million in June 2022.

Suggesting an annual run-rate of US\$5.175 billion<sup>(6)</sup>

Global cannabis product sales will reach US\$35 billion in 2022, and are projected to reach US\$61 billion by 2026 <sup>(1)</sup>

## CANADA CANNABIS

Product sales of US\$4 billion in 2021 projected to be US\$7.6 billion in 2026 <sup>(2)</sup>

2,196 acres of licensed cultivation in 2021 <sup>(3)</sup>

## USA CANNABIS

Product sales projected to grow from US\$18.5 billion in 2022 to US\$58.8 billion in 2026 <sup>(2)</sup>

## CANADA HEMP

1,269 industrial hemp licenses in 2020 with 54,963 acres of cultivation <sup>(5)</sup>

## USA HEMP

In 2021, 30,000 acres of hemp were harvested for a total of ~30 million pounds of biomass <sup>(4)</sup>

1. <https://bdsa.com/wp-content/uploads/2022/03/Cannabis-Market-Forecast-Spring-2022-Update.pdf>
2. <https://prohibitionpartners.com/2022/08/04/the-north-american-cannabis-report-3rd-edition-key-insights/>
3. <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/research-data/market/licensed-area.html>
4. <https://www.hempbenchmarks.com/interactive/total-us-hemp-acres-permitted-planted-harvested/>
5. <https://www.canada.ca/en/health-canada/services/drugs-medication/cannabis/producing-selling-hemp/about-hemp-canada-hemp-industry/statistics-reports-fact-sheets-hemp.html>
6. <https://www.newcannabisventures.com/june-cannabis-sales-decrease-slightly-from-may-to-1-65-billion/>



# Leadership Team

CryoMass Technologies is led by an extremely experienced and talented group of individuals who offer perspectives based on their diverse backgrounds and skill sets. From our corporate officers to our board of directors, the company is well suited for future growth.



**Christian Noël**  
CEO



**Blair Mullin**  
CFO



**Patricia Kovacevic**  
General Counsel & Head  
of External Affairs



**Matt Armstrong**  
Director of Innovation



**Aaron Godin**  
Director of Applied Science



**Mike Stringile**  
Director of Int'l Sales



**Steve Cimini**  
Director of US Sales



# Board Of Directors

## Dr. Delon Human, Chairman

Dr. Delon Human, M.B.Ch.B., M.Prax.Med, MFGP, DCH, MBA is a recognized global health leader, published author, lecturer and healthcare consultant.

## Christian Noël, CEO & Director

Christian Noël is a trusted investor and business strategist, who has held senior positions in financial and investment organizations in Montreal, Canada, for the last 21 years.

## Mario Gobbo, Director

Mario Gobbo has 35 years of banking and corporate finance experience in healthcare and energy.

## Simon Langelier, Director

Simon Langelier has extensive experience in the international tobacco industry and is currently a director of Imperial Brands PLC, after a 30-year career with Philip Morris International.

## Mark Radke, Director

Mark Radke is a lawyer with a distinguished career in the area of financial services, specializing in federal securities regulation.



# Get in Touch

The common stock of CryoMass Technologies Inc. trades on the OTCQX market under the symbol **CRYM**.

For further information, please contact us using a method below:

[investors@cryomass.com](mailto:investors@cryomass.com)    +1 (833) 256-2382    or    +1 (303) 222-8092

**WE WELCOME YOUR INQUIRIES**



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