

cannabis & tech today

Establishing
Roots

**Ricardo
Baca**

PR for Power Players

**Packaging and
Retail Issue**

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Innovation

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TO RETAIL:**
Freeway Rick Ross
Talks Shop

FARECHILD'S
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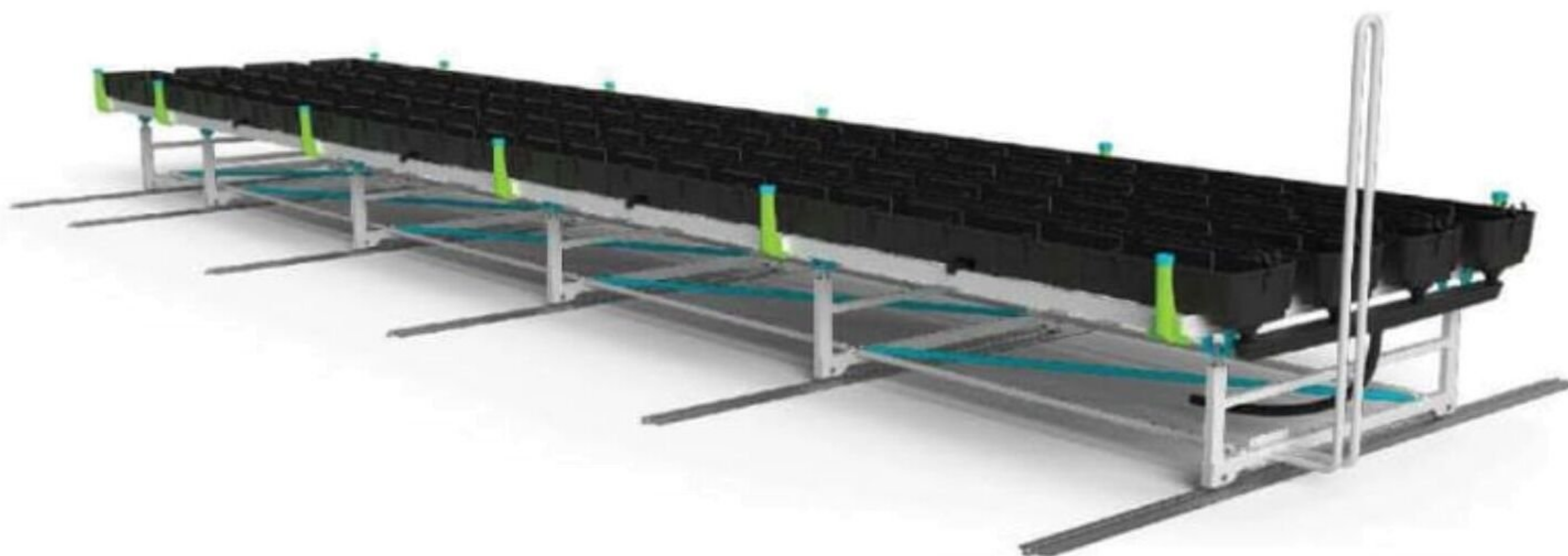
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FROM THE EDITOR



Patricia Miller,
Executive Editor

“This insider’s view of the industry has given me a new appreciation for the tireless effort involved in opening and maintaining a retail cannabis shop.”

Building an Industry

In April 2022, New Mexico launched its adult-use cannabis industry. When the legalization measure passed, my mom asked if she should try to open a dispensary to help build her retirement fund. My initial reaction was a resounding no. She didn’t have any experience in the industry and I knew it would be capital-intensive to launch if she were fortunate enough to obtain a license. She persisted though, asking friends about raising capital and researching the licensing process.

About six months before legal sales launched, she found investors and applied for a retail license. The following year of hard work took our family through ups and downs, tears and frustration, and finally jubilation when the doors opened in June. Through some combination of luck, perseverance, and dedication, she pulled it off.

This insider’s view of the industry has given me a new appreciation for the tireless effort involved in opening and maintaining a retail

cannabis shop. Now, as we put the finishing touches on *Cannabis & Tech Today’s* Retail and Packaging issue, I’d like to extend my gratitude to all the cannabis business owners out there. It’s a tough industry. You’re facing stiff regulations that are often poorly enforced — a fact your competitors are quick to take advantage of. There are few resources to turn to for help and the tax structure is disheartening at best.

In the pages of this issue, I hope you’ll find some helpful insights and encouraging words, and gain perspective on the broader concerns impacting America’s fledgling cannabis industry. Thanks for reading and thanks for helping build this ecosystem into something we can all take pride in.

Until next time,

A handwritten signature in black ink that reads "P. Miller". The signature is stylized and cursive.



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SINCE LAST ISSUE...



What’s happened since the last issue of Cannabis & Tech Today?

Since the last issue, a lot has happened in the cannabis world, most importantly Snoop Dogg announced to his legions of followers he was giving up the smoke. Brilliant PR stunt? Indeed. Turns out Snoop teamed up with Solo Stove to promote a smokeless line of fire pits. Genius play, looks like the Doggfather still knows how to take over all the social media platforms at once.



In other news, Ohio voters approved a measure legalizing recreational marijuana, defying Republican legislative leaders who failed to pass the proposed law. Power to the people, who says voting doesn’t matter?

New York continues to try and figure out how to launch an industry that dozens of other states have already launched. Way to go, New York! As they continue to bungle their way through, New Jersey is just laughing and smiling all the way to the bank.

Speaking of banking, not much has happened on the SAFE Banking Act but we sure love to talk about how it’s going to happen soon with our fellow industry people. It’s almost like Charlie Brown kicking a football. We shall see what promises the bums . . . er, elected officials make before the election but as far as we are concerned until one party actually makes it happen, they are all blowing smoke.

Snoop Dogg photo: wikimediacommons.org/The Come Up Show from Canada | Ohio Icon: Robin Olimb

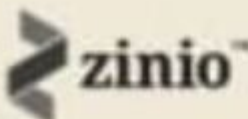
SPECIAL THANKS TO:
Christian York, Josh Mecouch, Ballistic Boxer Design, Megan Armentera, Lili York, Connie Shields

This publication is dedicated to the dreamers, the innovators, the collaborators, and the doers – who can’t be bothered by those saying it can’t be done. Nicholas and Aria, the future is yours!



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Ricardo Baca

'Our Mission at Grasslands: Helping Bold Cannabis Brands Win'

By Patricia Miller and Charles Warner

Photo by Paul Miller, courtesy of Grasslands: A Journalism-Minded Agency

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COLLECT YOUR CUT!

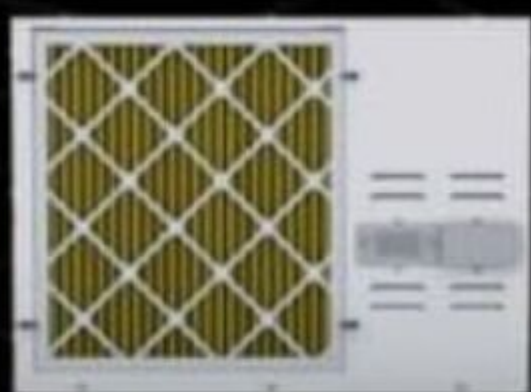
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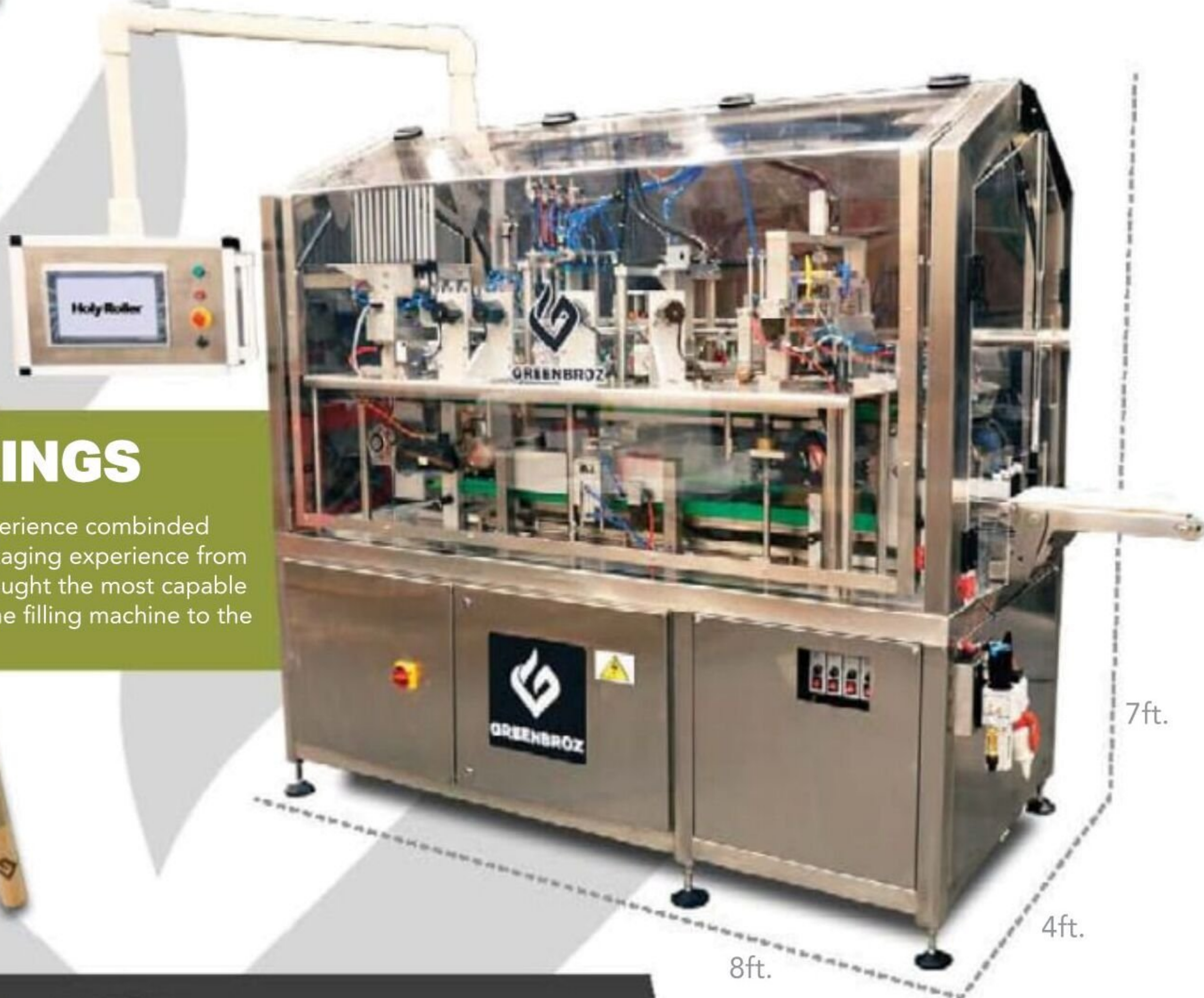


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Veronica Castillo is known as the Traveling Cannabis Writer. Her body of work includes educational and informative insights on cannabis and various plant medicines. She travels the country to provide insight on cannabis-friendly destinations. She is a collaborator, connector, content creator, and traveler specializing in bringing to light hidden gems in the plant space. Follow her journey: #travelingcannabiswriter.



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Alex Rogers is the founder and CEO of the International Cannabis Business Conference, which offers world-class industry networking as well as investment and capital opportunities. The International Cannabis Business Conference has upcoming events in Berlin and Barcelona. Visit internationalcbc.com to learn more.



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Editor's Note: Cannabis & Tech Today is seeking writers from all backgrounds and ethnicities. Interested applicants inquire through goipw.com/editorial-submissions

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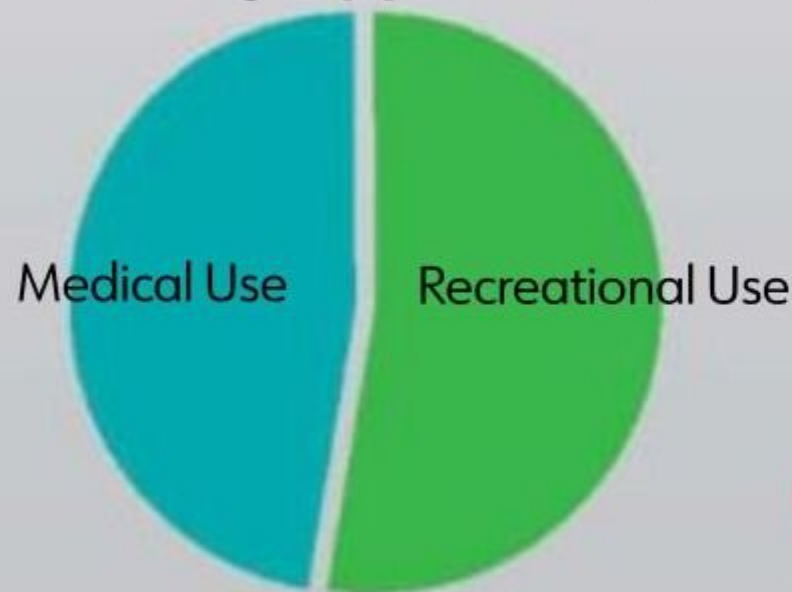
by the NUMBERS

A look at the metrics shaping the cannabis business market — and our lives

It would be nice to show up to the dispensary with a jar and say, “Fill it up!” Sadly, customers must purchase cannabis like so many other goods, wrapped in layers of packaging. It’s ugly news for America’s landfills but great news for packaging companies. The packaging sector is raking in revenue and earnings are forecasted to increase in the coming years. Let’s break down the numbers.

U.S. Cannabis Packaging Market

Share, by Application, 2022 (%)



Revenue Forecast in 2030

\$7.99 billion

Growth Rate

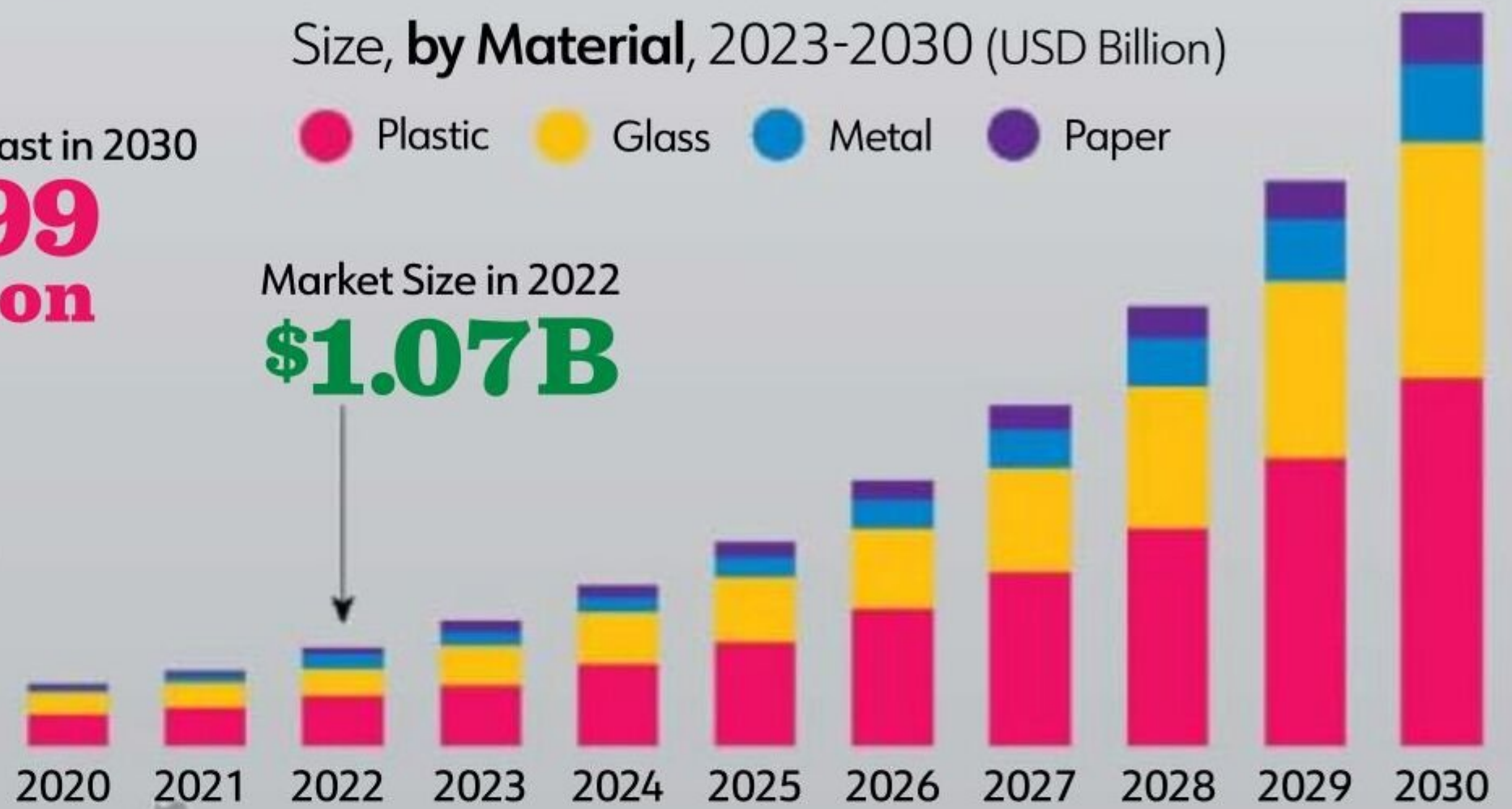
CAGR
From 2023 to 2030
28.8%

Size, by Material, 2023-2030 (USD Billion)

Plastic Glass Metal Paper

Market Size in 2022

\$1.07B



TOP REVENUE GENERATING STATES:



Colorado, California, Florida, Michigan, Nevada, Oregon, Washington, Massachusetts, Arizona, Illinois

Glass Jars, Metal Tins, Other Rigid Packaging Materials

63%
Revenue Share

Pouches, Bags, Other Flexible Packaging Materials

29.2% CAGR From 2023-2030

PLASTIC RULES THEM ALL

Out of the Following Packaging Options: Metal, Plastic, Glass, and Paper

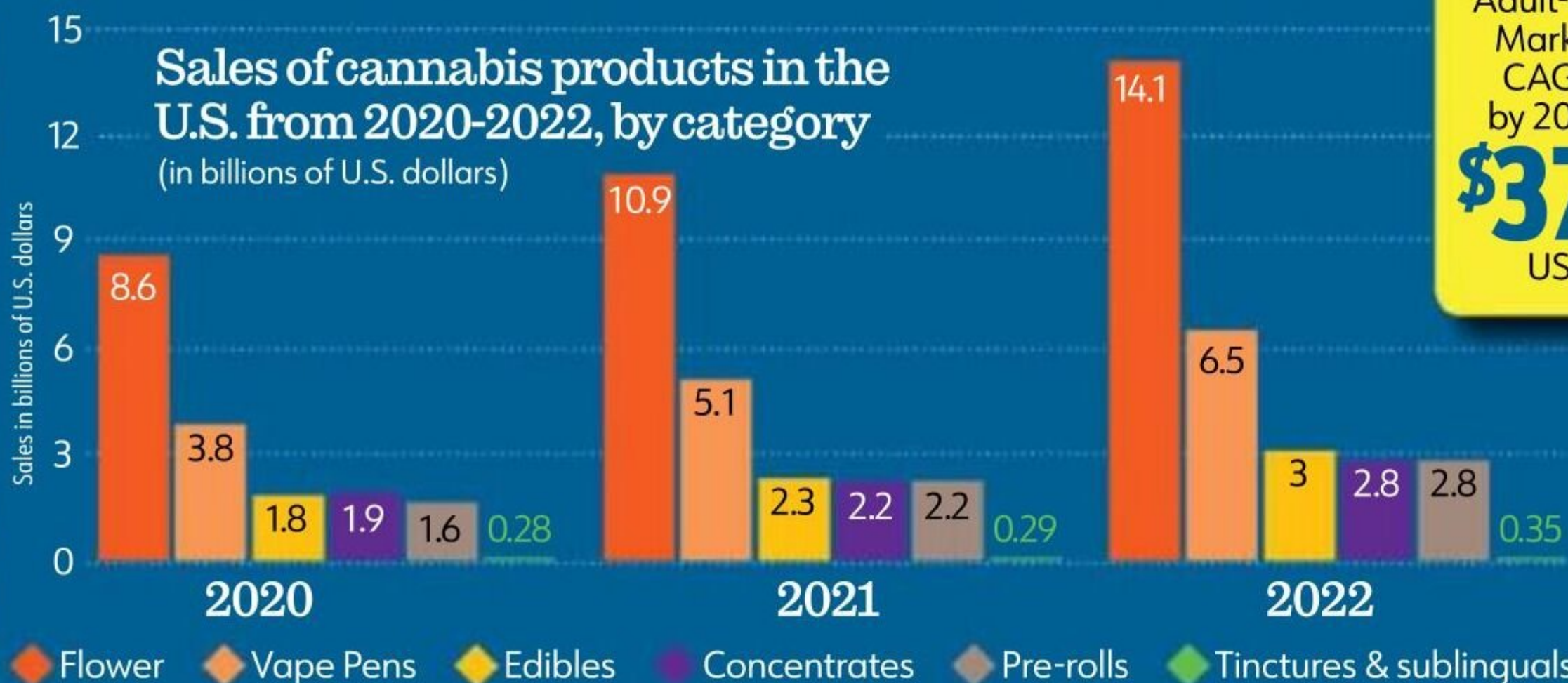
52.2%
Plastic Revenue Share

Prominent players in the U.S. cannabis packaging market include:

- KacePack
- KushCo Holdings Inc.
- JL Clarks Inc.
- Kaya Packaging
- Cannaline U.S. Cannabis Packaging Solutions
- Dymapak
- Diamond Packaging
- Greenlane Holdings Inc.
- N2 Packaging Systems LLC
- Green Rush Packaging
- Elevate Packaging Inc.
- Berry Global Inc.
- Tin Canna
- MMC DEPOT
- Norkol Packaging LLC (Grow Cargo)
- Pollen Gear
- IMPAK Corporation

Retail Market Data

Sales of cannabis products in the U.S. from 2020-2022, by category (in billions of U.S. dollars)



Legal Adult-Use Market CAGR by 2026

\$37B
USD

Recreational Use Revenue Share in 2022
52%

CAGR of **33%**
From 2023-2030

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Surviving Trade Show Season

Five Tips for Making the Most Out of Conferences

By **Rachelle Gordon**

Industry conferences and expos are a whirlwind. From miles-long exhibitor halls to late-night after-parties, these high-powered events are similar to a marathon with lots of ground to cover in a short amount of time.

But in addition to the sore feet and time commitment, there's also the financial factor. Bottom line: trade shows are expensive in more ways than one, so you must see a return on investment.

The *Cannabis & Tech Today* team has attended hundreds of cannabis events over the years. Our expert tips for surviving trade show season will ensure you make the most of your experience — and have fun while you're at it.



Set Your Intention

Before booking that ticket to the big show, make sure you know your “why.” Are you trying to get leads? Create more brand awareness? Perhaps you just want to learn.

Whatever your goals are, make sure you name them before liftoff. It will also help you determine whether the show served its purpose — and may impact your decision to attend next year.



Make an Agenda — But Keep It Flexible

The schedule of events during a conference can be overwhelming; there are a million and one things to do. Between panels, networking happy hours, and team dinners, it may seem like you're being pulled in every direction.

Much like setting your intention, you'll want to note which moments make your can't-miss list. And while you may be tempted to say “yes” to everything, it's impossible to be everywhere at once, so be realistic when setting your calendar. Also, be sure to go easy on yourself if things change at the last second. Dinners go long, traffic gets bad — so plan plenty of buffers and keep your crew in the loop.



Pack Snacks and Water (and a Portable Charger)

Trade shows move fast. There's often little time to eat — and food may be scarce altogether (and overpriced). Given that you're constantly on your feet, you need sustenance if you want to last.

As soon as you arrive at your destination, head to the closest grocery or drug store and grab some high-protein snacks like nuts and beef jerky. Pick up a few jugs of water and refill your reusable bottle regularly. Your body will thank you later, as will your pocketbook since you'll avoid raiding your high-priced hotel minibar.

Having a portable charging bank is also a must. Your phone battery will almost certainly be drained by midday, and finding a place to plug in on the move is challenging.



Dress Practically

Speaking of moving, you'll be doing a lot of it. Wear sensible shoes, as blisters will slow you down. Sneakers can be professional when paired with the right ‘fit, so don't be scared to go casual in the footwear department.

It's also important to pack layers. Climates can change dramatically from day to night, so be prepared.

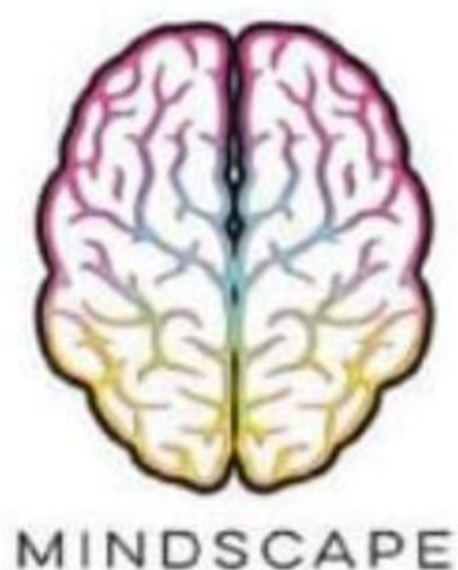


Have a Post-Show Strategy

Congratulations, you got through the show! Connections were made, great times were had — now it's time to ensure all your hard work pays off. The number of business cards and LinkedIn requests you've collected means nothing if you don't follow through.

Organize your new contacts and set about sending quick emails to each person. If you use sales software, upload this precious data ASAP. Your next big opportunity may be in that pile of cards, so don't delay.

Conferences are essential to market your brand and connect with the community. As long as you have a plan, plenty of snacks, and a positive attitude, you'll likely bring home a win. ❖



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Finding Freedom

Cannabis Retail Models Continue to Evolve in Europe

By Alex Rogers

Many cannabis enthusiasts long for legal cannabis sales when living in an area where prohibition still reigns. Having recently moved from Oregon, a legal U.S. state, to Slovenia, a country that still prohibits adult-use cannabis, I know it's something I think about often.

One thing that does not seem to be on many cannabis advocates' radars is how cannabis will be sold once it's legal. In North America, particularly in Canada, there are a wide range of options, including home delivery. However, Europe is likely to be a different matter, largely due to continental agreements prohibiting full national adult-use sales. Medical cannabis is already widely distributed around Europe, as are low-THC cannabis products, often referred to as "cannabis light." CBD-focused products are also common in many European countries.

Malta was the first European nation to pass a national adult-use cannabis measure. Unfortunately, retail sales are still prohibited, and the only way for consumers to source their legal cannabis is through home cultivation or a noncommercial cannabis club. Club licenses are being approved, although red tape is causing launch delays.

Luxembourg was the second European nation to pass an adult-use law. However, sales and noncommercial cannabis clubs are still prohibited. That leaves home cultivation as the only path to acquire legal cannabis.

The metaphorical cannabis reform elephant in the European room continues to be Germany, which continues its quest to pass a national adult-use legalization measure. Unlike Malta and Luxembourg, Germany's eventual model will likely become the blueprint other European nations will mimic.

Germany's legalization effort is being rolled out in multiple phases. The first phase involves



Oleg Chepurin

legalizing personal cultivation, possession, and use. Regulated and noncommercial cannabis clubs will be in the first phase.

The second phase of Germany's legalization model will focus on the launch of regional adult-use cannabis commerce pilot programs. Regional adult-use cannabis commerce pilot programs are already in operation in Switzerland and are used for research purposes. The limited programs help gather data at the local level to help policymakers craft national policies.

Germany's pilot programs are expected to be far more widespread than what is in place in Switzerland and will serve as the main way that many consumers in Germany legally obtain

their cannabis until national sales are permitted. Domestic lawmakers in Germany are considering changes to the already approved legalization measure. Those changes could create a showdown between the European Union and Europe's largest economy.

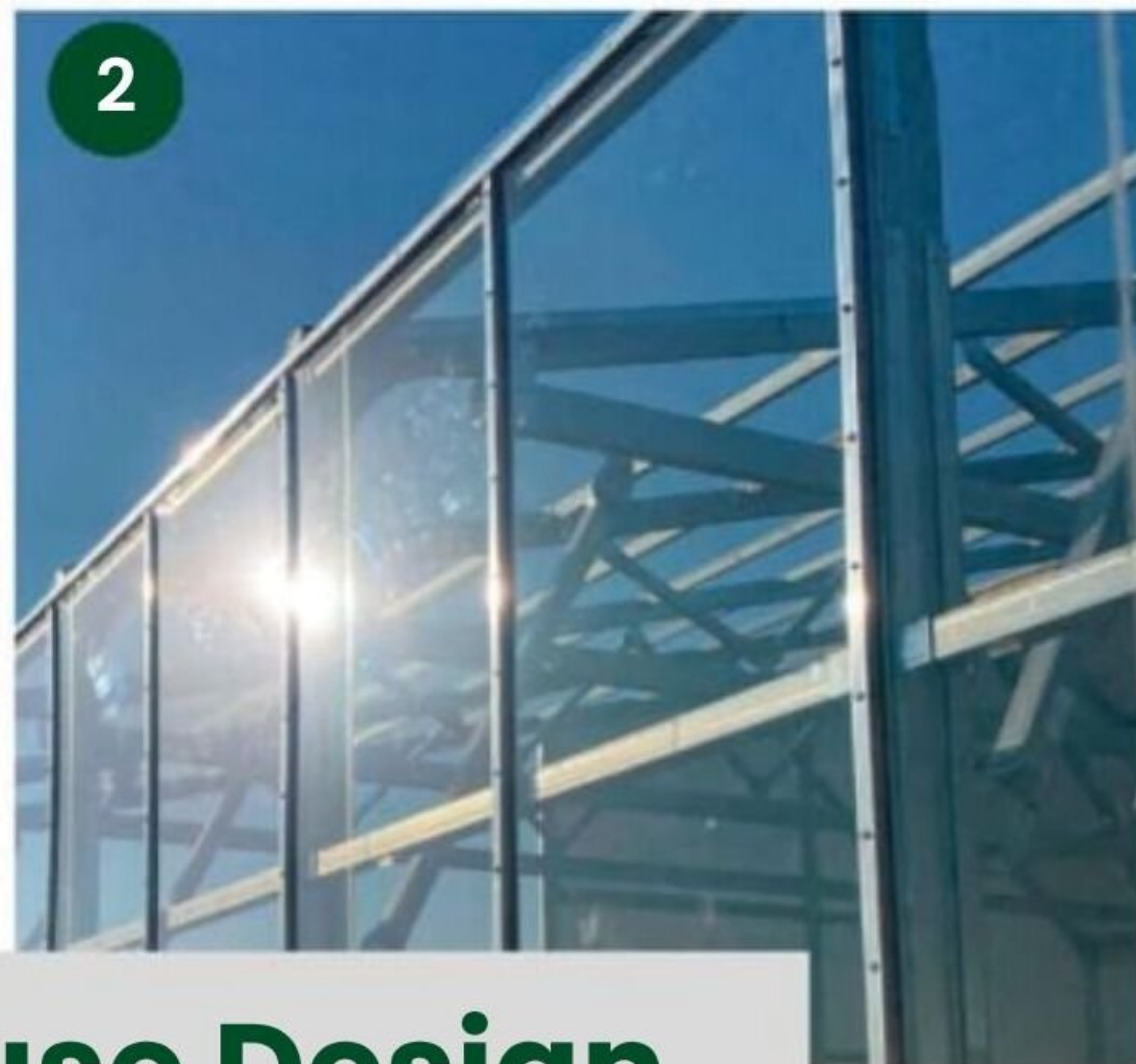
It's a safe bet that what is ultimately adopted in Germany will serve as the model for its continental peers. Germany is doing much of the heavy lifting to get the EU on board with national sales. Once that happens, Europe's adult-use retail model will finally offer all of the freedoms that many consumers are already experiencing in Uruguay, Canada, and the United States. ♦



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Ready to Roll?

What's Ahead for Pre-Roll Trends and Innovations

By Alex Boone

Thanks to consumer demand, manufacturing advances, and price stabilization, the pre-roll market is poised for continued growth in 2024. So, how can brands stay one step ahead and win in this increasingly competitive product category? Several key strategies can support a pre-roll brand's growth, including taking advantage of new technologies, carefully analyzing consumer behavior, and incorporating innovative packaging and design. Here are some ways brands can get ahead in the new year.

Highly Customized

The best pre-roll brands need to have both style and substance. Fortunately, when it comes to visual appeal, there have never been more options, including a wide array of colors, flavors, paper, potency, and designs. One key is to deeply understand your customers and what appeals to them. Are they looking for a luxurious experience with strong visual appeal? Or perhaps they are more concerned about the product's environmental impact. The most successful pre-roll brands are those that know their customers and can anticipate their needs.

Technologically Advanced

Another way to ensure your pre-roll gets noticed is to leverage advanced technologies. Over the past few years, advances in pre-roll machinery have enabled brands to scale quickly, provide consistent products, add post-packaging labels, and more. Visual cues, such as a filigree (a watermark impression) added to the pre-roll paper, give brands another opportunity to stand out and avoid counterfeiters. Gumming technology also adds a layer of complexity that can guard against counterfeiting and allows brands to make patterns with profiles in the actual gum line itself using food-grade ink. This allows brands to add their patterns, designs, and logos to the pre-roll, creating a unique design that foils counterfeiters and establishes brand



awareness even after the pre-roll has been removed from its outer packaging.

Better Paper

The paper used to make pre-rolls is almost as important as what's inside it. First, it must be safe to smoke, consistent, and compliant. And typically, many cannabis connoisseurs find that the thinner the paper, the better the taste. Consumers also want paper that complements the smoking experience, so some companies offer pre-rolls made from different botanicals such as hemp flower and tea. For an even more potent experience, there are pre-rolls with added concentrates like hash, kief, wax, or shatter.

More Sustainable

Consumers are increasingly concerned about the impact of their buying choices on the environment. That's driving greater interest in pre-rolls with biodegradable and recyclable packaging, paper that is free of chemical additives, and manufacturing processes using fewer natural resources.

New Formats

Pre-rolls now come in various sizes and packages. Mini pre-rolls, also called Dogwalkers, are pre-rolls with under .35 grams compared to a typical pre-roll that is around 1 gram. They have increased in popularity over the past few years due in part to the fact that people don't necessarily want to share joints with others. As brands think about expanding their product lines, they may want to consider different-sized pre-rolls, pre-roll packs, better child-proof packaging, and other format enhancements that serve their target customers.

With product innovations and improved manufacturing technologies, there has never been a better opportunity for brands to level up their pre-roll offerings and capture a greater share of the market. ♦

Alex Boone is the managing director of Botani, the cannabis-focused division of paper-making giant SWM International.

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Taking Vapes Higher

One Company's Mission to Create Safer, Scalable Vape Tech

By Ebby Stone



Vapes are the second most popular form of cannabis in America according to BDSA research. Vapes accounted for 26% of all sales across BDSA's tracked markets in 2022. Ease of use is the most cited reason consumers love them, particularly disposable vapes which are favored for their portability, convenience, and discreetness.

As demand grows, manufacturers have to scale their processes to keep up. To shine a light on the technology supporting the vape sector, *Cannabis & Tech Today* spoke with

Michael Brosgart, Chief Operating Officer for Advanced Vapor Devices (AVD). The company creates forward-thinking solutions for scaling vape production. In this interview, Brosgart shares how AVD's "No-Burn Technology" and "EZ Click Cartridges" are helping oil brands offer safe, reliable, flavorful, and affordable products to their customers, one innovation at a time.

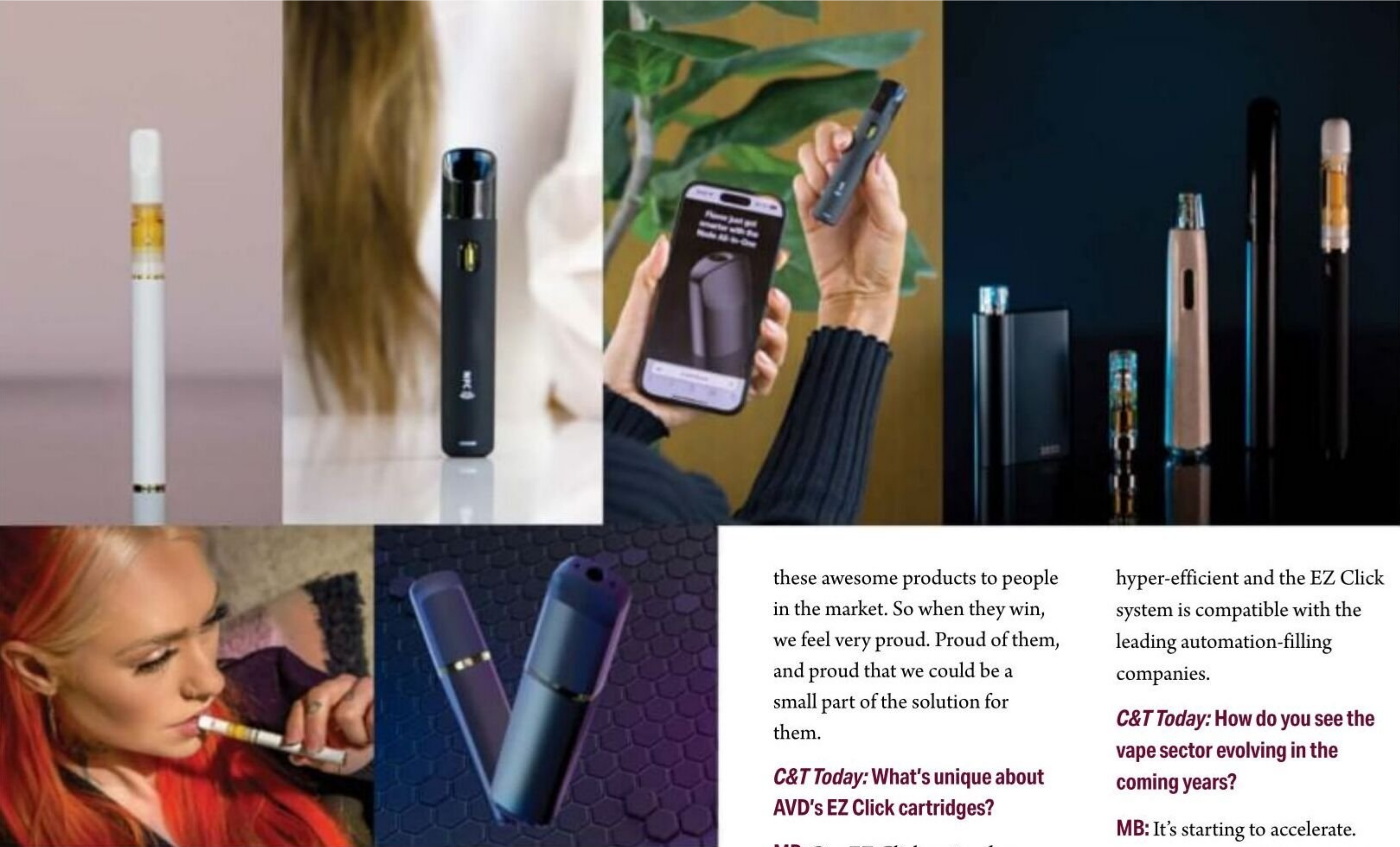
Cannabis & Tech Today: What are some of the sector-wide problems AVD set out to solve?

MB: We want a product that is, number one and most importantly, safe for the consumer. Number two, reliable. A device that works every time. It doesn't clog and doesn't leak. Number three is flavor. It has to express the true essence of the strain. When we started out, so many vape products just didn't accomplish that. Once we truly understood the plant and its intricacies, we were perfectly positioned to develop products actually designed for cannabis. So we set out to solve those three problems. Then number four is

price. We asked ourselves, "What can we do to deliver these three things at a competitive price so people can run a successful business?" We worked with our engineers, designers, and manufacturers — and that's really how AVD was born.

C&T Today: How was your "No-Burn Technology" created?

MB: No-Burn Technology has always been at the core of what we do. Don't burn the oil, and make sure it vaporizes at the right temperatures for the right type of extract. It's our umbrella



(Left) The AVD team enjoys a company retreat. AVD CEO Michael Brosgart credits his staff with the company's success, "We have an incredible team. Our knowledge of cannabis and our commitment to the plant is second to none." The company's "No-Burn" technology and "EZ Click" cartridges are helping oil brands create safe, reliable vape products.

technology that preserves the authentic flavor of the extracts and ensures our customers' products deliver a consistent and enjoyable flavor experience. We've custom-designed our ceramic core, the heating elements, and something we call PowerWave modulation in our battery devices — so when it comes all together, you get an enjoyable vape experience.

One of the main qualms in this industry is you can have a great cartridge, the most incredible extract, sell it to a consumer, and the consumer puts it on a low-quality battery that doesn't have PowerWave modulation and the battery ends up burning at really high temperatures, destroying the oil and the flavor. It's important to know if you are using a distillate, rosin, resin, or D8 cartridge, you should use a battery with the correct temperature output. We're

seeing a trend towards all-in-ones, where oil brands are able to control the optimal end-user experience. A lot of this is education and making sure the conversation is happening and being passed down along the chain from the manufacturer to the brand, to the dispensary, to the end user.

C&T Today: During 2023's Emerald Cup, your client partners won a lot of awards. Do you feel your tech played a role in helping those products be their best?

MB: We're in the background. The shine and accolades are 100% with the extractors and the people who are growing. We like to think our hardware is superior and does a better job at expressing flavor.

We know how hard our clients are fighting and innovating and doing what they can do to deliver

these awesome products to people in the market. So when they win, we feel very proud. Proud of them, and proud that we could be a small part of the solution for them.

C&T Today: What's unique about AVD's EZ Click cartridges?

MB: Our EZ Click system has been a breakthrough in the 510 space. We've introduced automation into the manufacturing and production process of a cartridge. When 510 carts first came out, everything was a plastic cartridge and you needed a ton of pressure to cap a cartridge. Everything had to be done one by one, which was inefficient and required a lot of human power. Because we come from this space and we've been in the manufacturing facility doing this day in and day out, we know how to engineer a cartridge so it's packaged efficiently and ready to fill right out of the box.

We looked at the entire process and asked ourselves, "How can we make this more efficient for our customers?" The low-pressure, EZ Click system was a winner. Now there's a lot of people copying that. The cartridge caps with a clamping mechanism so that when you push down, it clamps so you can't reopen it. It's also great because people can't reopen the cartridge to tamper with it. It's

hyper-efficient and the EZ Click system is compatible with the leading automation-filling companies.

C&T Today: How do you see the vape sector evolving in the coming years?

MB: It's starting to accelerate. There are incredible formulations out there that we're really excited about. Vape is here to stay. It's the largest segment of the market behind flower. I think we all have to come together as an industry and look at the product, look at all the inputs, and make sure that we're advocating for a safer vaping industry. We're going to see more regulation, not less, but we welcome that and want to have a seat at the table so we can give an educated view on what the standards should be and what regulations should be enacted.

From a product standpoint, you're seeing a trend towards higher volume products, two and three-milliliter devices. Again, flavor is very important. From an IP perspective, we're looking at what can we do to further enhance that experience and offer products that express what the cultivators are trying to do with their strains. And finally, we're continuing to look at how we can make our client's, extractor's, and processor's lives easier and more efficient. ❖

Better by Design

Maximizing Your Cultivation Facility With Smart Planning

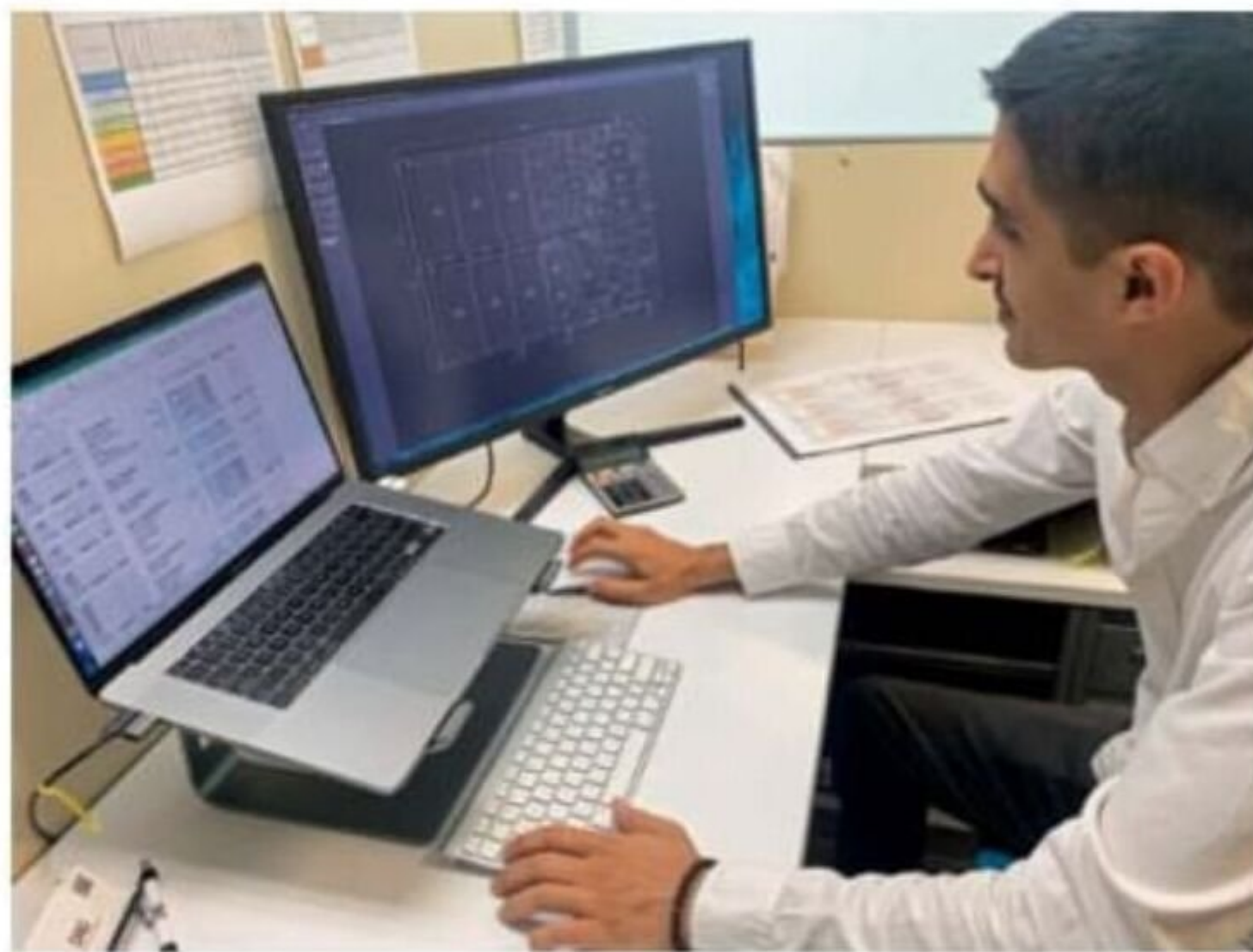
By Jeff Lair

Running a profitable cannabis cultivation operation is about more than growing plants. Achieving success starts with creating a smart design for your Controlled Environment Agriculture (CEA) facility that fully aligns with your operational business plan. So many things have to come together for a cultivation facility to function efficiently and produce a high-quality product. Here are a few critical items to consider when planning and designing a CEA facility.

Take a Holistic View

The first step to maximizing the efficiency of your cultivation facility through design is to create a well-articulated plan and program for your entire operation. As simple as this seems, this is where I have seen many companies fall short. They jump into design and equipment without taking a holistic view of what their facility will look like, how it will operate, what their operating expenses will be, and how it can be expanded.

Develop a high-level schematic design with a layout that emphasizes operational efficiency. Consider ease of maintenance, minimizing contamination, and expandability — you don't want to "paint yourself in a corner" with a move like making your



headhouse too small to support additional grow rooms.

Thoroughly Assess the Feasibility of Your Property

In addition to finding a great location where cultivation uses are allowed per local zoning regulations, you also need to determine whether the utility infrastructure is adequate, and if it's not, what it will take to meet your needs. What is the amount and quality of water you can bring in, and what will the local authorities require for wastewater disposal? Is there space to locate the substantial amount of mechanical equipment that cultivation requires, either within the property setbacks or on the roof?

If it's going to be on the roof, can the existing structure support the load, or will it require reinforcement? How much electrical power service does the property have? A good rule of thumb is that every 10,000 sq. ft. requires 1,000 amps. If you are unsure about something, don't hesitate to engage an engineer for a consultation. It will be money well spent, especially if it prevents you from leasing or purchasing a property that is cost-prohibitive to adapt for cannabis cultivation.

Let How You Grow Drive Your Flow

The layout of your facility should logically follow your plants' growth cycle through final

production. Try to visualize how each plant will move through your facility and create a seamless flow from mom, propagation, early vegetation, vegetation, flower, harvest, dry, cure, trim, manufacturing, vault, packaging, and shipping/receiving rooms. Creating the right workflow will allow cultivation employees to move throughout the facility efficiently by minimizing the distances they have to walk and removing obstacles they need to get around. This increases productivity, decreases labor costs, and improves your bottom line.

Divide to Conquer... (and Avoid Contamination)

Creating physical barriers between certain areas like cultivation, manufacturing, shipping/receiving, locker rooms, and offices is a must to avoid contamination of your product. These barriers should be firm and reinforced with clear standard operating procedures to ensure the consistency of your product. Certain passageways should have air showers that cannot be circumvented. Create multiple access points to areas like the electrical room or headhouse so anyone servicing equipment can gain access without having



to traipse through the cultivation areas.

Beware of the Max Canopy Trap

One trap that's easy to fall into is trying to maximize your canopy but failing to fully incorporate the uses required to support all that canopy. These include maintenance, storage, the headhouse, and post-harvest areas. Many facilities miss the mark when it comes to designing for easy maintenance with mistakes like providing easy access to shut-off valves and allowing enough space to circulate around equipment. You also need adequate space to store all of the growing supplies and equipment needed to service your canopy. Also, be wary of using multi-tier benching to increase canopy. While it can work well with the proper approach and protocols, plants on upper tiers tend to receive less monitoring, which increases the chances of mold or insect infestations devastating an entire harvest.

Prioritize the Right Technologies

A facility's technology starts and ends with its control system, so do your due diligence to make sure

the one you chose fits with your growing objectives and business plan. It has to work seamlessly with your fertigation and mixing equipment to drive the distribution of water and nutrients throughout your facility. A large operation should avoid hand watering and mixing, ensuring your recipes remain consistent. Getting these simple, proven automations right will help you maintain control and consistency in your product across harvests.

Your control system can also connect to flow meters and pressure transducers to monitor flow rates and check for pipe leaks. Control of temperature, humidity, and CO₂ through a single access point is another major advantage of an automated control system. Monitoring is important, so it's useful to have sensors for tracking environmental conditions in your grow rooms, but try not to go overboard with alarms. If your grower is constantly bombarded with notifications for things that are minor, they can become inclined to pay less attention and miss something crucial. Better to dial in on the essentials.

Stay on Top of New Innovations

Like most industries, cannabis has seen a bevy of innovations come to market in recent years and many have proven to be quite effective. For example, some LED lighting manufacturers have detached ballasts from grow lights and relocated them to a separate dedicated room. This helps lower heat loads in the grow rooms, which improves environmental control and electrical efficiency.

There are also promising new air disbursement products that enhance airflow; seed-to-sale tracking systems that utilize RFID technology; new automated curing systems for precision venting gases to maximize the benefits of curing; and tank-level logic systems so you don't have to worry about disrupting nutrient delivery because of empty batch tanks. Anyone planning a new cultivation facility should explore the latest innovations and see what could work for their business.

In Summary

These guidelines provide a framework for how to plan and design a facility that performs the way it was intended and an efficient



and successful cannabis operation. It's not enough to know how to grow good cannabis. You have to be practical, thoughtful, and economical in your entire process. If you plan your CEA facility properly, the processes beyond growing can be seamless. ♦

Jeff Lair is the director of architecture and engineering for DAG, an industry leader in the planning, design, and construction of Controlled Environment Agriculture (CEA) facilities for the cannabis and produce industries. Lair leads DAG's design department and works closely with the firm's construction team throughout the project cycle to ensure quality and value in every facility. For more information, visit www.dagfacilities.com.

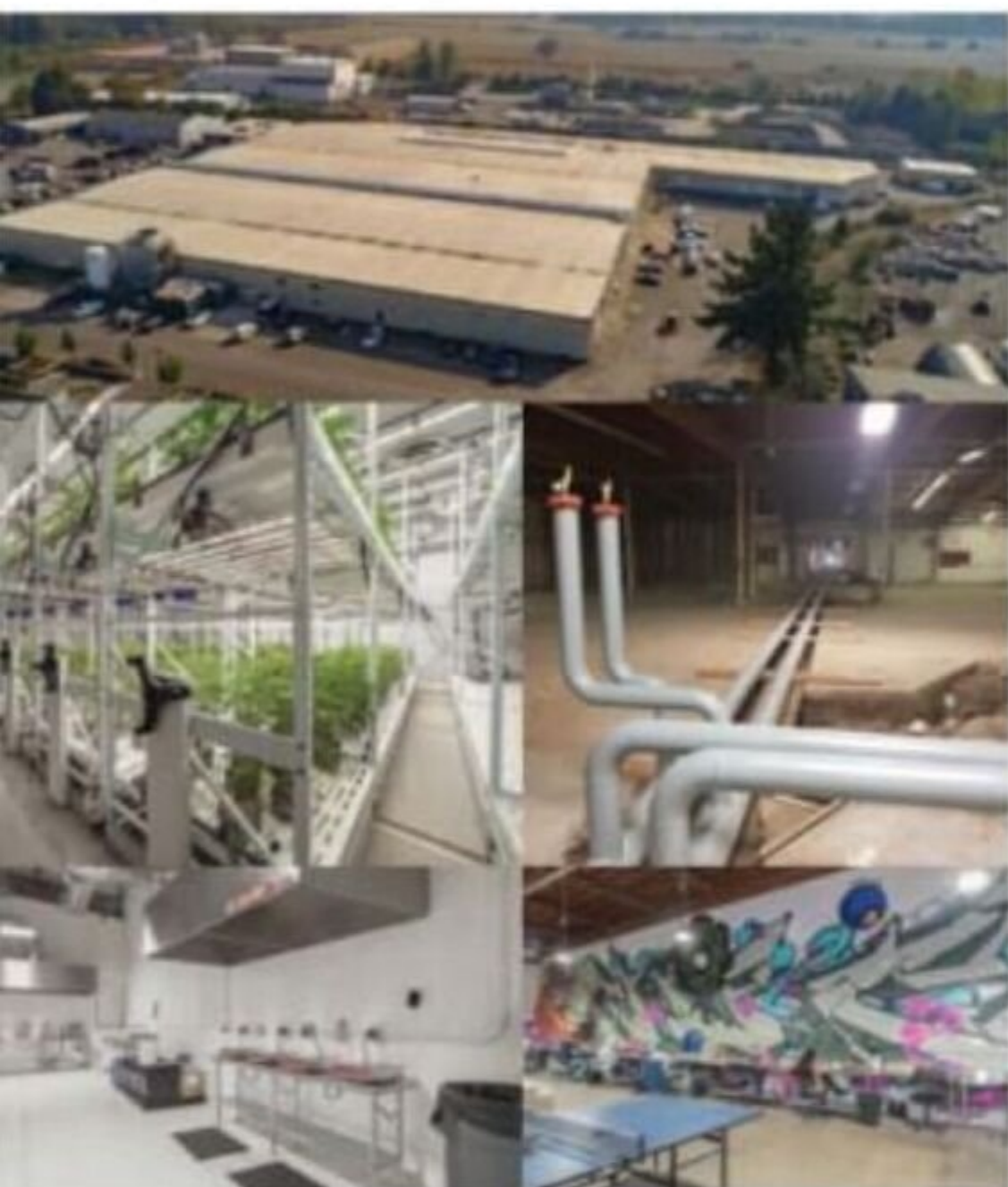
Sustainable Leadership in Action

Seven Pioneering Companies Making a Difference

By Hal Bishop

The Cannabis & Tech Today Sustainable Leadership Awards are a prestigious recognition program honoring organizations making significant contributions to sustainability in the cannabis industry. The awards cover a broad spectrum of sustainable practices, encompassing everything from cultivation methods to packaging materials.

These awards are an excellent opportunity for organizations to showcase their commitment to sustainability and to be recognized as leaders in the cannabis industry. If your organization is dedicated to reducing its environmental impact and promoting sustainable practices, we encourage you to apply in 2024.



Walnut Industrial Park | Energy

This innovative 130,000-square-foot facility in Hillsboro, Oregon offers cannabis entrepreneurs a shared ecosystem in which to expand their operations. It's home to 43 licensed cannabis companies, ranging from growers to processors to wholesalers and even research facilities and testing labs. The facility uses a variety of energy-efficient technologies and plans to build a 1.5-megawatt solar array once more financing options are available to the industry.

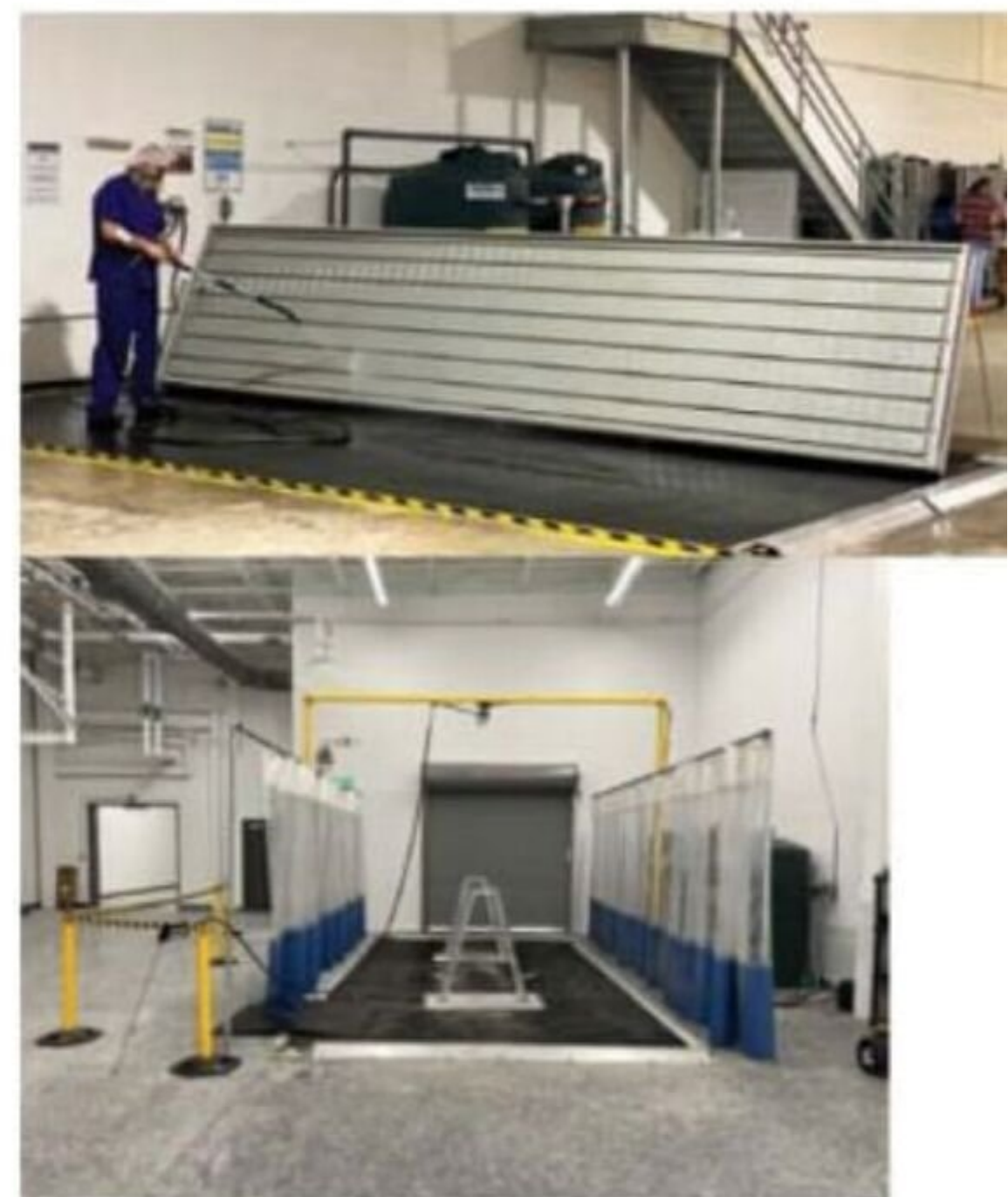
Walnut Industrial Park provides centralized services to its tenants, such as a chilled water cooling system and CO₂ piped into every suite. Its long-term investment in energy efficiency is shaping the future of Oregon's cannabis sector. It is a founding member of the Resource Innovation Institute, a nonprofit organization supporting the creation of an environmentally friendly cannabis industry.



PolyScience | Innovation

PolyScience is committed to environmental sustainability and has taken several steps to reduce the environmental impact of its products and manufacturing processes. The company's DuraChill Benchtop (DCBT) recirculating chillers use natural refrigerants to achieve a low temperature of -30°C. The chillers also feature the patented WhisperCool Environmental Control System, which reduces noise levels below conversational speech and optimizes compressor and evaporator performance.

In addition, PolyScience uses a patent-pending UV Light Biological Growth Inhibitor to control biological growth in the fluid path without the need for chemical growth inhibitors. The company also has a patented Diagnostic Self Test that allows users to troubleshoot problems with their chillers and avoid shipping them back and forth for repairs. It is ISO 9000 certified and committed to reducing its environmental impact by following an ISO 140001-certified Environmental Management System.



Geomat | Water

Geomat has been providing patented wastewater recovery systems for over 27 years. It recently received its seventh patent for a new system that can be used to capture wastewater from cultivation and filter and recycle it for reuse on cannabis or cultivation equipment.

Geomat systems are designed to help cultivations save water by capturing and recycling all wastewater and water runoff. This water is then filtered and pumped into aerated water tanks for reuse. Geomat also offers a water recovery system with a sewer connection option, so that this captured and recycled water can be returned to the sanitary sewer line. Geomat systems are scalable and can be easily relocated to fit any size operation. They are also designed to meet all environmental and workplace compliance requirements.

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Lucid Green | Packaging

The cannabis industry is booming, with legal sales expected to reach \$100 billion by 2030. However, this growth is accompanied by a growing environmental concern: excessive packaging waste generated from secondary stickering, paper forms, and labels.

Lucid Green is an intelligent UPC platform that streamlines and centralizes information management through its proprietary LucidID QR code technology. These QR codes eliminate the need for secondary stickering and external labels, transforming the cannabis supply chain into a paperless ecosystem.

For brands, Lucid Green presents a sustainable label printing alternative. Retailers benefit from Lucid Green's efficiency-enhancing solutions, which eliminate secondary stickering and paper-based inventory management. Distributors likewise reap the benefits of Lucid Green's digitalization. Consumers can appreciate the company's eco-friendly practices and the convenience of accessing product information through a QR code. Lucid Green replaces outdated packaging practices with a sustainable, innovative, and user-friendly digital solution.

Canna-Less by Aroma Retail | Innovation

Canna-Less is a new line of innovative cannabis odor-elimination products that utilize science and all-natural ingredients to effectively neutralize cannabis odor without using dangerous, artificial chemicals. The three nullifying fragrances are Peach By The Gram, Matchajuana, and Reefresh. All three fragrances are 100% organic, hypoallergenic, green-certified, and pet-safe.

Canna-Less products are formulated to be compliant with standards mandated by EPA, CARB, and IFRA. They use recyclable and compostable packaging. Canna-Less has succeeded in developing a product line that can naturally and scientifically neutralize the odor of cannabis in homes and businesses. The Canna-Less collection is cost-effective, environmentally friendly, and efficient. This high-quality, organic, and hypoallergenic solution eliminates and changes the smell of cannabis.



Cryo Cure | Innovation

Cryo Cure has revolutionized the drying and curing process for cannabis. Its machines use a patented technology that reduces drying and curing time to as little as 12 hours, significantly faster than traditional methods. This process also helps to preserve the trichomes, terpenes, and cannabinoids in the cannabis flower.

Cryo Cure's technology also eliminates the need for plastic tubs, which are often used in commercial curing. This helps to reduce the environmental impact of the cannabis industry. Since its launch in 2018, Cryo Cure has expanded its reach to 15 states and has a global presence in places like Jamaica, Canada, and South Africa. With its ability to shorten drying and cure time, Cryo Cure is helping cultivators around the globe reduce their environmental footprint and improve product quality.



Republic Brands | Innovation

Since the early 2000s, the Republic family of companies have developed sustainable processes across their supply chain. The most notable innovation is the development of rolling papers that use sustainable plant-based fibers, such as organic hemp, bamboo, and rice. They are also committed to using sustainable materials in their packaging and other rolling accessories.

One of their most recent innovations is OCB Brown Rice, made with rice sourced from the protected wetland area of the Camargue delta region in the south of France. They also use natural Acacia gum from the Acacia tree in the Sahel Region of Africa, where they partner with Seedballs Kenya to spread seeds and help combat desertification. Republic Brands is also printing with vegetable inks and has removed cellophane wrap from all retail display boxes.

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Technology and Dispensaries

Where Have We Been and Where Are We Going?

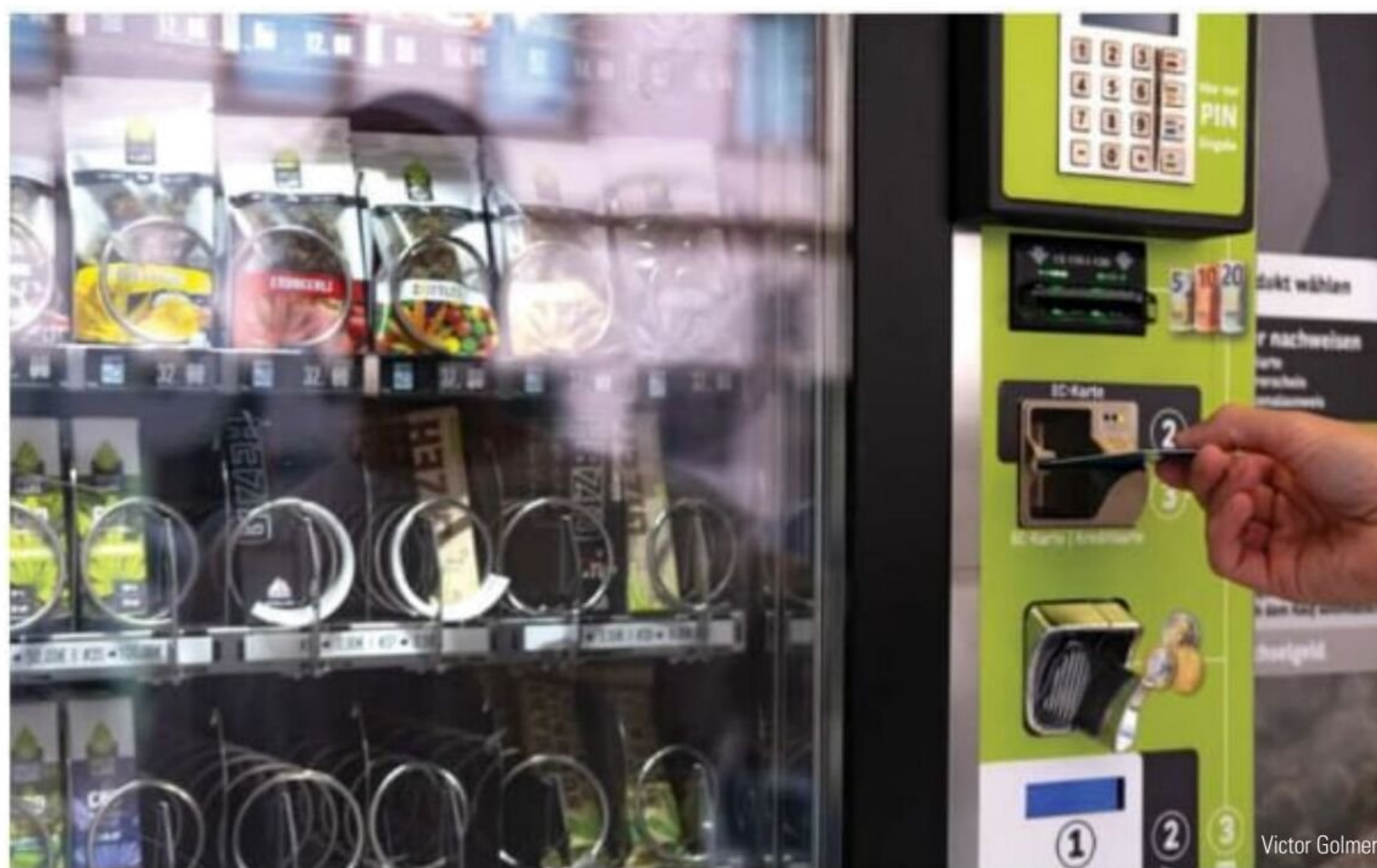
By David Traylor

As a preface to this article, please note a new Cannabis nomenclature being driven by Golden Eagle Partners (GEP). To simplify and improve consistency, GEP believes the entire sector should be covered by the name of the species, Cannabis (that is why we will capitalize Cannabis). For simplicity, the rest of the sector will be defined by two simple categories: THC+ (Cannabis) and THC- (hemp). All kinds of different products then fall within those two categories.

Dispensaries or retailers have always been a critical part of the supply chain for companies producing and selling THC+ products. In the early days, the emphasis was on cultivation with significant investment in technology, size, and security. Over the last five years, due to several factors, the concentration has gradually changed to a focus on the retail side of the business.

Early Days: The Search for Fintech and Other Pursuits

Since the start of the legal THC+ sector in earnest in 2014 (California legalized medical THC+ in 1996) when Colorado and Washington started selling THC+ products in January of that year, there has been a constant drumbeat for transactional solutions for the sector. In the early days, the most prevalent



booths at MJBiz were all about fintech and potential solutions to the transactional issues of Cannabis. Although a Cannabis transaction is still not similar to a “normal” transaction in other industries, many workarounds have helped. The other significant change in North American Cannabis retail from the early days is the continuing drive to become more cost-effective. Initially, many companies spent too much money to replicate an Apple/Tesla unique retail experience or set out footprints that were too large. In the last eight-plus years, operators have continued to evolve to be more pragmatic and build retail

operations that are functional over form. Retail is also where the IRS 280E tax code hits operators the hardest. It doesn’t allow for the deduction of expenses for a typical business, resulting in lower margins. This tax code has been and continues to be an impediment to retail operations for THC+ operators.

New Technology: What Might be Around the Corner?

With the potential to finally pass the SAFE Act or its most recent incarnation, SAFER, the final financial solution to ease all transactions for THC+ products

may be on the horizon. Whether financial reform for THC+ companies comes to pass, some other trends might have significant impacts on the industry. With the advent of hemp-based cannabinoids, whole new markets are opening up that may put pressure on the dispensary model. Currently, dispensaries are adding more products that include more than just delta-9 tetrahydrocannabinol (D-9) and cannabidiol (CBD) — but now include cannabichromene (CBC), cannabigerol (CBG), and cannabinol (CBN) to name a few. ▶



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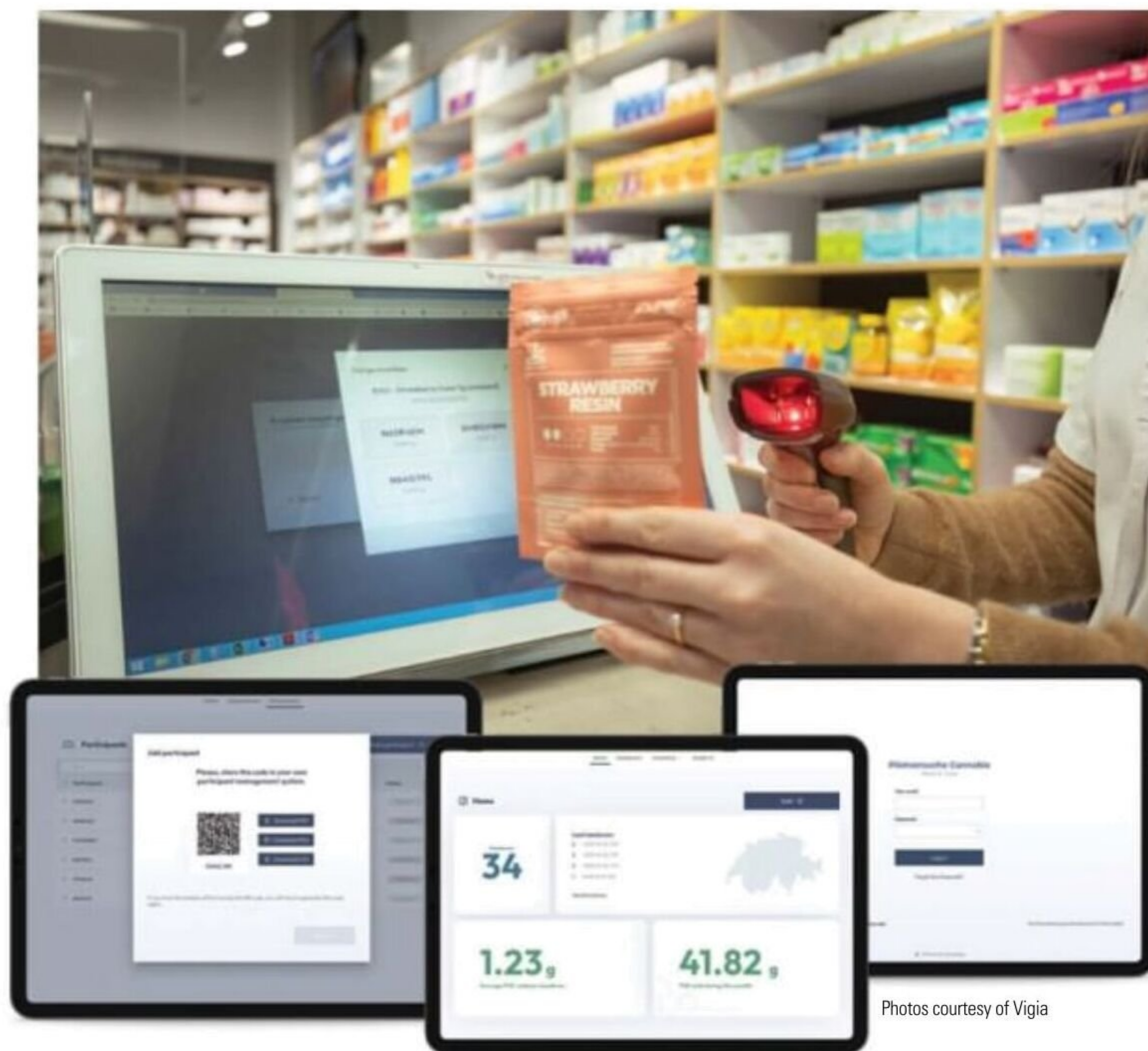
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Photos courtesy of Vigia

Also, the next wave of cannabinoids continues to take hold in the U.S. and other geographies around the world, with new products containing molecules like hexahydrocannabinol (HHC) and delta-8 hydrocannabinol (D-8). The technology and chemistry driving these cannabinoids that are being sold in non-regulated shops could have significant ramifications for the future of Cannabis retail.

Another consideration of the future of THC+ dispensaries is how adult-use and medical products evolve. Currently, adult-use products are driving a large majority of the sales in the U.S. With more clinical trials coming online and the continued interest of older consumers, the

percentage share of Cannabis products that are medical-based should continue to expand over time. The effects of a rotation to more medically relevant products could have some interesting effects on THC+ retail.

Future Technologies: Will Dispensaries be Necessary?

In the beginning, it was all about dispensaries. We are now seeing some dynamics that may change the THC+ landscape forever. Recently, there's been a move in Cannabis retail to an online model in some geographies. In the last three months, a law went into effect in Colorado allowing for the purchasing of THC+ products online. The products must be picked up at a dispensary, but it is



Cannavigia CEO,
Luc Richner

one of the first examples of Cannabis moving online. As Americans know, the Amazons of the world have had dramatic impacts on retail over the last 20 years and Cannabis will be no different in the future. Some new technologies in preliminary development could be equally disruptive. There is a company in Germany developing a technology

that would convert a legal molecule into D-9 only seconds before consumption. Adoption of this technology could allow for shipment of products across borders and not require regulatory requirements on retail.

International: Does the Dispensary Model Translate?

Germany legalized medical cannabis in 2017 and they are still working to approve adult-use Cannabis. Although Germany has been a slow burn, there has been activity in the last two years to get closer to adult use. With medical driving for now, Apotheken, or what are known as pharmacies in Germany, are driving the retail of Cannabis. New efforts to legalize adult use are mentioning social clubs as one of the main pillars of adult use. The chance the dispensary model will be adopted is slim.

In the last 12 months, Switzerland has legalized the sale of adult-use THC+ products. The Weed Care program is rolling out on a city-by-city basis and is closely monitored by the Federal Office of Public Health and the International Narcotics Control Board. The goal of the program is to monitor the effects of Cannabis on a selected, roll-out population over the next two years. The initial stages of the program involve selling six products (two hashish, four flower) in nine pharmacies around Basel. Luc Richner, CEO of Cannavigia, the company behind the software that monitors the Weed Care program says the main drivers for Swiss retail will continue to be available in pharmacies, social clubs, dispensaries, and kiosks. Dispensaries are only a small part of retail in Switzerland. ♦



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By Andrew Ward



Playing It SAFE

What Will the Industry Write About if SAFER Banking Passes?

Lucky-Photographer

For years, cannabis companies and reform advocates have hoped to see federal lawmakers act on industry banking access. Many contend that until such reforms are made, few, if any, cannabis brands will likely see a profit if they are prevented from the banking and financing provided to legalized industries. In addition to banking, cannabis brands are left without access to insurers, loans, and other essential business needs, leaving them vulnerable to banking and business closures unless backed by funds only a few major players have.

These pain points and many more have long been opined

about in countless news articles and op-eds over the years. Now there's no doubt an importance to the subject, and it rightfully deserves media attention. Still, few argue that there aren't numerous other topics pressing the industry today. With the recently Senate committee-approved SAFER Banking Act moving forward, some have speculated that passage is imminent.

While that isn't exactly true, there is optimism surrounding the legislation that hasn't been felt in quite some time. That was, until Oct. 25, when ardent anti-cannabis legislation lawmaker Rep. Mike

Johnson became the new Speaker of the House, throwing some doubt into an already uncertain future for the bill.

Social Equity

Equity and restorative justice measures are often a talking point. However, we often see that the efforts to create an inclusive and restorative justice-focused industry tend to fall short, be it at the hands of legislators or lawsuits contesting the legality of social equity parameters.

In recent months, New York has been front and center of such issues, with hundreds of CAURD equity applicants granted licenses only to have their progress halted

due to several lawsuits. With licensing now open to all, what's next in the Empire State remains to be seen. We're seeing similar news out of Connecticut in recent months, with provisions challenged in court and concerns about reinvestment money. Concerns have also been voiced in Minnesota, with farmers and activists calling for more robust equity measures in the state's legalization bill.

Some have stated that SAFER must pass so equity and small operators can survive and thrive in the industry. Meanwhile, several lawmakers, including Raphael Warnock and Cory Booker, ▶

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have called for stronger equity parameters in the federal banking bill.

Testing and Safety

Recalls continue to be a concern across many cannabis markets. In just the past few weeks, edible products in Michigan, including Viola, have been recalled for alleged excessive THC potency. In Arizona, select Curaleaf products were voluntarily recalled in October over concerns of possible aspergillus contamination. Meanwhile, the most substantial recall in recent weeks came from Missouri. The billion-dollar market has been the gem of the industry as of late, but roughly 62,000 infused products that hit shelves back in August are now being recalled.

Each of these instances highlights the ongoing need to improve product safety before industry reputations are irreparably damaged. But with lab testing and allegations of inflated THC percentages persisting for years, this issue could be much larger than some may think.

Industry Waste and Pollution

The cannabis industry and lawmakers continue struggling to balance common sense safety measures and pollution. This very issue has been a regular talking point in the industry since legalization became a reality.

Many thought pieces and analyses have been conducted to assess the damage created by cannabis products and packaging. Child safety laws are undoubtedly one of the most significant contributors to the problem, leaving operators in a bind between adhering to regulators and safeguarding children while also being conflicted by the

staggering amount of waste created by such parameters. Another primary industry waste concern is single-use vapes and the waste produced. Combined, these are two of the more enormous, longer-standing hurdles in the space.

Research

Despite decades of anecdotal feedback, many of the most extraordinary medical claims about cannabis cannot be definitively stated. This problem stems from years of research prohibition and high hurdles, making clinical analysis nearly impossible to complete. That isn't the case worldwide, as evidenced by the groundbreaking research conducted in countries such as Israel.

However, the U.S. continues to lag as regulations restricted analysis for years. With the DEA expected to decide on rescheduling cannabis to Schedule III soon, many are anticipating a research floodgate to open. While this could benefit our understanding of the plant, many advocates argue that rescheduling falls short of the ultimate goal of legalization. Even if SAFER Banking doesn't pass this year, more media attention and opinion pieces will likely focus on rescheduling and its impact on research in the coming months.

Education

Closing the so-called education gap between the public and cannabis insiders continues to be a concern. Numerous thought pieces and analyses have been presented over the years. However, the general public does not seem to comprehend the news or doesn't want the information the industry offers them. Some in the space are pushing for



Raphael Warnock



Cory Booker



simplified education in hopes of demystifying some of the long-held misnomers in the industry, notably the incorrect characteristics ascribed to indica and sativa plants, as well as myths around THC potency.

However, if they are trying to learn at all, much of the public is in the infancy of learning about the plant. How can these problems be addressed effectively?

More to Discuss

These topics and many more could benefit from increased news coverage and opinion pieces if

SAFER Banking were to pass this year. Numerous other pressing subjects, ranging from farming practices to market consolidation to job creation and reduction, deserve increased attention.

Still, this massive space can only cover so much at one time, leaving one to wonder what will fill the airtime void if banking concerns are reduced if SAFER Banking were to pass. There is no doubt that rescheduling will be in focus, but what else could step further into the media spotlight remains to be seen. ♦

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All the Right Boxes

Packaging for Online Retailers vs. Brick and Mortar Retailers

By Veronica Castillo

The battle between the old and the new as everything shifts to digital and AI offers many new considerations for business owners; for instance: product/retail packaging. Retail packaging comes with a set of compliance requirements from the Fair Packaging and Labeling Act (FPLA) implemented by the Federal Trade Commission (FTC). The FTC establishes labeling requirements for consumer commodities to facilitate value comparisons among similar products. They also aim to prevent deceptive packaging and labeling claims for household goods.

In general, retail packaging requirements in the United States include the following rules: identity of commodity; name and place of business of manufacturer, packer, distributor; net quantity of contents; using the units of both the customary inch/pound of system measure; and labels that are printed in a font and typeface that are to be in a fixed proportion to the main viewing window of the package and consistent across all parcels of roughly equivalent size.

In cannabis retail packaging, compliance is set by each state rather than the federal government. There are some general packaging requirements adopted by all legalized states, like child resistance, designs that are not attractive to children, and warning labels, to name a few.

Packaging for smokeables and edibles may have different requirements. Kathy Knutson Ph.D., PCQI, chair of the education committee



of the National Cannabis Industry Association, and author of *Food Safety Lessons for Cannabis-Infused Edibles* offers insight into all cannabis-infused edibles in an article that she wrote for *Food Safety Magazine*. She listed the following general requirements: functional and protective of the contents, opaque, portioned or individually wrapped, tamper-evident, child-resistant, and unattractive to minors.

To discuss retail packaging for non-edible and non-smokable cannabis products and the difference between online retailers and brick-and-mortar retailers, *Cannabis & Tech Today* sat down with Michael Barenboym, a world-renowned medical-device engineer and designer who spent more than 35 years developing life-saving technologies.

Barenboym has patented over 100 technologies: artificial heart systems, spine

reconstructive surgical equipment, cancer ablation devices, and automated resuscitation machines, to name a few. In 2019 he founded Weedgets, a company that creates innovative, patented smoking devices like waterless pipes, reusable filter tips for blunts/joints, and replaceable glass bowls for pipes. His devices allow smokers to remove the worst parts of smoking: harsh throat burn and debris.

Cannabis & Tech Today:
Have you designed or created product packaging in other

industries? What are a few major compliance differences?

Michael Barenboym: Yes. I lead a packaging engineering group in the medical device industry. Compliance is very strict in the medical industry and package testing in that industry has to pass tests like drop testing, water and dust repellent testing, and UV light testing to name a few.

C&T Today: **Should online retailers and brick-and-mortar retailers have different packaging goals or compliance considerations?**

MB: I think the goal for packaging for both online and brick-and-mortar storefronts should be the same — to better protect the goods and to have a nice, ergonomic appeal to the customer.



C&T Today: Did you spend a lot of time researching compliance rules for Weedgets product packaging; what about tests like those in the medical device industry?

MB: There wasn't a big focus on compliance for packaging for our various products and accessories because these products do not require any compliance; however, we do try to design packaging to protect from accidents or easy opening by children. Tests like drop tests were done to ensure the durability and delivery of undamaged products.

C&T Today: What kind of role did transportation and storage of products play in Weedgets packaging design?

MB: All of our product packaging for pipes and accessories is designed for a long shelf life. We also pay attention to design for long-distance transportation to avoid damage when boxes are thrown around by shipping personnel. It is also

important to minimize empty spaces in cartons to save on transportation fees.

C&T Today: If Weedgets were to open a brick-and-mortar location or have products in dispensaries, would packaging be different for those products?

MB: Our packaging will stay the same for any dispensary or brick-and-mortar store. Our packaging provides all the necessary information regardless of where it's sold.

C&T Today: What materials are used for Weedgets packaging?

MB: We use carton boxes for shipping but all of our pipes are packaged in plastic sealed containers to minimize exposure to weather.

C&T Today: How does product packaging play a role in marketing?

MB: Product packaging is a perfect tool for

spreading the word about your company and its products. You have to ask yourself a question: "How do you make your customers share your company information?" The best method of design is to have packaging that can be repurposed after the product has been used. A great example of that would be our best nano crystal charcoal filters for joints and all our pipes. They come in a tin black box that can be used afterward, for storing and carrying joints, flower, and other small tools.

C&T Today: What's one thing you learned and one thing you can teach about product packaging for cannabis consumption products and accessories?

MB: You have to be very innovative in terms of packaging. The packaging that is not thrown away and can be reused time after time is always a reminder of your company when people see logos and product information. ♦

MISSION:

Compostable

Facing the Dirty Truths of Cannabis Packaging

By Matt Grimshaw

Since adult-use legalization came to California in 2016, a constant irritation is the sheer volume of single-use packaging generated under the premise that cannabis is so dangerous it must be sealed in childproof (often adult-proof) packaging. As a consequence of this approach, some cannabis markets see as much as 70 grams of packaging per single gram of actual flower.

As a filmmaker, I've long been curious as to what the cannabis industry would do about its single-use packaging addiction. Cannabis has always been notoriously difficult to package: It's highly volatile, unstable, odorous, and due to its rather sticky nature it's easy to contaminate. Specialist packaging technologies are necessary, which also means lots of waste. Quite how much we're talking about in total is difficult to ascertain as unsurprisingly, nobody seems overly keen to track these sorts of metrics, let alone talk about them. However, it's not difficult to envision.

Tallying the Trash

California alone has sold over \$21 billion since full regulation began in 2018 and the vast majority of those sales come in either: Single use Metalized, Biaxially-oriented Polyethylene Terephthalate (BoPET) bags, commonly called Mylar (actually a brand name), and the ubiquitous glass jar with various forms of metal, plastic, or foam-insert lids. If we're conservative and say \$30 is the average purchase for an eighth, and there's \$21,000,000,000+ in sales ... you do the math.

Both forms of packaging have pros and cons. BoPET bags from chemical giants like DuPont-Teijin Thin Films (Mylar), TORAY Industries



BoPET bags effectively protect cannabis from environmental factors that cause degradation. However, they are also exactly the type of indestructible plastic responsible for the modern scourge of microplastics.

Inc. (Lumirror), and Mitsubishi Polyester Film (Hostaphan) effectively seal cannabis to trap its moisture and terpene profile. They simultaneously protect it from external environmental factors that can cause cannabis to degrade, like heat, sunlight, and off-gassing. BoPET is cheap, lightweight, and commonly available. However, it's also exactly the type of indestructible plastic that is responsible for the modern scourge of microplastics.

Now, before anyone mentions glass jars as a “recyclable” alternative solution to BoPET, might I point out the voluminous plastic lids, polymer stickers, and foam tamper-proof seals as evidence that they're not? Let's not forget there's a very good reason glass was abandoned as a packaging medium in the 50s. A single pound of cannabis broken into the most popular

size of purchase, eighth jars, means 128 glass jars in a box, which at retail weighs over 33 lbs. That weight has to be trucked all over the state from farm to retail location before being disposed of, or less likely, recycled.

Compost Curious

So what of the much-vaunted “sustainable packaging” revolution that was supposed to threaten this status quo with a flood of bioplastics and mushroom-grown boxes? Well, it seems to have stalled, at least in the spaces I occupy. I tried talking to a few vendors offering compostable tech solutions. After one offered me commissions to sell for them and the other went AWOL after making me sign a non-disclosure agreement, I genuinely thought the compostable approach was perhaps too new and untested to be viable at scale. I abandoned the ▶



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external or internal power for the materials to function. Eventually, it made the shift to humidity control packaging solutions in cigars, which is, of course, a short hop away from the cannabis industry.

During our meeting, Shen showed off her non-liquid humidity control packs called Humidicure. They do what all the other humidity technologies do but without any liquids, salts, or gels involved. She told me of her drive for sustainability by using only compostable materials and while Humidicure was impressive, it didn't prepare me for what she showed me next: A new generation of her humectant technology built into fully compostable, biopolymer-based packaging technology called Ruksak.

Comprising a Polybutylene adipate terephthalate (PBAT) thin film material, with a Polylactic acid (PLA) separation liner heat sealed into a bag, Ruksak protects a second-generation version of her humectant technology — which keeps contents at a perfect 62% relative humidity. When acting together like this, Ruksak represents an extremely tough, waterproof form of packaging that keeps its contents perfectly cured for up to 12 months of the humectant's operational life, after which it's 100% compostable in just 6 to 9 months in contact with soil. As the realization of what she'd developed began to dawn, excitement grew: A genuine BoPET replacement that also kept its contents at the perfect desired humidity, but could be composted in under a year? This is a solution the industry needs right now.

It's nothing short of a game-changing technology that could rewrite the rules of the whole packaging industry if it can meet the approval of craft farming communities who are the custodians of their curing. It's a quest to end the cannabis industry's addiction to unsustainable packaging materials, or at the very least show there are alternatives. You can join me on the journey that begins on the Monster Gardens Channel on YouTube in late 2023 ([youtube.com/monstergardens](https://www.youtube.com/monstergardens)) under the name MISSION: Compostable. ♦

ATMOSIScience creates humidity control solutions for several industries. It recently started producing sustainable packaging solutions for cannabis. Humidicure packs control humidity without using any liquids, salts, or gels. Ruksaks are compostable, biopolymer-based packaging with built-in humectant technology. They are a BoPET replacement that also offer humidity control and can be composted in less than a year.



topic and moved on to other projects. But then the phone rang.

In the summer of 2023, a former colleague told me about the new company he was working with, ATMOSIScience. If you find yourself scratching your head at the name, join the club. I had no idea who they were or what they did, but I was invited to dinner with the CEO, Dr. Sandra Shen, so I figured it'd be rude to refuse. It turned out the company is out of the museum storage and display space where versions of their humidity control technologies are used to protect priceless artifacts in exacting

atmospheric conditions, in every type of environment you can think of, from display cases to warehouse storage via all the transportation stages in between.

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It's a world where there's zero tolerance for failure. It's not like you can just wreck a two-thousand-year-old manuscript and ask for a do-over. It was from this base that ATMOSI expanded into new applications such as data centers, cell phone towers, and alternative energy vehicles by providing passive anti-condensation solutions that didn't require any



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Freeway Rick's
Cannabis
Dispensary to
Use AI and
Cryptocurrency

By Veronica Castillo

Cannabis legalization is sweeping the nation, but it remains taboo to much of the world. Many understand the unjust laws surrounding cannabis and the stigma that rose from the war on drugs, so cannabis is slowly reclaiming its place as medicine. For others, without guidance and education from the government, adapting to cannabis as part of legal society can be difficult.

Those who trust the government and allow federal guidelines to inform their decisions aren't being educated as it relates to cannabis. Though some legislators support legalization and understand the healing power of cannabis, it's usually at the state level that people are learning more and seeing the de-stigmatization of cannabis. At the federal level, cannabis remains a Schedule I drug.

Today, many cannabis businesses realize the government can't be relied on for the task of education. They understand more now than ever that it's not only the government, advocates, and patients that need to be educated about cannabis as a plant and as medicine. Businesses have learned they must also be a source of education and information for current and potential customers.

Technology is the primary method retailers are using to educate customers. *Cannabis & Tech Today* sat down with one business owner who ▶

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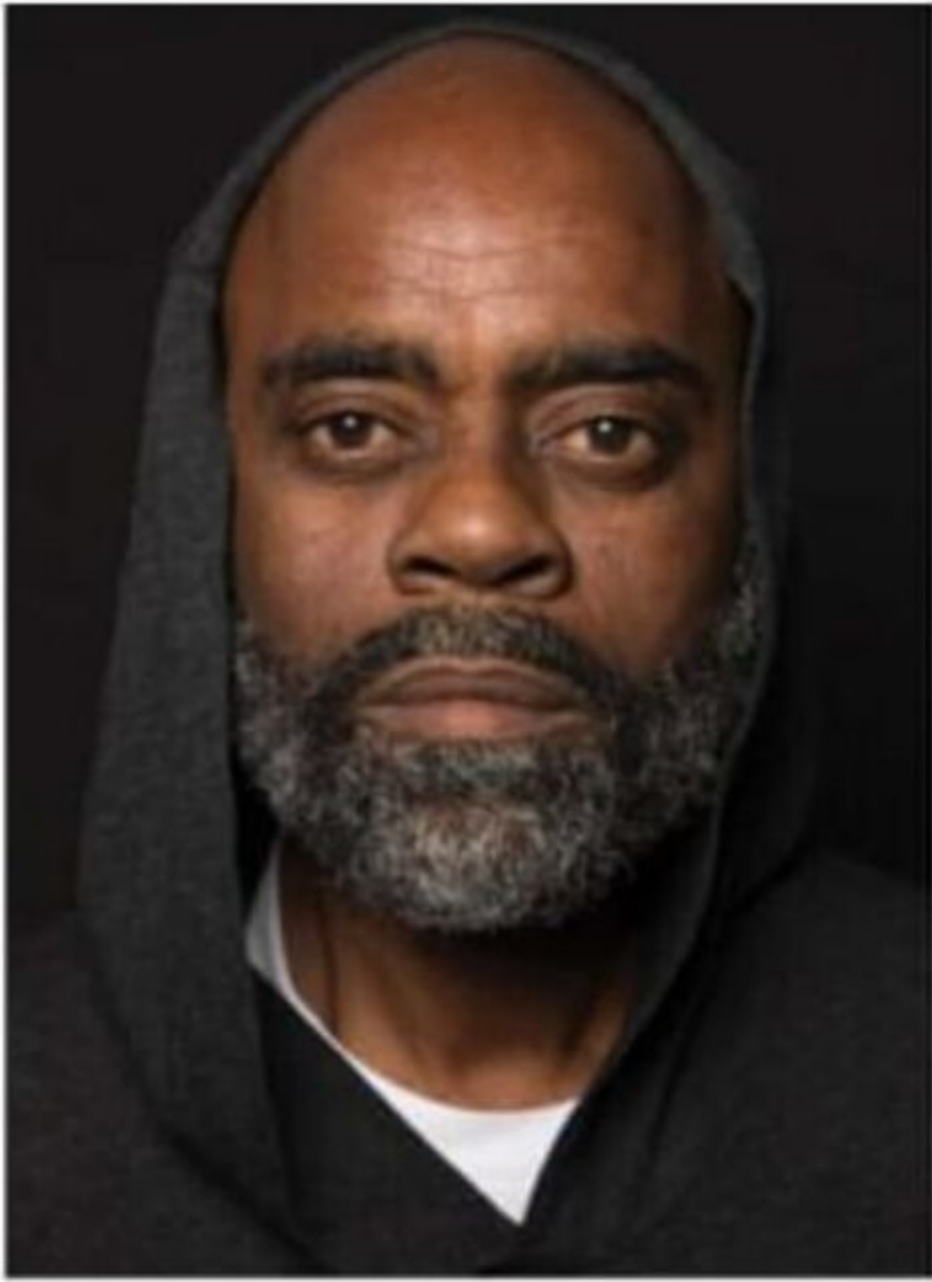
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understands a cannabis dispensary is where many repeat and first-time consumers collect information and make decisions. Ricky Donnell Ross, a.k.a. Freeway Rick Ross, is launching Freeway Rick's in Los Angeles, California, to help consumers make more informed choices. It will offer AI-powered kiosks that accept cryptocurrency payments in addition to traditional payment methods.

Freeway Rick's

Opening soon in the Sunland area of LA is Freeway Rick's, a 3,000 + square foot space dedicated to making the shopping experience one that serves the needs of the present and those of the future. Freeway Rick's is focused on enhancing the customer experience through AI-powered technology that provides cannabis education and offers cashless payments through cryptocurrency.

Ross is best known for his involvement in the Iran-Contra affair that took place during Ronald Reagan's administration at the height of the drug war. He was sentenced to life in prison in 1996 after being convicted of purchasing cocaine. According to the U.S. Department of Justice, he operated one of the most notorious "black market" drug empires of the 80s. In 2009, he won an appeal in federal court that led to his release.

To launch Freeway Rick's, Ross is now working with a team of partners: Diedra Greenaway, Eric Hughes, and Scott Lambert.

Ross describes the team as "a group of highly experienced professionals who bring a diverse range of skills and expertise to the company."

Ross explained why each partner is a perfect fit for the dispensary. "Diedra is a highly experienced retail manager and plays a crucial role in ensuring the smooth and efficient operation of our store. Her impressive background in retail management brings a wealth of expertise to the table. Eric is a marketing expert responsible for developing and implementing effective strategies to promote our products and services."

He added, "Scott has a strong financial acumen and manages the financial aspects of our business. His expertise in financial planning and analysis ensures that we make sound financial decisions and maintain a healthy bottom line."

AI, Cashless Payments, and Education

Cashless, contactless payment technology is expanding across sectors. From self-checkout at the grocery store to ordering fast food via apps, the tech takeover has begun. The Dispense App, an e-commerce software company, uses the following example for kiosks as they relate to customer experience:

"After launching its in-store ordering kiosks in 2017, McDonald's saw more than just happier customers. McDonald's share price jumped a whopping 26%, outperforming initial market predictions. Fast forward to 2020 and kiosks proved more important than ever in efforts to social distance in the wake of COVID-19 while still operating brick-and-mortar stores."

Moving in the right direction for change, Freeway Rick's is offering cashless payment using cryptocurrency. Ross noted, "Although cryptocurrency is not yet widely adopted in the cannabis industry due to regulatory challenges and uncertainties, we recognize its potential as a future form of payment. The current government regulations surrounding cannabis sales, coupled with the lack of clarity from financial institutions, pose difficulties for dispensaries to accept cryptocurrency at this time."

Ross isn't letting those difficulties slow him down. He added, "However, as cryptocurrency becomes more established and regulations

evolve, we aim to stay ahead of the curve by offering this payment option to provide our customers with added convenience and flexibility".

Taking tomorrow into consideration for the build happening today, Ross and his team understand that cannabis education is needed and that AI technology can help. Ross shares that their strategy and market approach will prioritize innovation. Through kiosks, customers will find products that best meet their needs.

Ross explained, "One of the ways that AI will play a crucial role is in enhancing customer engagement through smart, interactive touchscreen kiosks. These kiosks will assist customers in finding products that best meet their needs. AI, as a technology, is not directly addressed in most cannabis regulations. However, businesses in the cannabis industry can use AI tools and technologies to streamline operations, improve efficiency, and enhance customer experience".

An important point Ross makes is that AI is not explicitly regulated in the cannabis industry, so businesses using AI have to navigate regulations related to privacy, data security, and marketing compliance.

Planning for the Future, Today, With Teachings From the Past

While business is very important to Ross, he wants to utilize AI for much more. What he is setting out to accomplish focuses on his journey of redemption and transformation. He describes the need to utilize technology with a focus on positive change in the community. "The emphasis of these initiatives lies in community engagement and empowerment programs, which aim to give back and create opportunities for marginalized groups who have been impacted by cannabis-related policies."

Freeway Rick's mission as a cannabis entrepreneur is passionately described by Ross and his team, "We aim to provide a superior customer experience and an outstanding product selection that appeals to the needs of all consumers, and we will serve our community with compassion, integrity, and professionalism, utilizing the advancements of technology to help make this happen." ❖



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Terp Bros Take on New York

Scrappy, Self-Funded Start-Up Opens in Queens

By Lulu Cohen

New York City's quest to tackle cannabis legalization has been daring, innovative, and simultaneously convoluted, weakly constructed, and misleading. The Office of Cannabis Management (OCM) is New York State's governing body for legalization. Its primary focus is racial justice and social impact.

Recipients initially received provisional Conditional Adult-Use Retail Dispensary licenses (CAURD) in November of 2022. All were chosen by OCM. They had to meet strict regulations the state created to give back to the victims most affected by the war on drugs. The guidelines are lengthy and applicants must provide documentation showing they are "justice" involved. Furthermore, applicants must offer proof of where the individual who was convicted of the marijuana-related offense lived at the time of their arrest/conviction, and proof of ownership and control of a qualifying business.

The initial six and then eventually, 30 CAURD winners experienced the greatest feeling of all, the thrill of victory. Part of the requirements to qualify for a CAURD license is that applicants were convicted of a cannabis offense and served time in New York State.

When OCM announced the winners in late 2022, most CAURD winners felt relief and



Photos courtesy of Terp Bros. and Bonita Photos

joy; families' lives shattered from incarceration were now at the forefront of New York's stringent programs to give back to those who were most affected by the war on drugs. With the support of the

newly created OCM and the city of New York, 36 initial license holders were poised to pursue their cannabis dreams.

Queens, NY native, Jeremy Rivera founded one of the start-

ups that has survived the issues plaguing the NYC market since the CAURD licenses were awarded. He is the owner of Terp Bros, one of the few legal cannabis dispensaries open in NYC. The

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storefront sits among the local shops in one of the most diverse and culturally inclusive neighborhoods in Northwest Queens, which is the largest of the five boroughs in New York City.

Rivera received his CAURD license after being rejected during the first three rounds. In April of 2022, they were ready to open. He and his partner drained their bank accounts because they are 100% self-funded, justice-involved, and ready to operate. They had given up everything they had saved to get to that point.

His life story is a combination of survival, determination, and heartache after overcoming years of incarceration. Rivera explained, “In 2015, I had accrued multiple cannabis convictions after serving time as a juvenile. I was full-fledged in gang life from the time I was in middle school. From 17 until now was the longest time I’ve been home from prison, which is five years.”

He continued, “That’s when I realized what the NYPD’s tasks were like when they went into the disproportionately affected neighborhoods. They were

utilizing the odor of cannabis and smidgeons of cannabis as a weapon to mass incarcerate us.”

By 2018, Rivera was released after a two-year, non-violent, drug-related prison stint that also included cannabis. He spent his 30th birthday in solitary confinement. “I made the decision to leave the gang life. I was able to get into construction through a family friend. I decided not to participate in gang politics. I was always a good talker and a thinker,” Rivera added.

On Aug. 7, 2023, NY issued yet another injunction to stop the rollout of dispensaries from opening across the state. “This has caused irreparable harm to many who went through the CAURD program and haven’t been able to open up. That is when we started to worry. CAURD wasn’t written into the MRTA laws. CAURD gave opportunities, but it was flawed. I admire the gumption behind it, but it left room to punch holes in it,” Rivera lamented.

Finally, on Oct. 17, 2023, Terp Bros opened its doors and the

community embraced it. Terp Bros supports the CAURD initiative for its intention to encourage members of communities disproportionately impacted by the enforcement of cannabis prohibition, or who qualify as a minority or women-owned business, distressed farmers, or service-disabled veterans. He proudly features women-owned products, legacy brands, and brands owned and operated by veterans.

Rivera and his team are working with neighboring stores to offer discounts to customers who bring receipts from those businesses. He discussed some of his other social impact efforts, “We did a walk in support of cancer patients and donated baskets. For every lap they did, we gave them \$25. We don’t want to partner with big corporations who make it seem homegrown but are not.”

Rivera concluded, “We’re planning a Thanksgiving Drive. We have a huge local homeless community, and we want to think outside of the box where we know we will be able to have an impact.” ♦

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Welcome to

CANNABIS COUNTRY

Exploring the Cannabis Economy of America's Mountain States

Section Compiled by Hal Bishop

The Mountain West region of the United States is a vast and diverse area, encompassing the states of Colorado, Idaho, Montana, Nevada, New Mexico, Utah, and Wyoming. The region is home to a variety of landscapes, from the Rocky Mountains to the Great Basin Desert, and is a popular destination for outdoor recreation. In this issue's Regional Spotlight, we'll focus on two companies headquartered in Colorado and Nevada, respectively, that are innovating the cannabis space. The Mountain West is a land of extremes, with towering mountains, deep canyons, and vast deserts. It is also a land of opportunity, with a growing economy and a diverse population. It's a place where people can live, work, and play in a beautiful and challenging environment. Let's explore more in this Regional Spotlight.

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Using Time-Tested Techniques to Build a Better Greenhouse



Ceres Greenhouse Solutions CEO Chris Uhlig feels the secret to the company's success is implementing non-commercial greenhouse styles into scalable structures, thereby saving energy and encouraging efficiency.

"A man doesn't need brilliance or genius, all he needs is energy."
— Albert M. Greenfield

Cannabis, similar to the man described by Greenfield, needs energy to grow — lots and lots of energy. Cannabis cultivation consumes more than 1% of America's electricity production each year. Outdoor grows and greenhouses are less energy intensive than indoor facilities, but indoor is by far the most popular option for cultivators.

Benzinga reported indoor grow facilities use eighteen times more energy than outdoor operations. Indoor grows offer more precision in lighting, temperature, and moisture levels, but are a burden on power suppliers. After Colorado legalized adult-use cannabis, Denver showed a 45% load growth on its power grid. Boulder, CO is now assessing a \$2.16 fee per kilowatt hour for commercial cannabis growers to encourage the adoption of renewable energy systems.

Many cultivators are looking for alternatives to indoor grow facilities, particularly in regions with an outdoor environment conducive to cultivation. Colorado is one state with an ideal climate for greenhouse cultivation, particularly if those greenhouses are modified a bit from traditional models. *Cannabis & Tech Today* spoke with Ceres Greenhouse Solutions CEO

Chris Uhlig to discover how innovations in greenhouse design could change the landscape of commercial cannabis cultivation.

Uhlig explained that traditional greenhouses are poorly insulated, relying on single-pane glass and little else to protect plants from the elements. They are also vented to help control temperature and humidity. Ceres' greenhouses are different, offering sealed, insulated structures. "If you look at non-commercial greenhouse styles, and there are many, we've just used those concepts and commercialized them."

Traditional greenhouses lack insulation and use single-pane glass, resulting in compromised light transmission and insulation. Ceres Greenhouse Solutions addresses this issue by designing a better envelope for the greenhouse and optimizing energy consumption for heating, cooling, air movement, and irrigation. The company's sealed greenhouses offer significant energy savings compared to traditional greenhouses and indoor grows. Uhlig explained, "With our solutions, you're using less power, depending on location, but you're typically saving around 50% on energy using our sealed greenhouse versus an indoor grow."

he company incorporates an earth battery system, known as the GAHT System, and a heat pump system called EcoPack, to store and

utilize excess heat efficiently. "We've developed a system based on an earth battery that we've patented in conjunction with our greenhouse. It allows us to store excess heat from the day temporarily underneath the greenhouse, then use it at night to put heat back into the greenhouse. One of our greenhouses in Alberta, Canada, uses that system to keep above 45 degrees year-round," Uhlig noted.

Ceres also uses glazing materials with high light transmission and insulation properties. Uhlig explained, "We use acrylic, we use ETFE; both of those materials have high light transmittance and can be applied in two or three layers, introducing insulation on the glazing side that is otherwise hard to achieve." The company is headquartered in Colorado, which offers ideal conditions for its greenhouse solutions due to the intense sunlight and altitude.

Ceres' customers benefit from utility company incentives for energy-efficient solutions and grants available for agricultural projects. The company is now expanding beyond the cannabis industry and working on projects for schools, labs, and other agricultural entities. It is also exploring innovations such as biophilic architecture and integrating PV panels into glass structures. Ceres Greenhouse Solutions is looking to expand internationally, with a cannabis project in Portugal being its first international venture. ♦



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Reaping the Rewards of Automation

How Technology is Transforming Crop Harvesting



Greenbroz N-Line fully automated end-to-end cannabis system and the rise-n-grind automatic grinding system with the Model G standalone

Nevada is a state with a diverse climate, making it ideal for growing a variety of crops. However, the state's arid climate can also make it difficult to harvest crops. In recent years, there have been many technological advancements in crop harvesting solutions that have made it easier to grow and harvest cannabis in Nevada. These advancements include the use of drones, robots, and artificial intelligence. These technologies have the potential to revolutionize the way crops are harvested in Nevada, making it possible to produce more with less labor and resources.

One company creating award-winning cannabis harvesting solutions for Nevada growers is GreenBroz. It's created purpose-built, American-made cannabis processing equipment for over a decade. CEO Cullen Raichart told *Cannabis & Tech Today* that the Nevada marketplace is hungry for automated solutions that allow them to process large yields with little effort. "We continuously push the envelope on automation, programmability, and AI integration to enhance our customer's experience," Raichart shared.

Nevada is home to some gigantic grows. Flower One is the largest greenhouse in the

state, capable of growing 100,000 plants at a time. The massive facility generates around 140,000 pounds of flower per year for dispensaries in the southern part of the state. Planet 13, the world's largest cannabis dispensary, is also located in Nevada. It sells ridiculous quantities of cannabis in Las Vegas, one of America's most popular tourist destinations. Raichart explained why Nevada is an ideal location for his R&D, "As a tourist hub, we get people from around the world so it's a great amount of exposure and an excellent test bed for products."

With such large companies operating in the state, it's no wonder there's elevated demand for automated harvesting solutions. Greenbroz created automated machinery for every step of the harvest cycle, from trimming through to sorting. Traditional labor-intensive harvesting methods are increasingly being replaced by automated systems that offer greater efficiency, precision, and sustainability. These advancements are driven by a combination of factors, including labor shortages, rising labor costs, and the need to meet growing demand.

Automated harvesting systems encompass a wide range of technologies, from robotic harvesters to AI-powered sensors. These tools enable cultivators to selectively harvest crops without damaging the plants, quickly trim harvests, and efficiently sort product. This precision harvesting approach minimizes waste, reduces the risk of contamination, and improves crop quality.

The benefits of automation in crop harvesting extend beyond efficiency and quality. Automated systems can operate around the clock, reducing time pressure and allowing growers to focus on other critical aspects of management.

As automation continues to revolutionize crop harvesting, it is essential to consider its impact on the agricultural workforce. While some jobs may be displaced, new opportunities are emerging in areas such as technology management, data analysis, and machine maintenance. Growers will need to adapt their skills and knowledge to work effectively alongside these automated systems, ensuring a sustainable and productive future for cannabis cultivation. ♦

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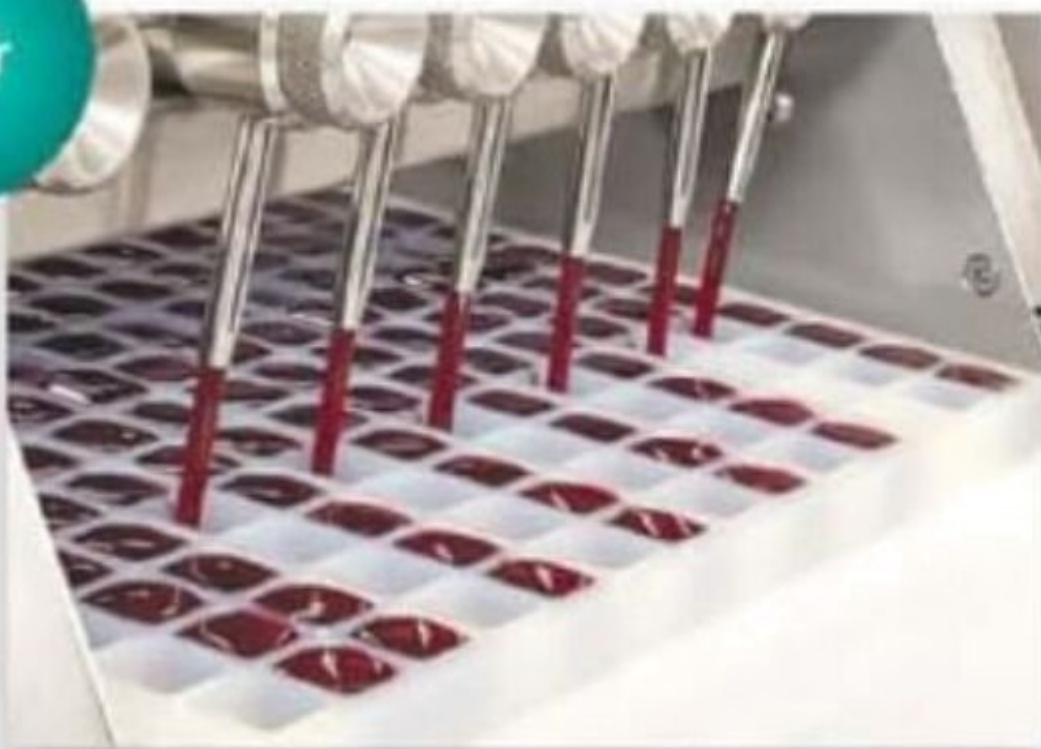
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PR For Power Players

'Our Mission at Grasslands: Helping Bold Cannabis Brands Win'

By Patricia Miller and Charles Warner

Veteran journalist Ricardo Baca was *The Denver Post's* first-ever cannabis editor, launching its news vertical *The Cannabist* in 2013. In 10 short years, Baca has become an internationally recognized cannabis authority, appearing in documentaries and news segments, even dropping knowledge on TED stages when he's not speaking at various panel discussions across the country. He is a columnist for several respected publications including *Rolling Stone* and *Adweek*.

While covering an emerging market in one of the nation's first legalized states, Baca had a vision to create a business of his own. In 2016, he launched cannabis PR firm Grasslands: A Journalism-Minded Agency. Grasslands represents some of the most influential cannabis brands in the industry, including Cookies, Puffco, and Housing Works Cannabis Co. In this interview, Baca discusses what inspired the creation of his public relations firm and how two-plus decades in journalism helped build its foundations. *Cannabis & Tech Today* Editor-in-Chief Charles Warner sat down with Baca at Grasslands' agency headquarters in Denver, Colorado.



Photo by Paul Miller, courtesy of Grasslands: A Journalism-Minded Agency

Cannabis & Tech Today: Where do PR agencies like Grasslands offer the most value to their clients?

RB: I think the most value we could ever offer to our client starts at this very foundational construct of communication. This comes back to the foundations of Grasslands, because as I was wrapping up a 24-year journalism career, I already knew that PR and marketing agencies working in the space had a major problem, especially as they related to journalists and media organizations. How are you developing these relationships with journalists? How are you maintaining them, and how are you being an exemplary partner to your media partners? I already knew there was a significant issue there, because I was in the belly of the beast running *The Cannabist* and also having 20+ years of journalism experience before the weed beat came my way.

Before starting an agency, I knew I needed to understand the agency-client relationship better. When I did that due diligence, I was pretty amazed to see there was one primary complaint coming from the client side about all of the agencies they had ever worked with. Talking to five or six mentors and people who have hired PR agencies themselves, they said they were really sick and tired of PR agencies overpromising and under-delivering.

And I get it, the pitch process is challenging. Business development is hard, especially when you're in a space like PR and marketing where the ROI isn't always obvious or hyper-defined. But I saw the white space, for an agency to be a better, more



Photos courtesy of Grasslands

communicative partner to its clients, and a better, more helpful partner to its network of journalists. I've recognized that from the start, coming from the journalist side, as I know that what gets covered is what the journalist wants to cover. And this is a big differentiator for Grasslands, because when we're coming into these new relationships we're managing expectations and having clear and transparent communication about what we can promise and what we cannot guarantee.

C&T Today: How do you feel about the potential of the federal government rescheduling cannabis?

RB: I'm bullish. It's going to happen, and it cannot happen soon enough — as the modern cannabis business isn't standing on equal ground with those in other industries. Schedule III will hopefully provide a temporary shelter for cannabis businesses to start catching their breath — and start planning for a future that very much involves federal legalization.



C&T Today: As the world's first cannabis editor, where are journalists falling flat when it comes to cannabis coverage?

RB: I have lots of thoughts on this, and it's a complicated space. But I'll start by saying, I give a lot of credit to the modern cannabis journalist. It's a tough beat. Also, we know it's a wide spectrum of what journalism is.

On one side you have "capital J" journalism, some of the stuff coming out of the *Boston Globe*, doing investigations on bad actors or bad regulators. On the other



"The industry needs to step up to be better supporters of the media ecosystem that has so faithfully and robustly covered them over the years."

Photos courtesy of Grasslands

side of the spectrum, you have activist-centered journalism, which is important in a different way. When *High Times* magazine flew me out to L.A. to interview for the editor-in-chief position five or six years ago, I was just coming out of traditional journalism. I asked them straight up, "Hey, can I hold the powerful to account? Can I write when that big brand is fucking up? Or when this regulatory process is eating shit — can I write about these things?" I heard from their leadership at the time that *High Times* will never write a negative word about any brand in the cannabis industry. They are on the other end of the spectrum of advocacy journalism.

While I appreciate a lot of the work that's being done in the space, I would point out that sometimes modern cannabis journalism is too geographically centered in California. I'm not taking issue with the fact that California is the birthplace of the modern cannabis movement, of medical weed, of so much. It is

also home to some of the most talented geneticists, growers, manufacturers, distributors, and retailers in the world. At the same time, we have incredible professionals, businesses, brands, and work being done outside of California that deserves more of a spotlight than it's currently getting.

I would also throw out that it seems like there isn't a lot of serious journalism or reporting on this space now, and I don't know if that's a good thing for the industry. When I say serious journalism, what I'm looking for is, are we holding the powerful to account in the industry and the regulatory infrastructure? I would like to see more serious journalism that digs into some of these issues and breaks them down for readers. Journalism is known as the Fourth Estate for a reason. It's almost considered this unofficial branch of government that should be protected at all costs, of course, freedom of speech and assembly. We know that when we see

stronger and more stringent journalism covering any industry, that industry will only be made better by that coverage.

And, this isn't always a situation where journalists are falling flat, but I would argue the industry is falling flat in its lack of support for the good journalism that's being done. I think it's fair to say that a lot of cannabis executives take for granted the incredibly passionate and robust cannabis media ecosystem that we have.

Are they supporting *Cannabis & Tech Today* with a subscription? Are they subscribing to Tom Angell's Patreon at *Marijuana Moment*? Are they supporting Jonathan Rose's Substack *Regulated State*, or Jeremy Berke's Substack *Cultivated*? Are they doing whatever they can be doing to support great journalism being produced across the cannabis media paradigm? I would put it on the industry, because we are letting down the cannabis B2B media ecosystem when we need to be lifting them up. The industry

needs to step up to be better supporters of the media ecosystem that has so faithfully and robustly covered them over the years.

C&T Today: You've held the Grasslands Party in Las Vegas for several years. Why are after-party events crucial to elevating the atmosphere of Cannabis Week in Las Vegas?

RB: I cut my teeth throwing renegade happy hours and events at South by Southwest for many years. When I went to my first MJBizCon, I just saw the need for more third-party events. Especially when you think about what BizCon looked like back then: You get off the conference room floor, maybe you're going out for a small dinner. Occasionally people were throwing substantive parties, but that wasn't the case yet. I just recognized an opportunity.

Cannabis professionals, especially executives, need an opportunity to let off steam after a



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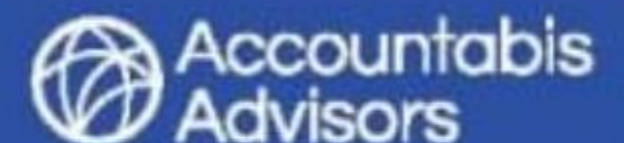
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day on the floor, after a day in meetings. If you can provide the right environment for them to let off that steam, then you're providing a very important service. The way we approach The Grasslands Party is, we want the right people in the room above all else.

C&T Today: You have had quite the career and accomplished some amazing things. What would you say are one or two of your proudest moments?

RB: One of my proudest moments was — and on one hand, it's kind of a schtick, “12 People to Watch in Marijuana Policy.” But on the other hand, [the article] comes from a very powerful and influential think tank in D.C. called the Brookings Institution. When you scroll down to number 10 and read what they wrote about me, it helped put in perspective what I did for all those years in journalism.

Brookings wrote that “*The Cannabist* provides perspective on the issue, but also maintains high-quality journalistic standards.” [They said] my work “will have an

effect on marijuana policy, in the same way the media influences conversations of all types of public policy” ... and “Baca will also help transform media treatment and coverage of marijuana policy and politics over time.” When I first read the piece, I was working 80 hours a week at the newspaper and just like, “Cool, whatever, I’m on a list with Hillary Clinton? That’s hilarious.” [Laughs]

But then on the flip side, as I’ve gotten more perspective over time, I have very much learned that what my colleagues and I did at *The Cannabist* and *The Denver Post* was indeed groundbreaking. You can look across the entire media paradigm and see how they cover cannabis differently now. I think this article helped me understand the importance of what I was doing. I wasn’t doing it for the pro-marijuana movement. I was doing it for my readership. We were so dedicated to providing valuable information, news, and commentary on this emerging cannabis market that was happening nowhere else in the world. We really did impact the global rollout, how media covers it

— especially since media scales the messaging around any movement or meaningful social change. I feel really proud of this.

But also, as I have conversations like this where I’m talking about the seventh anniversary of a small business, a milestone Grasslands is approaching in December — you know how hard that shit is. I think maybe my second most proud moment might have been two weeks ago. I was working late at Grasslands HQ in Denver. I was turning out all the lights, and I opened up the back door, turned around, and I had that moment of, “Holy shit, we did this.”

We have 24 full-time human beings working for us and 12 subcontractors. We somehow successfully bought a building that we will be paying off for the rest of our lives, and renovated that building into the meaningful headquarters for our small business that we always wanted. I think it was one of those moments where I marked the personal transformation because, less than 10 years ago, I was working 80 hours a week at a job that was

killing me. A job where I had no job security and very little appreciation for what I contributed to the overall corporation. Now, I’ve created a different kind of corporation where we have an immense appreciation for everything that every person brings to this small business. It was just one of those really meaningful, heartfelt moments.

I don’t think we do that often enough, recognizing how far we have come. Transitioning from journalist to entrepreneur is not easy because in J School there are no business classes. Most journalists are generally bad at math. You know shit about business because you’re intentionally kept away from the business operations. I was editorial, not operations, not finance. I think this transition for me has been especially hard. But two weeks ago as I was locking up the office and looking back, I was definitely hit in a profound and meaningful way. Like, “We’re actually doing this — and we’re doing it exactly the way we want to be doing it.” 🌱



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High-Tech Party Planning

Farechild's Event Platform Offers an Ecosystem of Services for Event Producers

By Ebby Stone

Party planning is an art. Music, lighting, food, drink, and a well-curated list of attendees work together to create an inviting atmosphere. Few know the formula as well as Farechild, an event production company founded by David Tran and James Zachodni. Farechild is both an event production company and a planning platform for the cannabis industry. Zachodni's and Tran's background in hospitality, owning nightclubs before moving on to organizing events for their co-founded Dope Magazine, helped the duo master the skills required to create top-tier cannabis events.

After years of hosting MJBizCon after-parties in Las Vegas, Farechild partnered with MJBizCon to create this year's Emjays International Cannabis Awards Show. The black-tie event will recognize ancillary companies in cannabis, the non-plant-touching entities building the foundations of the emerging industry. While the founders remain focused on event production, the Farechild

platform has a broader mission. It offers a central location for event producers to promote and sell tickets for cannabis-related events and will include features such as venue recommendations and event marketing tools. *Cannabis & Tech Today* spoke with Tran and Zachodni via teleconference. To hear the full interview, visit CannaTechToday.com/podcasts.

Cannabis & Tech Today:
What inspired you to create the Emjays?

DT: We've always thrown high-level award shows where things are very elegant, very black tie. We realize that in our industry, people are working hard during these events so we just wanted to create a night where everyone got together — so we did our MJBiz after parties. Something we realized a long time ago when MJBiz was a small company and a small trade show, we knew it was a very important event and every year it continued to be the quintessential expo that turned into more than an expo. So we threw this after-party and realized



Photos courtesy of Farechild

that was our niche. We wanted to have fun. People were there still and wanted to experience and connect even further through those events.

JZ: We figured out a way to create this great model to recognize that these different, not just the products and the plants and all the stuff that people give awards to,

but to the people in the businesses that prop up this whole industry from the accountants to the advocates to the law firms or packaging companies. These are the people that are the picks and the shovels of the gold rush.

So we created that model and when the time came to think about our next evolution of after-



parties for MJBiz, we had always wanted to partner with MJBiz but we were never able to create that connection to do an official handshake with them. And finally, we were thinking about retooling our after party anyway, because we did it for so many years. We wanted to challenge ourselves and step outside of the box. We asked ourselves, “What does MJBizCon lack, or is there a niche we could jump into?” We realized there were no great awards shows during MJBizCon week, so we said, “Hey, why not us?”

What’s important is making sure there’s actual value in winning an award. Anyone can make up an award, but there’s a reason why certain awards have certain cache to them — because there’s credibility behind the awards. Having MJBiz behind it, having their team be part of the nomination, the judging, all of that process, really makes this an award people are going to want to win.

C&T Today: What kind of performances are you planning for the event?

JZ: We want it to be focused on the awards and give the spotlight to the actual people who are winning. We want it to be very fun and entertaining. The theater

where we’re hosting it, the Pearl Theater inside of The Palms, is one of the most beautiful theaters you’re going to walk into outside of an opera house in Rome or something. But when you talk about Las Vegas theaters, you’re talking about one of the crown jewels of the city.

It’s really interesting to see our industry put into this spotlight, doing this on a high level that you wouldn’t be surprised to see any major award show there. The show itself is going to be the entertainment. I challenge everyone to come and see if you’ve ever seen a more highly produced award show in the cannabis space; we’re going all out.

C&T Today: Tell me about the technology embedded into the Farechild event platform. How is it helping other event producers?

JZ: When we came up with the idea of Farechild, we knew that we knew events as well as anybody, but we didn’t know much about the technology side. So during the good old [COVID-19] years, we spent that time carving out, “Okay, what can this platform be? What technology do we want it to have and what would be useful to our industry and to our peers that are also producing events?” I put myself through a tech startup

crash course. It was an online incubator to get the feel of what the tech industry is like and make sure I thought through bottlenecks that could hit us as we built this thing up.

Ticketing platforms were few and far between that would allow a cannabis event. There’s nothing. Eventbrite will shut you down. Ticketmaster — no shot. We saw that as sort of the angle, but then on the technology side we realized this could be more than just a place to buy a ticket or sell a ticket. It could be a community or a marketplace for events. And what’s needed out there is like, “Well, where do I go to find out what’s going on in my city?”

So as we continue to grow and more events are on the platform, our data sets are getting bigger and cleaner. We’re able to take that

information to help event partners who are looking for that one-stop shop to, not just put their event up and have it as an easy-to-use website for people to buy and sell tickets, but also as a marketing tool. This can also be where events share all their pictures. This can also be where brands look for venues that are cannabis friendly. It’s also a hub where I can go as a consumer and peruse around the state I’m in to see what events are coming up. So we see this as a platform for anything event-related in the cannabis space. We’re slowly getting there and we’re going to start making this our call bell for people to say, “Hey, Farechild isn’t just the guys that throw these awesome after parties. This is a place where I can go to help grow my events and get more eyeballs on my events as an event producer.” ♦

Hash, Laughs, and Stars

New Series Could Bring Hash-Smoking Celebrities to Streaming Platforms

By Ebby Stone

When I started writing for *Cannabis & Tech Today*, friends would suggest questions I should ask during celebrity interviews. Often, people wanted to know who the celebrity would love to smoke with and why. Viral YouTube series *The Dab Roast* takes this premise to another level, inviting celebs to smoke hash while answering increasingly difficult questions. The show scored some big names willing to take on the challenge. Actress Rose McGowan, former NFL athlete Ricky Williams, comedian Doug Benson, and many more stepped up to offer viewers a fascinating glimpse into the stoned celebrity mind.

Scott McKinley, co-creator of *The Dab Roast*, sat down with *Cannabis & Tech Today* via teleconference to discuss what inspired its inception and how he's reimagining the series for streaming platforms with Director and Executive Producer Redman. To listen to the full interview, including McKinley's favorite celebrity encounters and funny stories from behind the scenes, check out CannaTechToday.com/podcasts.

***Cannabis & Tech Today:* What inspired you to create the original Dab Roast?**

SM: I wanted to make something that took people off their kilter. I love making somebody relax enough to tell you the truth. We thought long and hard about what questions to ask these people to create viral moments that wouldn't hurt their reputations.

We didn't want to cheerlead anybody or have puff pieces, but we wanted to make something that was real and get real answers and not make it all cannabis. So the softball questions are one and two, like, "What's your favorite strain?" But once we get into it, after dab five, it's game on.

***C&T Today:* How did you connect with Redman?**

SM: Caviar Gold hired me to head their music label, Caviar Gold Records. So I started working with Robert Lang Studios and putting a whole bunch of artists together and recording them under our label and putting out a bunch of weed music. I met Redman on a video shoot with all of these other stars, and it was like a month-long video shoot in a couple of different mansions ▶



Photos courtesy of The Dab Roast

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and a couple of different states, [it] cost ungodly amounts of money. I was Redman's, basically roommate, or the room right next to him for the entire time we were doing this music video and we just got to know each other really well ... That was 16 years ago and I've talked to him three to five times a week ever since.

C&T Today: How did he become interested in the show?

SM: I was doing The Dab Roast as a podcast because it was funny and it was fun and I was getting a lot of celebrities to come through. I was building something that I thought everybody would love just because it's shocking. When we're playing these at our release parties, we play these in front of an auditorium full of people. Everybody comes and all the brands come out. We have huge smoke parties that we filmed and recorded a bunch more content from all the parties.

At these parties, we play the videos, and about halfway through everybody starts going to smoke and party and leave the video — it just starts getting boring. Redman, we played his Dab Roast video and halfway through it started happening. He's in the building watching with everybody and he pulls me aside and he goes, "Yo, we're not releasing my episode, and matter of fact, you shouldn't release any more episodes. I'm your friend and I want to help. And I got to be honest with you, this is boring as shit. You have a podcast that is based off of another show, it's got shock value with celebrities taking dabs, but that is boring after the first two minutes of watching it."

Redman is like, "If you let me come on, I'd like to be the

executive producer and direct and take this out of the YouTube platform and put it more onto a Netflix platform. Can I write you some ideas?" I said write up some ideas and I'll listen. So the next morning he sent me four pages of director formatted notes, like a movie scene, every single thing that he would change and how he would change it, the focus of storyline, theme, color, and music; he went deep. I read every single note. So I called him back and I was like, "Let's take a run at it your way."



C&T Today: How does this iteration differ from the original?

SM: We have two brands featured with five segments and we still have a celebrity taking five dabs, answering five questions. That gives us 15 segments. And in between those segments we have The Dab Roast, which is two comedians taking dabs and roasting each other brutally. It's hilarious.

Then all of the party footage of just extreme cannabis, giant dabs, crazy brands, all kinds of stuff. So it's just the extreme of cannabis culture. We're showing you all the extreme content, but in between we have 15 segments of educational and entertaining stuff. We would consider ourselves the adult version of Sesame Street where we have short attention spans and a lot of content, with 15 main segments in every episode.



C&T Today: You've got this footage filmed, are you pitching it to streaming platforms now?

SM: We're putting the pilots together based on two brands for every episode. We want three episodes as pilots in order to give whatever brand picks us up enough runway to run it while we go get more. We're going to Netflix first because Redman currently is working with Netflix. He has people there willing to look at it as soon as we get the three pilots done.

In the meantime, we want more fresh content, so we decided to throw a festival together called the Cantanna Fest. We are filming everything we can, building off this first year of our festival that we just pulled off with Tech N9ne headlining.

This year was our test run of a festival. Now for August of 2024, we have three days at Franklin Farms in Snohomish Washington with four stages featuring 93 artists and a car show ... We're hustling and working on trying to get the pilots done so that we can go to a network and say, "Here are

the pilots. We have this big festival to keep the content going. Will you buy the pilots and fund us to keep filming this festival and more brands and more celebrities taking dabs?"

We're going to have a whole lineup of 93 celebrities and artists at this festival that we can get to do The Dab Roast, get them doing a five-dab session with us, and just build a bunch of episodes fast. We've set ourselves up content-wise for success where we have a lot of content in the vault. It's going to rock the world because nobody has released content like this. ❖

Photos courtesy of The Dab Roast

More to the Story

STM Canna, a cannabis equipment manufacturer based out of Spokane, Washington sponsored one of McKinley's pilot episodes for the new series. McKinley and Redman flew to Washington to film on-site footage of STM's facilities. The footage will showcase the company's automated technologies for grinding, packing, and closing pre-rolls, inviting viewers to take an inside look at how the industry is scaling up to meet incredible consumer demand.

McKinley noted STM Canna provided him with a Mini Rocket Box and an Atomic Closer — allowing him to produce pre-rolls for many nearby cannabis companies. "It's a system we rock every day."

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Here's Your Sign

The Symbol of Best Practices in Cannabis Regulatory Standards

By David L. Nathan, MD

In the past decade, the legalization of cannabis has accelerated across the U.S. Today, almost every state permits the medical use of cannabis, while close to half of all states embrace full legalization for adults. While these changes are promising, there's a crucial issue at hand: the lack of a universal cannabis product symbol. The failure of regulators to agree on a standardized symbol poses a significant public health risk, as a harmonized symbol is essential for people of all ages and backgrounds to identify cannabis products rapidly and accurately. Thankfully, a solution has emerged in the form of the International Intoxicating Cannabinoid Product Symbol (IICPS), a thoughtfully designed and universally recognized symbol that several states have adopted in the last two years.

The Importance of Standardization

To safeguard against unintentional consumption by adults and children, regulated cannabis products must feature a symbol that enables people of all ages and backgrounds to identify consciousness-altering cannabinoids with a quick glance at a product package. To optimize recognition and promote future interstate commerce, a well-designed graphical symbol should be harmonized across regional, state, and national jurisdictions — transcending borders, language, and culture. At a basic level, the adoption of a standardized cannabis product symbol serves as visual evidence of whether cannabis regulators are employing best practices to protect public health and safety.

The Process and Rules of Standardization

In general, regulatory standards are based on available consensus standards, which are technical specifications issued by standards development organizations that we often know

Geometric shape	Meaning	Safety colour	Contrast colour to the safety colour	Graphical symbol colour	Examples of use
 Circle with diagonal bar	Prohibition	Red	White ^a	Black	- No smoking - Not drinking water - Do not touch
 Circle	Mandatory action	Blue	White ^a	White ^a	- Wear eye protection - Wear protective clothing - Wash your hands
 Equilateral triangle with radiused outer corners	Warning	Yellow	Black	Black	- Warning; Hot surface - Warning; Biological hazard - Warning; Electricity
 Square	Safe condition	Green	White ^a	White ^a	- First aid - Emergency exit - Evacuation assembly point
 Square	Fire equipment	Red	White ^a	White ^a	- Fire alarm call point - Collection of fire fighting equipment - Fire extinguisher

^a The colour white includes the colour for phosphorescent material under daylight conditions with properties as defined in ISO 3864-4.

Figure 1: Safety signs defined by ISO 3864

by their acronyms: ISO, UL, NIST, and ASTM. They are developed in an open environment through collaboration by experts from both the public and private sectors.

Acknowledging the importance of well-designed industry standards, the National Technology Transfer and Advancement Act of 1995 (NTTAA) requires the U.S. federal government to incorporate consensus standards into federal regulations whenever such standards exist. This legislation put into law what had long been considered best practice.

The most important safety symbol consensus

standard, ISO 3864, defines several symbol types, including a warning symbol that consists of a black silhouetted image within a black-bordered yellow triangle (see Figure 1).

The Problems With Most Cannabis Symbols

While we're all familiar with ISO 3864 safety signs, until 2022, no consensus standard specifically defined a cannabis product symbol. To fill the void, individual U.S. states created their own ironically named "universal" symbols, which range from passable to downright ridiculous (see Figure 2). This hodge-podge of designs highlighted the need for a standardized

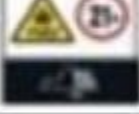
Symbol design	Authorities having jurisdiction (AHJs) using the symbol	Shape of outline (conventional meaning)	Emphasized color (conventional meaning)	Number of colors (including white)	Graphical element (cannabis leaf)	Large graphical element for the visually impaired	Text excluded from interior of symbol	ISO & ANSI compliant
	IICPS: MT, NJ, SD, & VT	Triangle (warning)	Yellow (caution)	2	Yes	Yes	Yes	Yes
	AR	None	None	2	No	No	No	No
	AZ, CO, FL, & OH	Diamond (none)	Red (prohibition)	2	No	No	No	No
	CA	Triangle (warning)	None	2	Yes	No	No	No
	CT, MA, ME, & RI	Triangle (warning)	Red (prohibition)	3	Yes	Yes	Yes	No
	MD	Triangle (warning)	Red (prohibition)	2	Yes	No	No	No
	MI	Inverted triangle (none)	Green (safe condition)	2	Yes	Yes	No	No
	NM	Diamond (none)	Red (prohibition)	2	No	No	No	No
	NV	Triangle (warning)	None	2	No	No	No	No
	NY	Square (none)	Yellow, red (caution, prohibition)	4	Yes	No	No	No
	OK	Rectangle (none)	Red (prohibition)	3	Yes	No	No	No
	OR	Rectangle (none)	Red (prohibition)	3	Yes	Yes	No	No
	WA	Diamond (none)	Yellow, green (caution, safe condition)	4	Yes	Yes	No	No
	Canada	Octagon (stop)	Red (prohibition)	3	Yes	Yes	No	No

Figure 2: Comparison of cannabis product symbols in November 2023



Figure 3: The International Intoxicating Cannabinoid Product Symbol (IICPS) for light and dark backgrounds

and truly universal cannabis product symbol. In 2021, experts rose to meet the challenge.

The IICPS Solution

Working to create a truly universal and well-designed symbol, Doctors for Cannabis Regulation (which later broadened its mission and rebranded as Doctors for Drug Policy Reform, or D4DPR) and the standards organization ASTM International co-developed the International Intoxicating Cannabinoid Product Symbol (IICPS, see Figure 3). The IICPS is the only cannabis product symbol designed from scratch using basic principles of symbology and ISO 3864.

The IICPS is preferable to other symbols in several ways. To urge caution with cannabis and to prevent accidental ingestion by children and adults, cannabis products must be immediately identifiable at first sight by people of all ages and backgrounds. Thus, the package must have a distinctive symbol that communicates the concepts of “caution” and “cannabis.” There is no graphical element that represents the word “cannabis” better than the unique and widely recognized cannabis leaf, and nothing communicates “caution” more universally than the familiar black-bordered yellow triangle of ISO 3864.

ISO 3864 prohibits the use of alphanumeric characters inside the yellow triangle of a warning symbol, and for good reason. People may not recognize “THC” as identifying an intoxicating cannabis product if they are young, illiterate, do not use the Latin alphabet, or lack specific education about intoxicating cannabis. Also, “THC” is not synonymous with intoxicating cannabis, as there are other intoxicating cannabinoid products, such as those containing HHC, that will need to be regulated and properly labeled in the future. Thus, the use of “THC” inside a cannabis product symbol is not just prohibited by consensus standards—it’s also discriminatory toward historically marginalized groups and ultimately doomed to fail as the science of cannabis evolves.

Like other caution symbols that conform to ISO 3864, the IICPS is designed to allow for the placement of text below the symbol, as



Figure 4: The International Intoxicating Cannabinoid Product Symbol in actual use around the country. A, B, and D are from Montana. C and G are from South Dakota. E is from New Jersey. F is from Vermont.

illustrated in Figure 4. There is solid logic behind ISO 3864's choice of colors for different safety symbols. The ideal number of colors in a graphical symbol is two (and black and white are both considered to be colors in this context). That simplicity keeps printing costs to a minimum, which is critical for small businesses with modest budgets. The emphasized color of a symbol should be consistent with existing conventions, in which red implies prohibition, yellow implies warning, and green implies a safe condition. Among all cannabis product symbols, only the IICPS uses the familiar yellow and black "warning" colors.

The Rise of the IICPS in 2022

After vetting by regulators, scientists, businesspeople, and consumers, the IICPS was approved in February of last year through a unanimous vote of over 200 members on ASTM's Committee D37 on Cannabis. With the official designation ASTM D8441, the IICPS is the world's first consensus standard for cannabis labeling. Four states — Montana, New Jersey, South Dakota, and Vermont — have incorporated the IICPS into their cannabis product packaging regulations (see Figure 4). Other states, such as Alaska, have indicated interest in following suit.

Future Adoption of the IICPS

You might expect the story to end here, with all recently legalized states adopting the IICPS and

established state cannabis regulators planning an orderly transition to the new standard. However, bureaucracy, inertia, and lack of awareness of consensus standards have hampered efforts to promote universal adoption of the IICPS.

To encourage and facilitate the adoption of the IICPS, its creators have agreed to allow the use of the symbol by regulators in all U.S. jurisdictions without any fees or royalties, as long as it isn't modified without permission.

In August of this year, 22 organizations representing public health, social justice, patient, consumer, and industry advocacy groups signed an open letter to regulators in the United States and around the world supporting universal adoption of the IICPS (see list of signatories accompanying this article). This was an unprecedented show of unity among groups that often have divergent interests in cannabis regulation. With this letter, cannabis stakeholders demonstrated a shared interest in proper, standardized labeling of regulated products.

Federal cannabis legalization is coming, and so is our societal obligation to protect public health and safety. While many regulatory decisions have yet to be made, the IICPS offers an approved cannabis product symbol ready for national and international adoption. ♦

List of signatories to the August 2023 letter supporting adoption of the IICPS

Americans for Safe Access (ASA, safeaccessnow.org)
 American Trade Association for Cannabis and Hemp (ATACH, attach.org)
 Association for Cannabis Health Equity and Medicine (ACHEM, achemed.org)
 Cannabis Regulators of Color Coalition (CRCC, crc-coalition.org)
 Clergy for a New Drug Policy (CNDP, newdrugpolicy.org)
 Council for Federal Cannabis Regulation (CFCR, uscfc.org)
 Doctors for Drug Policy Reform (formerly Doctors for Cannabis Regulation, D4DPR, d4dpr.org)
 Drug Policy Alliance (DPA, drugpolicy.org)
 Global Alliance for Cannabis Commerce (GACC, gacc.io)
 Immigrant Defense Project (IDP, immdefense.org)
 International Institute for Cannabinoids (ICANNA, www.institut-icanna.com/en/)
 JustLeadershipUSA (JLUSA, jlusa.org)
 JUSTUS Foundation (justus.foundation)
 Marijuana Policy Project (MPP, mpp.org)
 Minorities for Medical Marijuana (M4MM, minorities4medicalmarijuana.org)
 National Cannabis Industry Association (NCIA, thecannabisindustry.org)
 National Organization for the Reform of Marijuana Laws (NORML, norml.org)
 Parabola Center for Law and Policy (parabolacenter.com)
 Society of Cannabis Clinicians (SCC, www.cannabisclinicians.org)
 Students for Sensible Drug Policy (SSDP, ssdp.org)
 Unified Legacy Operators Council (UNLOC INC., unlocnow.org)
 Veterans Cannabis Coalition (VCC, veteranscannacoalition.org)

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Little Wonders

Exploring “Nano-Emulsified CBD”

By Janelle Lassalle

Despite the tremendous therapeutic promise of cannabidiol (CBD), some users who try it report they don't feel its effects. Why could that be the case?

“A huge challenge this industry faces is dosing and quality of products,” John McDonagh noted. He is the CEO and President of NextEvo Naturals, a leading premium supplement brand focused on revolutionizing the delivery of nutritional compounds. “Someone could be taking a 15 milligram CBD oil tincture and getting very little of that into their body. By underdosing you're not going to get the full benefits CBD has to offer,” McDonagh continued.

How can consumers be sure they're getting the full benefits of CBD? One approach industry experts are targeting is improving CBD bioavailability rates. Bioavailability refers to the rate at which compounds are absorbed by the body.

Many consumers are most familiar with conventional, oil-based CBD products. But — surprise, surprise! — conventional CBD formulations may not be the most bioavailable form of CBD available. Gerry McNally, Ph.D., Head of Research and Development at NextEvo, explained that THC and CBD are fat-soluble substances.

“When we say ‘conventional CBD products,’ we're usually

referring to products like oil-based tinctures and soft gels. These products are an easy way to formulate CBD,” McNally said. “However, this isn't ideal for the absorption of CBD from the GI tract.”

McNally added that oil-based formulations are often associated with relatively poor uptake from the body, resulting in a miniscule amount of CBD that's ultimately absorbed into the bloodstream. “When you take these lipophilic or fat-soluble compounds and emulsify them,” McNally went on, “you enhance the absorption.”

Wait: what? How does that work? What does it mean to emulsify fat-soluble CBD?

What is Nano-Emulsified, Water-Soluble CBD?

“CBD is naturally oil-soluble and hydrophobic, which means it does not dissolve in water. Our bodies are able to process water-soluble compounds much quicker and more efficiently than oil,” Vlastic Bioscience President Adam Rosenberg explained.

“Nano-emulsification is the process of breaking down the oil-soluble CBD into miniscule particles and encapsulating it in an emulsifier that allows it to be absorbed in water,” Rosenberg continued. “This process results in CBD that is more efficiently processed by the body, resulting in a significantly higher percentage of CBD entering the bloodstream.”



Adam Rosenberg

Impressive claim. So, just how is this accomplished? Dr. Lucas McCann, director of chemistry at MC Nutraceuticals (MCN) and co-founder and chief scientific officer at CannDelta Inc., offered an overview:

“CBD is mixed with a surfactant and a carrier oil. It is then subjected to high-energy mixing with a sonicator to break down the oil droplets. A sonicator uses very high-frequency sound waves that our ears can't really hear but it can break up the CBD oil into very small droplets. When the droplets get that small, other materials can surround it and encapsulate it.”



Dr. Lucas McCann

Does all that work yield “better” CBD? Dr. McCann explains that because of their tiny size, CBD nano-droplets can be very quickly absorbed into the body — within minutes of them hitting the tongue or stomach. This can result in quick-acting effects compared to “regular CBD” which is processed in the liver. CBD processed in the liver has a longer onset time.

“The liver metabolizes a lot of the CBD that gets absorbed conventionally,” McNally added. “And therefore these emulsified systems tend to deliver four to five times greater absorption into the bloodstream.”

Many companies have gone as far as developing proprietary processes regarding nano-emulsion. Jeff Koz, president and co-founder of Dr. Norm's Wellness, a division of Dr. Norm's brand focusing on minor cannabinoids, noted that all of their nanoformulations are created in-house, led by Director of Science and Technology Jason Jamrowski.

“We manufacture through what is called ‘controlled chemistry,’” Koz explained. “This is a pharmaceutical process that bonds the oil from the cannabinoids with water. This results in a uniform and repeatable particle, meaning consistency in size and weight from particle to particle.”

Koz touched on the sonification method as well. “Some

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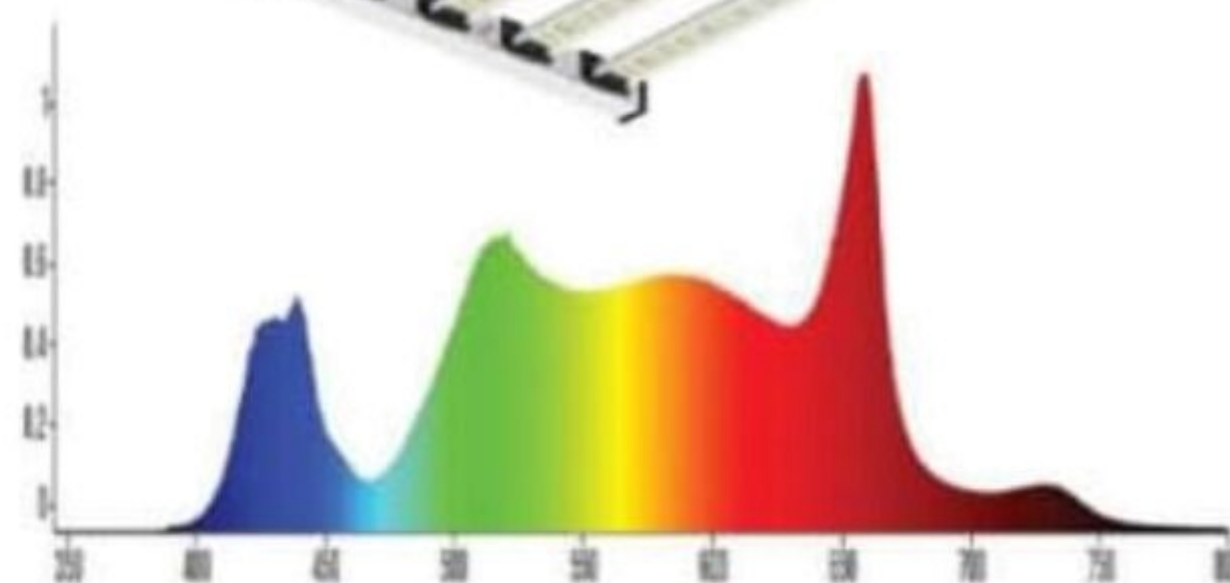


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manufacturers use sonification, where the molecules are blasted with soundwaves to achieve the same effect,” Koz noted. “This is not as efficient as the resulting nanoparticles are not consistent, and some are damaged. This is using force to achieve the result whereas ours is a chemical process.”



NextEvo spent over six years dedicating its R&D team — staffed by people with previous experience working at Johnson & Johnson — to finding the Goldilocks standard of nano-CBD.

“Our products have been tested over six years to find the right particle size, the right emulsifiers,” McDonagh said. “We’ve seen data proving that our products are exceptionally better absorbed than other products.” McDonagh also proudly noted that this process is ongoing, “We’re going to continue to optimize and make products even better as we go.”

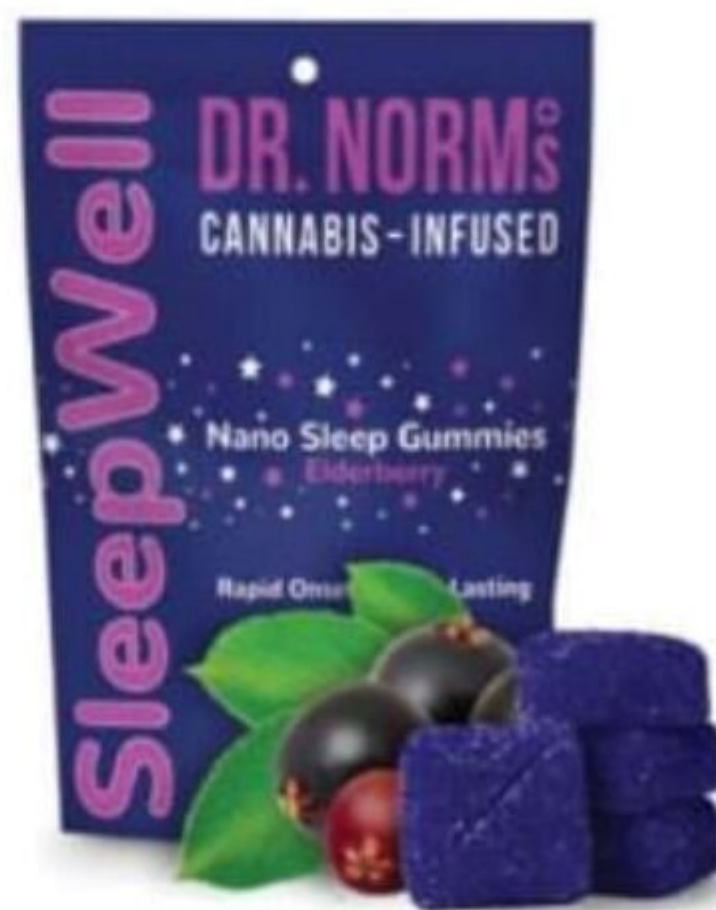
Exploring Better Absorption Claims

Do nano-emulsified CBD products deliver greater benefits than conventional, oil-based CBD? “The delivery system for anything makes a massive difference in how the body



processes it or uptakes it,” says Sean Noris, director of chemistry at MC Nutraceuticals (MCN). “There is research that shows there are higher levels of CBD in the blood when a nano-emulsion is used instead of standard CBD oil.”

The more CBD is absorbed, the higher the bioavailability, theoretically resulting in greater therapeutic benefit. Koz summed it up nicely: “Nano-emulsified products have a faster onset — they get to work faster. They can be more potent, requiring lower doses to achieve the same effect. They are more bioavailable, meaning they are absorbed more efficiently into the body — utilizing more of the available cannabinoids.”



What's Next?

What's next in the world of nano-CBD? Many folks are looking into adding other “minor cannabinoids” into the mix: “There’s a lot of interest in the other cannabinoids and what

benefits they can provide,” says McDonagh. “We’re definitely going to be looking at ways to study those benefits.”

Dr. Norm’s is also on the minor cannabinoid hunt: the brand launched their new SleepWell line and became the first company to “nanotize” CBN earlier this year. The SleepWell Elderberry Gummies are the only fast-acting sleep gummies that contain both nano CBN and nano THC.

At the end of the day consumers still “need to be cautious in selecting their Nano CBD products,” Koz cautioned. “There is a ton of misinformation out there that can mislead consumers.” ❖



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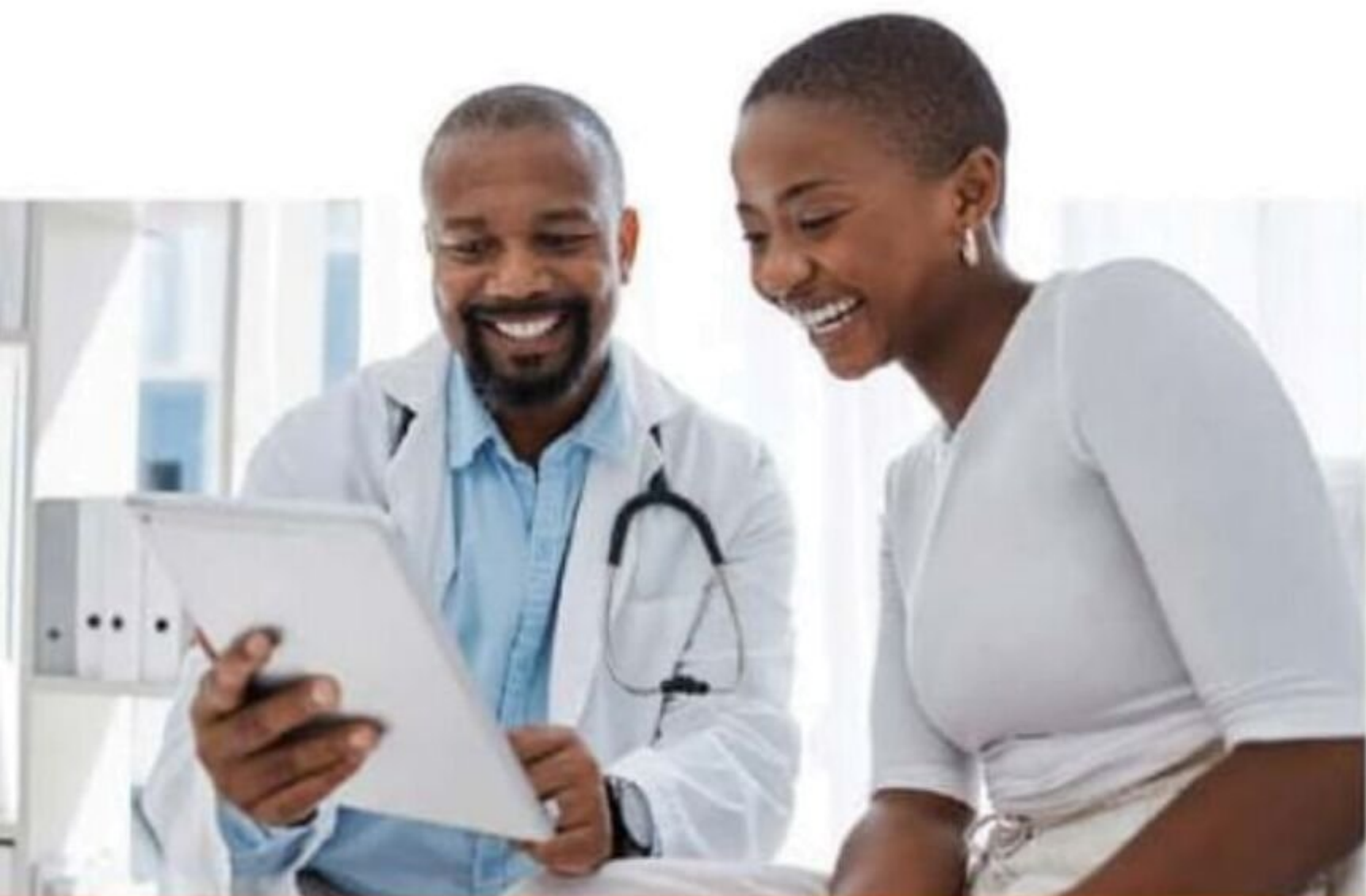
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Laurie + MaryJane recently launched a new line of seasonings, Herb + Spice. These cannabis-infused spice blends are designed to be easily incorporated into cooking, allowing users to enjoy the benefits of CBD or THC in a variety of dishes. The unique approach of using cannabis and hemp as dried herbs paired with seasoning blends ensures the flavors complement each other perfectly.

Herb + Spice utilizes a gentle decarbing process that preserves the plant's cannabinoids and terpenes. Sprinkle it on your finished dishes or blend it into your favorite recipes. When cooking with cannabis, practice responsible consumption and start with low doses. Gradually experiment until you find the ideal amount for your desired effects. Just remember to exercise moderation; you don't want your dinner guests floating off into space before dessert!

Laurie Wolf is the author of such cannabis cookbooks as Marijuana Edibles, HERB, The Medical Marijuana Dispensary, and Cooking with Cannabis. Her recipes have been featured in High Times, Dope Magazine, Culture, and more. She is also the founder of Laurie + MaryJane, an edible company offering everything from almond truffle bites to vegan chocolate cookies. And remember, #Don'tFeartheEdible and #eatyourcannabis.



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2 tablespoons per serving

What You'll Need:

- 3/4 cup mayo
- 3/4 cup sour cream
- 4 tablespoons Herb + Spice Ranch Seasoning Blend
- 2 tablespoons fresh lemon juice

Directions:

1. Combine all ingredients in a bowl. Mix well.
2. Chill for a couple of hours.



Grilled Salmon With Dry Spice Rub

Serves
4

BBQ Dry Rub Blend: Time to get your grill on! Our Dry Rub Spice Blend is here to turn your meats into mouth-watering masterpieces. Packed with smoky paprika, zesty cayenne pepper, and secret spices, it's the key ingredient for finger-lickin' good BBQ. But don't be dismayed, all recipes can be done in, or on top of, the stove. Take your grilling game to the next level with our robust BBQ Dry Rub blend.

What You'll Need:

- 4 salmon filets
- 4 teaspoons Dry Spice Rub
- 1 tablespoon canola oil
- 3 shallots, peeled and chopped
- 1-1/2 cups frozen corn
- 1-1/2 cups frozen peas
- Salt and pepper
- 1 cup salsa

Directions:

1. Place the salmon on your work surface. Top each piece of fish with the BBQ spice rub. Allow to sit for 30 minutes.
2. In a saute pan, heat the canola oil. When hot, add the shallots and cook for 4-5 minutes. Add the corn and the peas and saute for 7-9 minutes, salt and pepper to taste. Transfer to a bowl.
3. Preheat your grill or prepare the saute pan, just make sure there is still a bit of oil in the pan. If not, add a teaspoon or two.
4. Place the salmon, skin side down, and cook for 4-5 minutes. Turn and cook for an additional 3-4 minutes. If you prefer your salmon on the rare side, cook for 2-3 minutes per side.
5. Divide the vegetables between four plates. Place the salmon on each of the plates, top with salsa.



Rigatoni and Sausage With Italian Seasoning

Serves
4

Italian Seasoning Blend:

Transport yourself to the sun-kissed hills of Italy with our aromatic blend of herbs and spices. Perfectly balanced, it adds a delightful Mediterranean twist to pasta sauces, pizzas, and roasted vegetables.

What You'll Need:

- 1 tablespoon olive oil
- 1 small onion, peeled and chopped
- 2 cloves garlic, peeled and minced
- 2 cups tomato sauce, your favorite
- 4 teaspoons Herb + Spice Italian Seasoning
- 6 ounces Italian sausage, cooked and thinly sliced
- 1 lb. Rigatoni noodles, cooked according to package directions
- Parmesan

Directions:

1. In a medium saucepan, heat the olive oil. Add the onion and garlic, and saute for 5-7 minutes. Add the tomato sauce. Add the Italian Seasoning blend and the sausage and gently simmer till heated through.
2. Cook the pasta according to the directions on the package. Drain, and add to the simmering sauce. Remove from heat, divide among four plates, and sprinkle with Parmesan.

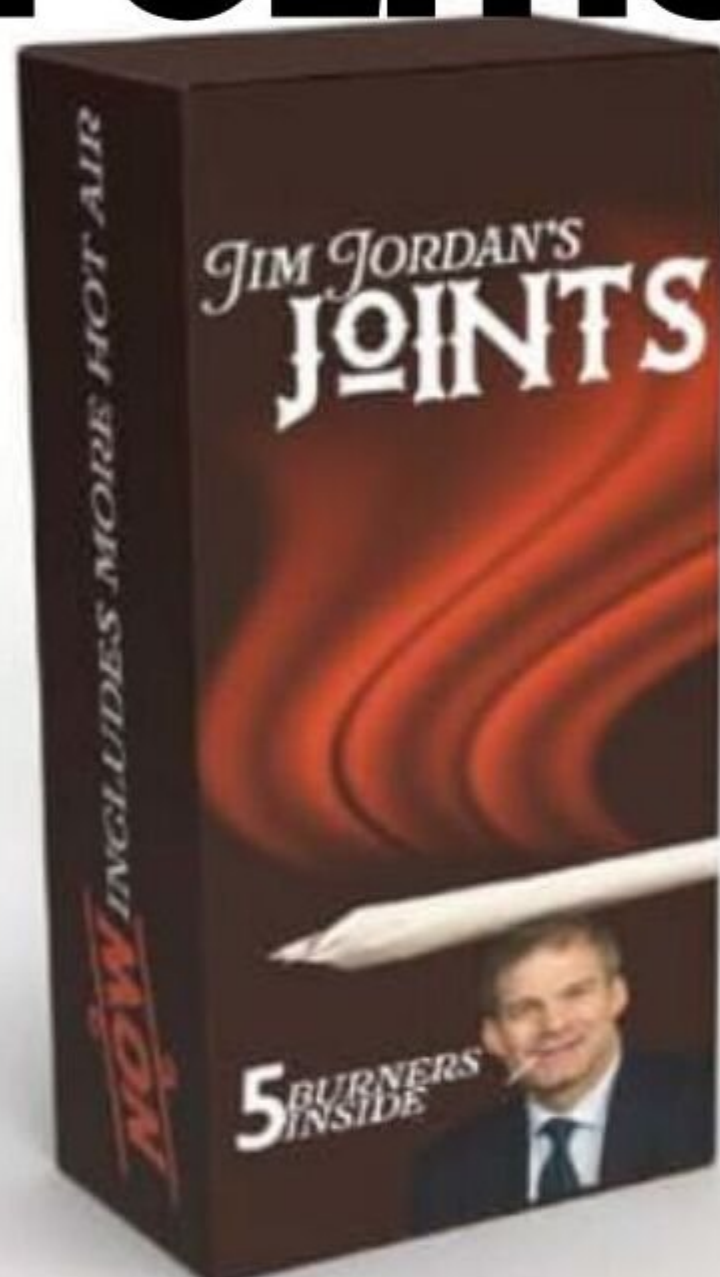
TOP 10 CELEBRITY CANNABIS LINES WE *WISH* EXISTED

By David Wallach | Illustrations: Ballistic Boxer Design

Oh 2023, the year that ... fill in the blank. It has somehow managed to check boxes we didn't even know existed and it just keeps going. It's like watching *Avatar 2*, you know there has to be an end, but we just can't quite see it yet.

Every year about this time, we write the "Top 10 Celebrity Cannabis Lines We Wish Existed." To be honest, for the amount of money I make writing this stuff, it would have been easy for AI to take it from here. There's so much to choose from, but this year it almost writes itself. Without further ado (it's a French word, look it up) — here they are.

POLITICS OF POT



Jim Jordan's Joints — Starts strong, but after every hit it loses potency until there is almost nothing left but blowing out hot air. Jordan's Joints are made from old-school growing traditions that have been developed for centuries but have had some problems as of late and may not be worth the attention.



AOCannabis — It's a younger strain that at first glance seems to have everything a person would want, but use caution — this is a very volatile weed that hasn't matured quite yet. AOCannabis has been known to make people tone deaf and cause blindness or random stupidity. Some people who have used AOCannabis have been known to blabber on without any self-control or thought. Grab it now before it's canceled, er, um, no longer available.

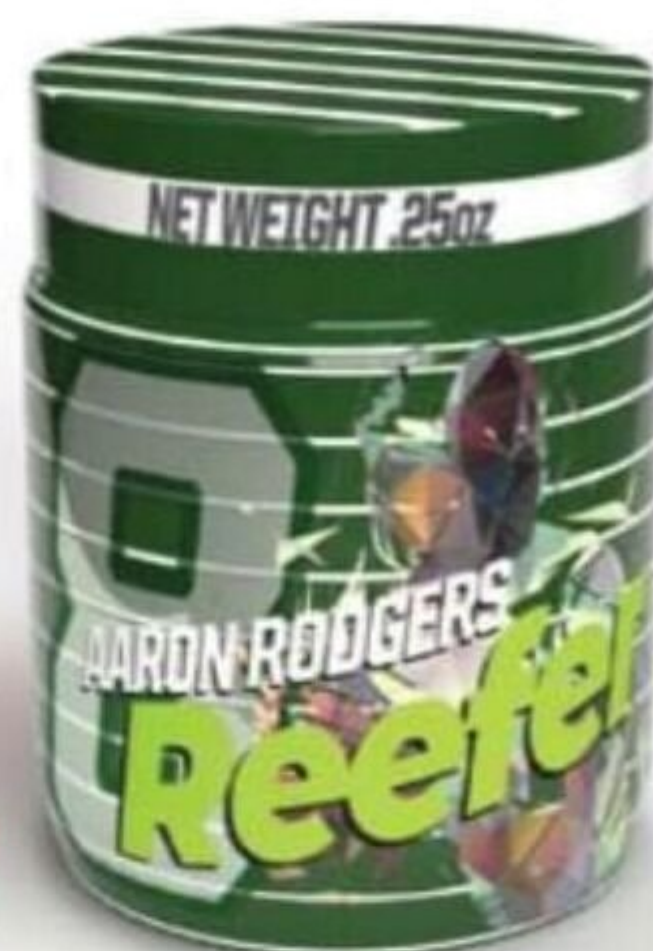
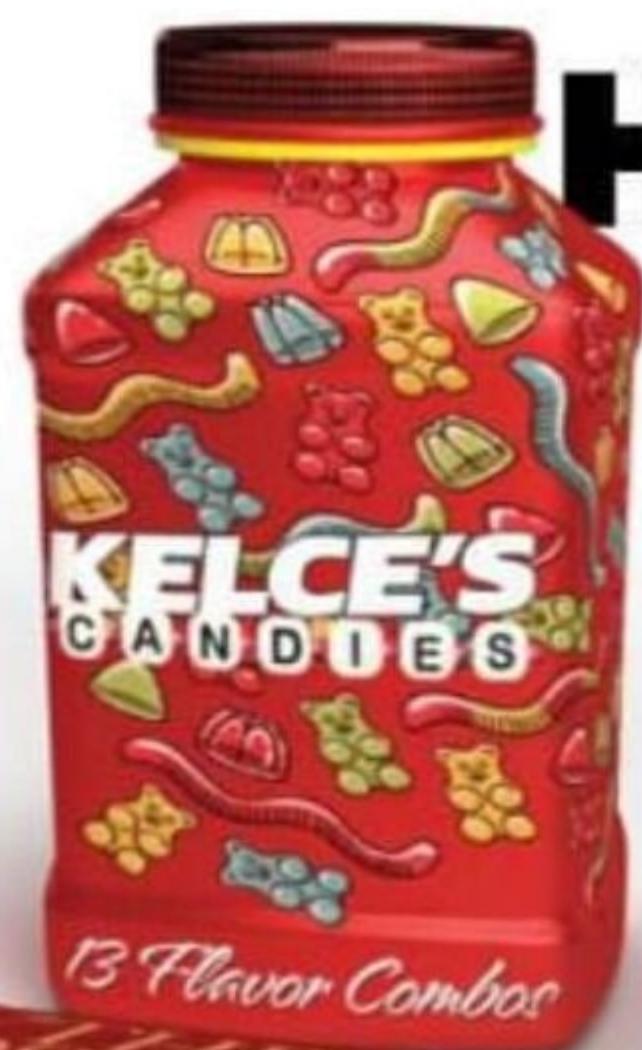
McConnell's Marijuana — An old-school buzz that has seen better days. McConnell's Marijuana is one of the strongest strains on the market but has been known to be too strong, leaving people in a state of complete paralysis, slobbering, and unable to communicate at all. Get it while you can; McConnell's Marijuana is about to disappear forever.



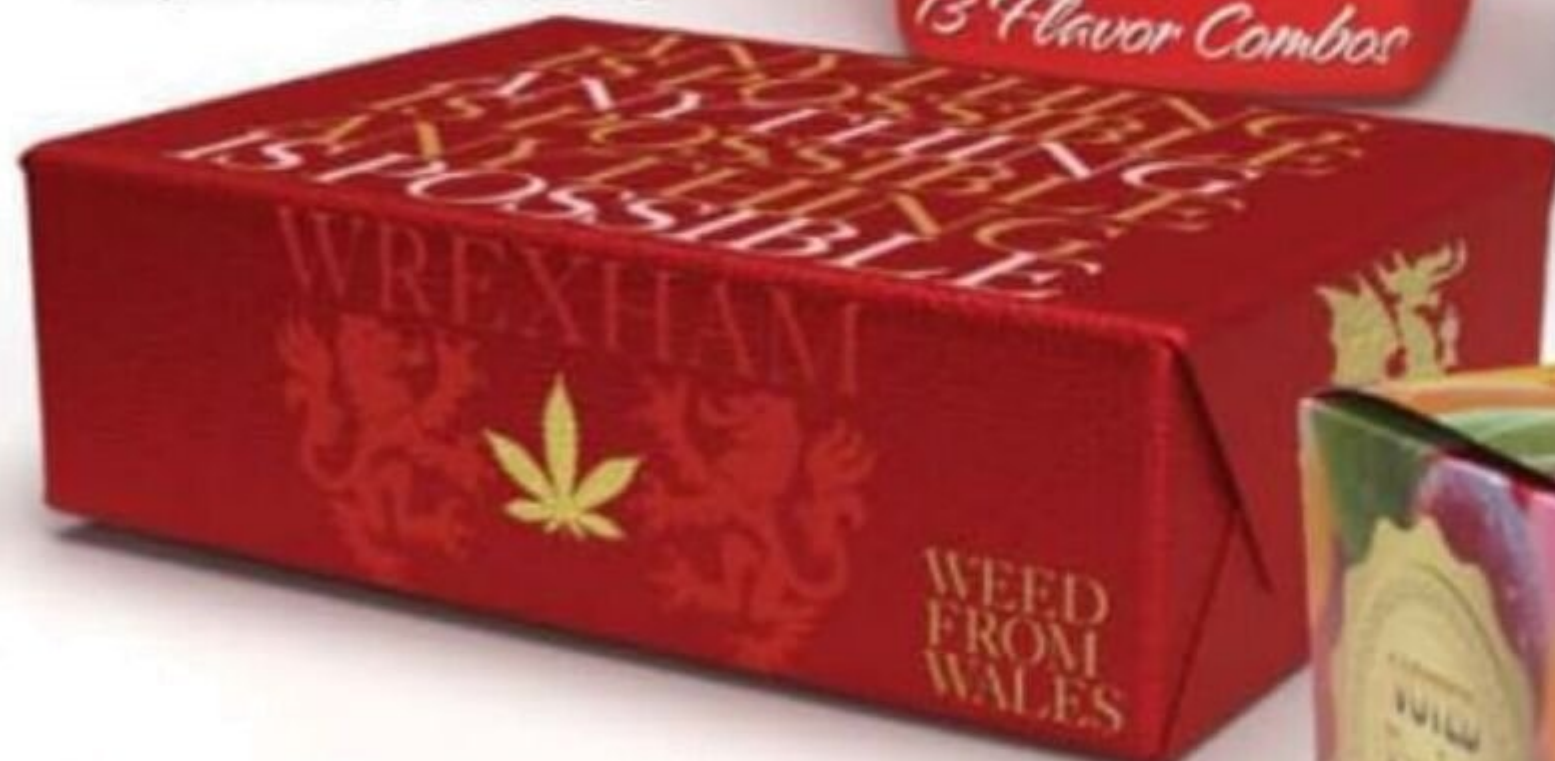
Santos Sativa — This is a silly little hybrid plant, er, edible, tincture? Maybe a gummy ... it is really hard to nail down what this strain exactly is or does. It claims to be all things to all people, but the packaging and what consumers actually get are vastly different. It's a little weed that may or may not be cannabis, or a *Life Saver*, or a brand of socks — or a fishing pole?

HEROIC SPORTS

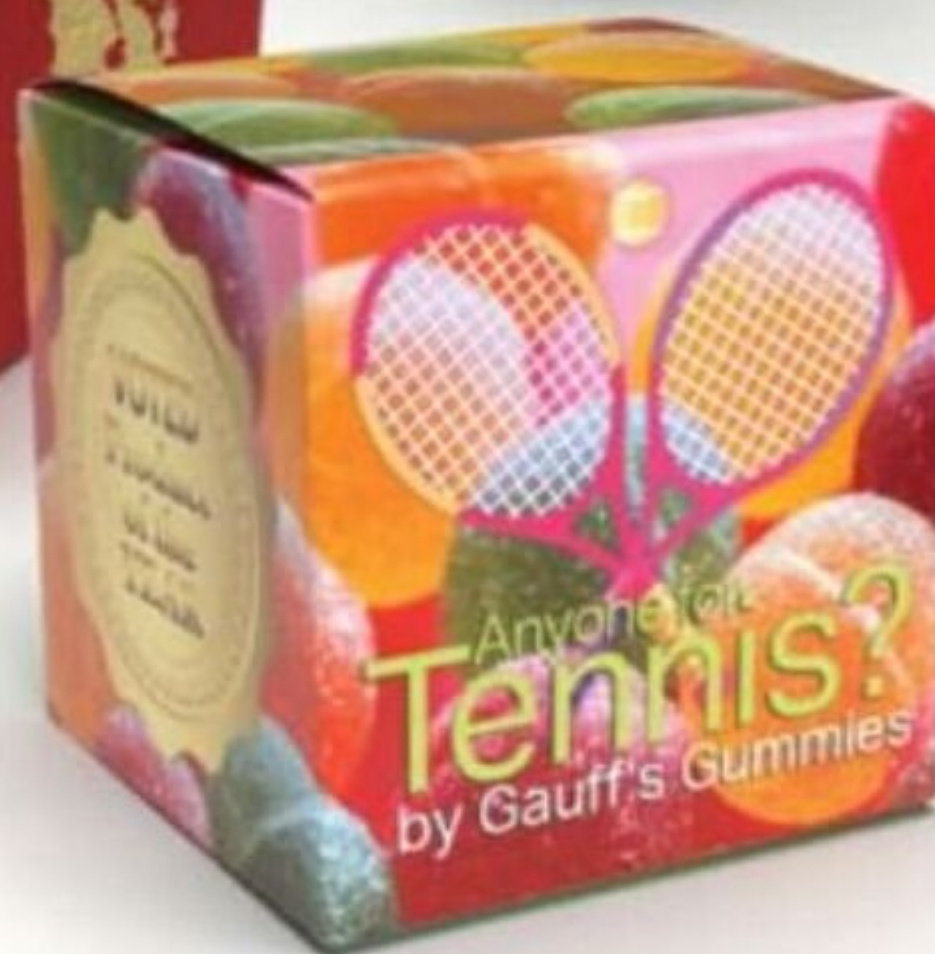
Kelce's Candies — These gummies are everywhere! This aspirational little gummy fills your heart with romance and sweet songs. People can't quite put their finger on it, but somehow Kelce's Candies have single-handedly saved the gummy market. Some people worry about the overexposure of this highly hyped gummy, and that consumers may break up with Kelce's Candies, like the lyrics of a Top 40 pop song.



Aaron Rodgers Reefers — One hit and you're done. Lots of hype went into the marketing of this strange little weed, which has a good history, but users who tried it recently said it's not what it used to be and burns out quickly.



Wrexham Weed — Celebrity owned by Ryan Reynolds and "That Other Guy," Wrexham Weed comes to us from Wales and is a well-funded and surprising little plant that makes you feel like anything is possible no matter how much the cards are stacked against you. It will get you high no matter what and it won't stop until you sit back, smile, and feel like cheering "Goal!!!!".



Gauff's Gummies — The product of the year! Gauff's Gummies are a game changer. Just when we thought we had seen it all, these gummies will put a smile on your face, a pep in your step, and give you an overall uplifting feeling that anything is possible and yes, dreams are worth having. This uplifting edible burns bright and has an exciting future in the industry.

ENTERTAINING HIGHS



Bezos' Buds — When you don't want to give a fuck about anything but yourself and desire to disappear into your own dream world, Bezos' Buds are exactly what you need. You can have them delivered immediately to your door and after a few hits your mind will wander off to a place where only you and your needs matter. Some side effects include infidelity, a Napoleon complex, and not allowing friends to go to the bathroom. But hey, it's not about them with Bezos' Buds, it's your world, and the rest are all just day players.



Quan's Concentrates — Thirty-eight years ago, Quan's Concentrates were a huge hit and then they slowly left the spotlight, mostly ignored. Today, Quan's Concentrates are everything everywhere all at once and the world is a better place for it. Quan's Concentrates come in a short, round, little package, and give people profound spiritual strength and youthful joy that has been missing for almost four decades.

Events

JANUARY

8-9 | SUNY Cannabis Conference | Niagara Falls, NY

11-13 | Lift Cannabis Business Conference | Vancouver, BC

19-22 | Virginia Cannabis Conference | Richmond, VA

FEBRUARY

22-23 | Lift Cannabis Business Conference | San Francisco, CA

MARCH

12-16 | Natural Products Expo West | Anaheim, CA

14 | ICBC B2B Trade Show | Barcelona, Spain

15-17 | Spannabis | Barcelona, Spain

22-23 | New England Cannabis Convention | Boston, MA

APRIL

1-3 | The Emerald Conference | San Diego, CA

9-11 | MJ Unpacked | Atlantic City, NJ

11-13 | NOCO Hemp Expo | Estes Park, CO

16-17 | Benzinga Cannabis Capital Conference | Hollywood, FL

16-17 | ICBC B2B Trade Show | Berlin, Germany



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Coming Next Issue

GROWER'S GUIDE

You won't want to miss our special Grower's Guide issue, focused on innovations in farming, emerging legislation, and cultivation technology. Plus, we'll unveil our C&TT Innovation Awards, highlighting companies pushing the industry to new heights.

FINANCIAL FOOTINGS

We'll explore sectors ripe for investment, hot stocks, and updates on SAFER banking. Plus, discover tips for collecting capital and finding reliable partners. We'll talk to finance gurus, investors, and MSOs who know exactly how to help you succeed.

HEMP HEROES

Let's shine a light on the versatile, sustainable world of hemp. From farming to construction, clothes to food, hemp is nature's wonder weed. Join us as we explore emerging innovations and exciting entrepreneurs in this issue's spotlight on hemp.

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