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Christina De Giovanni
The Science and Technology Issue

LETTER *from the* PUBLISHER

Dear Reader,

Thank you for picking up the September issue of the *Emerald Magazine*.

This month, things get technical. With cannabis science and research on the rise, technological advances are needed to propel this industry into the future. With apps like simLeaf, cultivation has joined us in the 21st century with its integrated control systems to monitor humidity, nutrient and water levels (p. 22).

Other advances, such as Emerald Metrics, help cultivators every day with their hyperspectral cameras to identify tissue damage, disease and mites on the plant during early development--avoiding nearly 20% loss per-crop as often reported. Learn more about this, and much more, in this month's issue of the *Emerald Magazine*.

Cheers,
Christina De Giovanni
Publisher



Come hear me speak at the 2018 Imperious Cannabis Business Expo on December 12-13 in Little Rock, AK!



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by Nora Mounce

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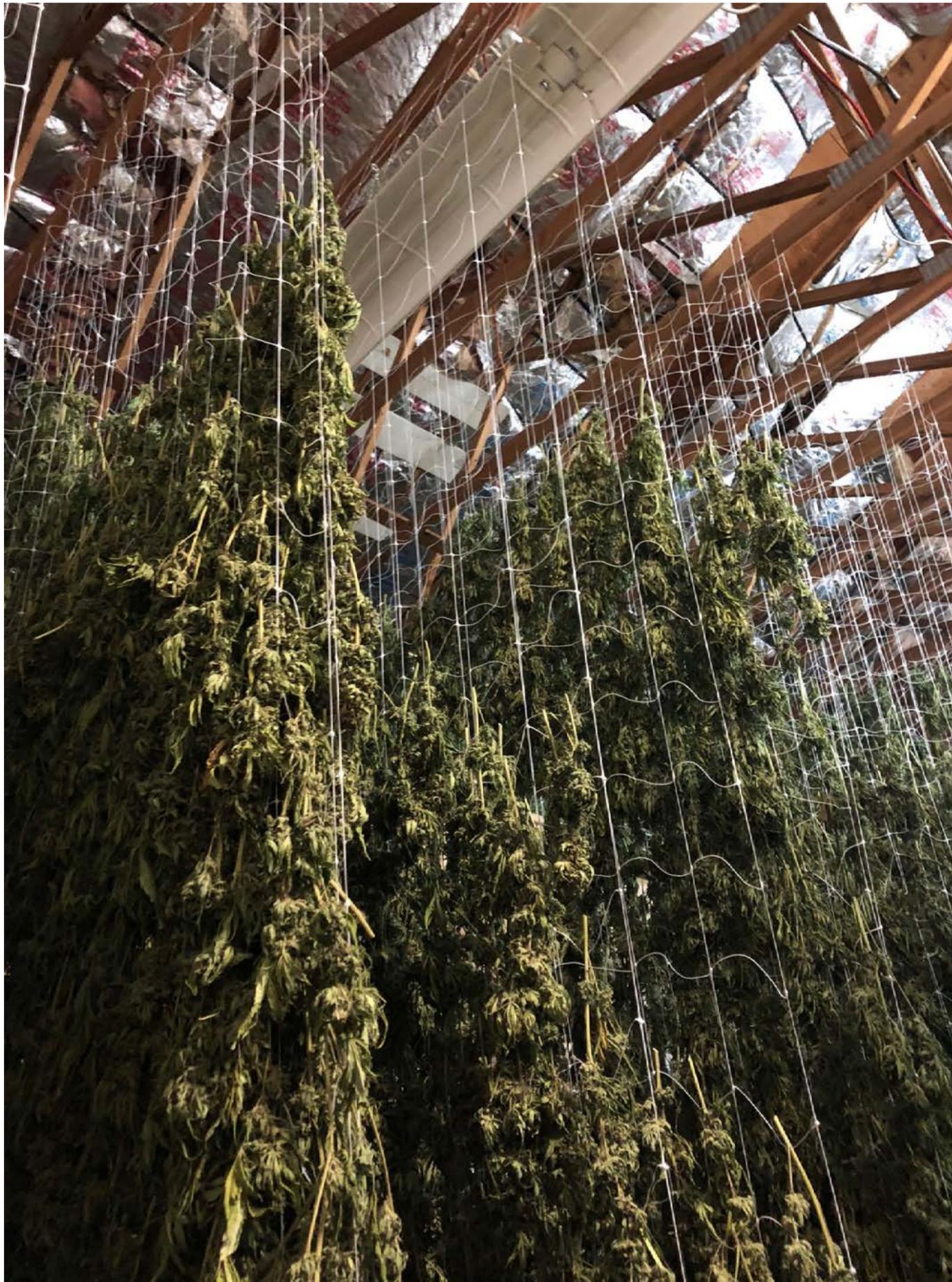
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LACED WITH DIGITAL

A Visit to Henry's Original in Mendocino County
Suggests There Is More Technology in Your
Store-Bought Cannabis Than You Think



STORY & PHOTOS
JOSH TAUB

IT IS EVERYWHERE. It is in our cars, our homes and our offices—lurking behind our texts, e-mails, video chats and instant messages. It speaks through our computers, TVs and appliances. No matter where we go, what we do or what we buy, digital technology is never far away. These days, it is even influencing what we smoke (and sometimes, how we smoke it). Sprawling like virtual wildfire throughout every industry and field in existence, digital is now impacting the way legal cannabis is produced in California's coveted Emerald Triangle. One thriving brand in particular, Henry's Original of Mendocino County, has learned that success means filling every canister and rolling every joint with high-quality bud and cutting-edge technology.

It is just about 11 a.m. on a hot and bright Thursday morning. I am inside Henry's Original's cozy, clean and well-organized administrative office in Laytonville, CA, waiting to meet with brand leadership and learn how fresh technology is helping them stay busy, while so many others are struggling just to get in the game. Sadly, a large backlog of legal permit approvals from local government are keeping hundreds of startups and pre-existing farms from making sale one, putting them in precarious positions both financially and legally. Of course, this is aside from the strict regulations and high taxes on commercial cannabis products, which have also made survival in the region difficult.

Despite just two fake props on a nearby shelf that each read, "One Pound of Fine Heirloom Cannabis," there is not a hint of herb in the atmosphere; this could be almost any professional office space in the country, complete with super-comfy seating, air-conditioning, Wi-Fi and a small army of serious-faced employees furiously typing away, making calls and intermittently collaborating with each other. I randomly ask a team member about the current state of business:

"Holy moly!" she replies with a perfect mix of excitement and anxiety. "I just found out we need to hire twenty-five more trimmers!"

"By when?" I pry.

"As soon as possible," she quickly concludes, before diving back in.



TOP

Row after row of choice cannabis plants in an enclosed space (most of them clones for 100% consistency), tended to by a large control box in the corner that looks like something behind a panel on the Starship *Enterprise*.

LEFT

Link4 is a high-tech, digital controller designed specifically for commercial cannabis growers. Through an advanced sensor that hangs inconspicuously from the ceiling, the system can detect changes in atmosphere and automatically adjust temperature, humidity and supplemental lighting.

Meeting the demands of the largest cannabis marketplace in the world is not an easy task, and it requires more than could possibly be outlined in this article. However, with products at 170 dispensaries (including their own, dubbed Artifact Nursery), three active farms, roughly 75 employees, a genetics program and a brand new, 10,000 sq. ft. automated greenhouse under construction, it is safe to say that Henry's Original is clearly doing something right.

Just then, my first contact shows up, and an informative lesson on the technological evolution of local cannabis production begins: "When I learned, it was 'stick your finger in the soil,'" says lifelong cultivator and Henry's Original co-founder, president and COO, Josh Keats, who sports a combination of buttoned-up entrepreneur and laid-back rock star: "Is it wet down there, or is it not?" Now, he says, without modern technology "you cannot run a business." Today, he has a farm off the 101 with climate-controlled, automat-

ed greenhouses and drip irrigation systems: "We have created an organism that is adaptable and able to find efficiencies in everything we do, and we are continually investing our money back into that technology."

It is hard to imagine anyone knowing more about growing cannabis in the Emerald Triangle than Keats or his executive partner and co-founder, Jamie Warm. As young adults, the two began nurturing a passion for the process alongside legendary pioneers of Sonoma County pot farming, including some who had cultivated since the 1970s. According to Keats, one of these unofficial weed gurus, Henry, is "the guy that gave us two hundred pounds and told us to return with his money," he reflects with a laugh.

It seems they have never looked back.

Around 2014, when the opportunity arose to work safely within the decriminalized patient collective model, Keats and Warm jumped into the fray. It wasn't long before they began making sales, while soaking up practical lessons on expansion and scaling—which has required becoming more tech-reliant throughout the entire soil-to-sale process. By the time California Proposition 64 came around, Henry's—fully armed with the right knowledge, permits and digital know-how—was one of a handful in the area prepared to make a seamless jump to recreational sales without a major disruption to their day-to-day operations and "minimal worry over regulation," adds Keats.

At this point in the interview, we have been joined by Riley Shields, director of cultivation for Henry's Original. Dusty, sinewy and equipped with a backpack that supplies water through a thick straw, this is clearly a man who has spent a lot of time working among the elements: "More and more everyday, technology is becoming involved and adapted throughout the cannabis industry as a whole," he begins. "Everybody's trying to be more efficient. Remote, environmental control not only makes it easier on us by reducing human labor costs, it helps ensure we are sustainable by consistently delivering that high-quality product."

To see Shields's operation up close, one immediately understands what technology has allowed the business to accomplish. At a nearby location referred to as Stewart's Lane, I am treated to a rich view of row after row of

choice cannabis plants in an enclosed space (most of them clones for 100% consistency), tended to by a large control box in the corner that looks like something behind a panel on the Starship *Enterprise*. This is what Shields refers to as the "brain." Developed and sold by prominent manufacturer Link4, it is a high-tech, digital controller designed specifically for commercial cannabis growers. Through an advanced sensor that hangs inconspicuously from the ceiling, the system can detect changes in atmosphere and automatically adjust temperature, humidity and supplemental lighting. Meanwhile, the location's separate irrigation system is also technologically integrated and can be programmed to water the crops on a schedule, reducing waste and cost over time.

Just next door to this impressive, THC-glazed domicile are the beginnings of that new, 10,000 sq. ft., automated greenhouse, described as a "gutter connect house," which will house four separate, brain-controlled grow chambers: "By staggering the ability to run perpetual flower cycles, we will increase

“
Meanwhile, the location's separate irrigation system is also technologically integrated and can be programmed to water the crops on a schedule, reducing waste and cost over time.
”

our quality and our control, and cut down labor to about twenty-five percent," says Shields. "The perpetuation allows me to maximize the amount of harvest per year, while minimizing certain costs." At this point, my head is spinning—and I have not smoked a thing. I am starting to truly understand how much technology is responsible for keeping legal cannabis in business. But before my grand tour ends, the team continues to roll out the green carpet with a trip to Henry's Original's nearby dispensary.

Artifact Nursery, which also houses Henry's Original processing and distribution centers, is also feeling the heat of demand rising, readying to jump from eight employees to 30. The well-designed, modern edifice is all boutique business in the front, and a literal forest of drying weed in the back. Managed by the youthful yet extremely knowledgeable inventory and compliance coordinator, Krystle Cartier, this is where fresh cannabis flower is divided into grades and sent for rolling, pressing and packaging.

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Artifact Nursery in Laytonville, CA

“The county requires we use track-and-trace software... We also have our internal programs to keep up, and lots and lots of spreadsheets for hundreds of expiration dates to stay on top of... I wouldn't be able to do my job without technology.”

According to Cartier, there is to be no feasible way to keep up without the assistance of digital software and internet technology. Heavy fines or even loss of license can be incurred for a number of factors, including the sale of an outdated product. This is why legit growers are required to keep all inventory items visible to patients, consumers and law enforcement through government-approved sites: “The county requires we use track-and-trace software,” says Cartier, who is graciously credited by Keats for recently revamping the entire inventory program. “But we also have our internal programs to keep up, and lots and lots and lots of spreadsheets for hundreds of expiration dates to stay on top of.”

Alyssa Shields, Henry's Original compliance and government affairs officer, who has been generously accompanying me on my journey, echoes the point: “I wouldn't be able to do my job without technology,” she says through her glasses with dead seriousness. Not new to this rodeo, Shields (along with husband, Riley) has been earning an education in the cultivation and sale of cannabis for the last few years in California, Colorado and beyond. “Keeping up with regulations is really difficult to do. It is one of the reasons why businesses are being pushed back, and you're not seeing that many products on shelves,” she adds. However, Hen-

ry's Original has stayed strong by proactively staying informed through online notifications, e-newsletters and apps. As a result, the brand can augment its ongoing internal audits using the most up-to-date information to stay current and avoid painful penalties.

Henry's Original's massive operation in Laytonville—now visible from the 101—truly represents the digital future of high-grade, legal cannabis: efficient, consistent, sustainable and compliant. From grow room controllers, to tracking software, to joint-rolling contraptions, the brand has embraced the benefits of all types of modern methodology and is subsequently thriving on the ability meet increasing requests from terpene-obsessed consumers, while adhering to strict government regulations that call for freshness and quality of product.

The bottom line? The demand for legal cannabis products of all kinds will not be slowing any time soon, and neither will be the need for technological support.

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THE INDUSTRY'S HIDDEN STAR

Software Canna-Tech Evolution

SARAH BUGDEN

FARMING IS AN art, but it's also a science. The same can be said for business, and that's where technology comes into play in 2018's cannabis industry. While the flower sells itself, tech helps business owners in all areas of the supply chain organize and streamline their processes. Technology is here to stay, and its impact on the cannabis industry will unquestionably influence the industry's evolution.

Hardware in the cannabis industry is integral to its growth and evolution. Every month, new tools come

out that make cultivation easier, including hydroponic grow systems, lab tech, bud-trimming machines, extraction rigs, security systems, drying ovens, filtration systems, grow lights and greenhouse-enhancement tools. While there are constantly new hardware innovations, what's right for a business varies depending on its niche.

New software in the cannabis industry is also constantly evolving. However, observing the importance of software to business is hard to separate from a uni-

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versal conversation about regulations and the challenges cannabis business owners face in simultaneously preparing for the best and worst case scenarios in a market with unpredictable legislation impacting day-to-day functions.

The California Cannabis Track-and-Trace (CCTT) program was put in place in 2018 to monitor the movement of cannabis and cannabis products from cultivation to sale. The consequence for cannabis business owners operating in all parts of the supply chain is a requirement to report product sales data to a statewide software system called METRC. All state-issued annual cannabis licenses are required to use the CCTT-METRC system to record, track and maintain information about their cannabis and cannabis-product inventories and activities.

While some business owners are hesitant about recording their sales and business data, those who wish to obtain a permit and operate legally now have a clear reason to jump on the software train. Software can help businesses automate the process of recording and reporting their inventory and sales transactions to METRC and ensure that their operations stay legal. Software also minimizes the errors inherent in human-generated records.

To better understand the nuances of the relationship between software and the evolving cannabis industry, I caught up with Christopher Dell'Olio and Hilart Abrahamian, the founders and CEO and COO of Webjoint, a cannabis-focused software company that is prominent in the seed-to-sale arena.

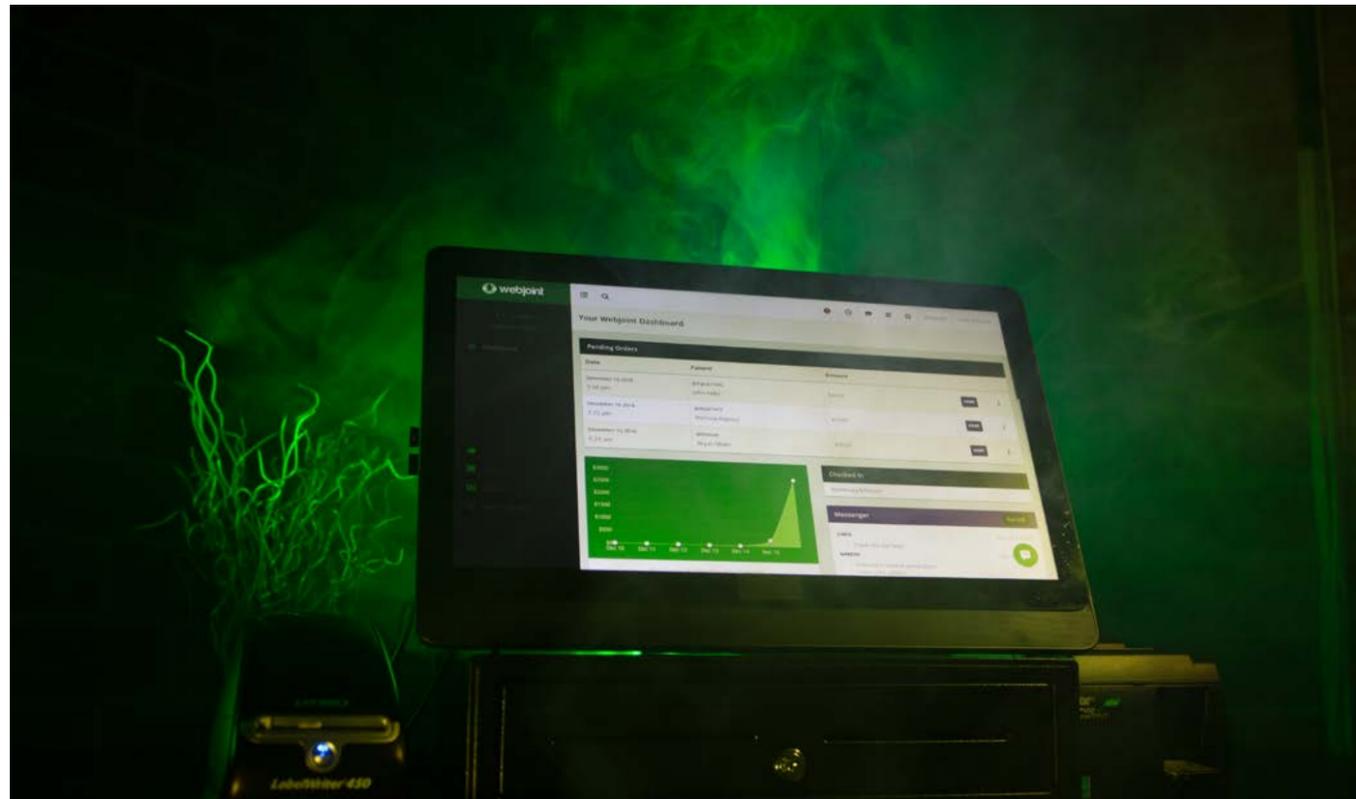
Dell'Olio and Abrahamian first went into business offering simple website design roughly four years ago, but they grew with the cannabis industry to offer more comprehensive software that helps business owners track their operations and stay compliant.

I asked them about how they've seen cannabis business owners' perceptions of software change over time as legalization came into play in California, and how software can alleviate some of the tension around regulations.

EMERALD MAGAZINE: HAVE PEOPLE TREATED YOU DIFFERENTLY BETWEEN WHEN YOU STARTED AND NOW?

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“As of right now, no one is scared of the Bureau of Cannabis Control or any enforcement coming in and shutting them down, because that hasn't been happening for the past few years, but all people do is, they get a slap on the wrist and then open up a new location. But now enforcement will be coming in and putting real actions in place to enforce everything in the industry.”

DELL'OLIO: We used to get laughed at. We used to do sales demos or present to an audience on why people need our software. People would say, “Oh, I can just use Quickbooks.” Or they'd say, “This is stupid, there's no point to it.” But at the end of the day, the way they're tracking and tracing cannabis in California specifically is different from the way they're doing it in many other states, so therefore people are finally starting to understand that you need a specific software that can track the purchase orders that you're getting from your distributors, like where you store your inventory, when sales transactions happen, which package of inventory is that coming out of—it's very, very specific. People are starting to understand that. Those who don't understand that are really falling behind and are putting themselves in a position where they're going to get audited, and the BCC is going to come in and shut them down.

As of right now, no one is scared of the BCC or any enforcement coming in and shutting them down, because that hasn't been happening for the past few years, but all people do is, they get a slap on the wrist and then open up a new location. But now enforcement will be coming in and putting real actions in place to enforce everything in the industry.

Abrahamian: Hundreds of businesses have been shut down. People are going out of business because it's tough. By the end of the year, it's looking like nobody without an actual license is going to be able to operate.

EM: WILL THE BLACK MARKET BE GONE?

Abrahamian: As far as METRC goes, it's going to make it much harder. METRC is supposed to go live in March of 2019 at the latest. So, if you have a temporary license currently, you don't have to use METRC.

Dell'Olio: You don't have to tell the state where your product's going or where it's coming from.

Abrahamian: So, that's a big piece of the problem. But temporary licenses will expire in March of 2019 at the latest, and some have already started to expire.

EM: DO YOU ANTICIPATE HUGE GROWTH IN BUSINESS AT THAT TIME?

Abrahamian: Yeah. Essentially, if you have an annual license, you're using METRC. If you're using METRC, you probably don't want those



▲ CHRISTOPHER DELL'OLIO AND HILART ABRAHAMIAN, THE FOUNDERS OF WEBJOINT

headaches. So, you want to use a retail software such as ours to help automate those tasks.

Dell'Olio: We even have had retailers who've said, “We love Webjoint and your services, but I'm not operating for the next few months,” because they don't want to compete with the black market. If they're trying to operate legally now, they're gonna have to charge 35% tax, and why would they try to sell the consumer on paying that much tax when the dispensary or delivery service next door is charging zero tax? You also have licensed manufacturers who are the biggest brands in Califor-

nia, brands people know and love. You can go to a licensed dispensary and get that product with a 35% tax, or you can go and get that same product at a delivery service or dispensary that's illegal with zero tax. Where we see the industry going, is there's going to be the Marlboros, there's going to be the Bud Lights of the industry. It's getting to the point where people don't care where they get it as long as they have the product they want, but why is the product people want available in legal and illegal dispensaries?

Everyone is looking at the illegal retailers as the problem, and they're trying to bring more enforcement into the industry, but as long as there's a demand for that product, illegal retailers will always exist.

EM: DO YOU THINK WHEN METRC GOES LIVE THAT'LL CUT BACK ON ILLEGAL RETAILERS?

Dell'Olio and Abrahamian: Definitely.

EM: WHERE DO YOU WANT TO SEE YOURSELF IN THE NEXT FIVE YEARS, NATIONALLY AND INTERNATIONALLY?

Dell'Olio: We feel like the best way to go international is by solving the problem in California, because California is one of the biggest markets.

We're essentially “Our Country, Ourselves.” So, by solving the problem here, a lot of other states are going to follow what we've been doing, and a lot of other countries are going to follow what we've been doing. As long as we can solve the problem here, we will continue to be able to do that elsewhere.

Chris Dell'Olio and Hilart Abrahamian are unquestionably leaders who will help bring the cannabis industry to the next legal phase, whatever that will entail.

While software helps keep business owners legal with reporting, it also goes above and beyond that minimum requirement. It helps leaders have more insight into customer behavior, efficiency and business processes they might not currently be tracking closely.

Tech might not be an obvious component of the cannabis industry, and reporting data might not immediately come across as important, but both are integral to the industry's success. Keep an eye on software developments and businesses that adopt tech early that will soon be the industry standard. Change is a-brewing!

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DANIELLE GUERCIO



FOR OLDER MILLENNIALS, vivid memories of sneaking in Tamagotchi feedings during class without getting caught illustrates some of the first virtual bonds between consumer and life simulator interface. Showing responsibility for an intangible creature was something slightly addictive, engaging our caretaker instincts and melding them with the urge to press buttons and binge a video game. Now this simulator model applies to many living things, and cannabis is the latest to get a dedicated interface. Who knew that the Tamagotchi generation would be sweeping out cannabis prohibition and using every single piece of technology and innovation at their fingertips to perfect the growth process?

Real-life growing can be daunting to novices, and short of putting a seed in the ground and saying a prayer, even many bare-bones ops are simply too complex for laypersons. As genetics and standardization of techniques improve, it could become effortless to grow your own cannabis, but as it stands now, it requires an initial investment of time, money and know-how that not many can spare when good product can be purchased at the store down the road or even delivered in minutes.

The tech industry is the truly new field where plants are concerned, and developing needed support for the cannabis industry has to evolve past only the point of sale. One company, simLeaf, is combining the accessible tech of a phone app with the real-life experience of cultivators for potentially groundbreaking results in the educational and developmental phases of cannabis growing.

We played with the simLeaf app for a single evening, and though it's hard to garner real knowledge from just 24 hours looking at any subject, its clear to see how this could be a platform for learning that makes grow tech leave books and message boards and enter the hands of the common people. Not everyone can invest hundreds in print materials, thousands on classes, and tens of thousands on test crops and their supplies, but most people can spare \$2.99 for a program that has a game-like quality.

This is more powerful than it sounds on its surface. If people can learn practical techniques without monetary and equipment investment, it could break down many of the traditional barriers that prevent people from transi-



tioning into the cannabis industry and its subsequent boom of profits. Plus, the app itself is fun. At first glance, it seemed like a simple concept, but this interface covers everything from air quality to nutrients and light positioning. It's bringing a three-dimensional and 360-degree view to something that typically carries much more mystery.

Picking a plant is pretty straightforward, but like everything in the world, it might cost you, as the add-ons aren't free in this app. It's cool that the starter trees are free, and obvious that this product needs to have in-app purchases to support its existence, but the value doesn't necessarily correlate on every charge. Prying an extra dollar from the user to grow a plant faster when you lose all of the data gained in a turtle-or-rabbit speed phase seems like a waste of money even if you gain the time. Paying for more knowledge is fine, but losing the valuable feedback from the other growth times isn't worth 99 cents.

Other than that, the app itself provides a first-hand growing experience that coaches users through the entire life of the plant, from seedling to harvest. There are indicas, sativas and hybrids, and then the potential to make your own hybrids as you collect mother plants. It even simulates curing as you "harvest." One of the most satisfying parts is the tally after growing, where you get a breakdown of everything from the weight produced to the THC and cannabinoid readings. This feels like a certificate of performance, and after investing a few weeks in a normal speed grow sim, you will receive a rewarding little plaque that you can throw on your social media if you feel so inclined.

At first, it seems like this isn't the most clear and striking animation, but the second you pinch and zoom on your baby and see all of that sugary detail on the plants, it's mesmerizing. During a rocket-speed grow, you're treated to a full-blown animated show of the unfurling of gram after gram of gorgeous flower. The zoom-and-pinch feature allows you to move up and down the plant, around and deep into the leaves to see what's happening up close.

These details are more than for show. They essentially allow you to spot when the leaves are yellow, dry or otherwise undernourished, and that is the mechanism that allows you to learn as you treat the plant with light, water and nutrients over its existence. Growing in person requires a specific amount of knowledge that definitely could be improved by spending time on the app. Before parting with the money to try the real thing, having a bit of visual reference is more helpful than it sounds. If you've barely ever seen plants in the ground, getting your eyes on simLeaf could really help you out.

The app itself has reminders to let you know when it's time to get the vitals on your plant. It's really checking everything from humidity to temperature and not really letting you slip up with little badges and pings. This is much more forgiving than doing things for real, which is such a video game concept that it barely registers anymore. Jumping from a high cliff and failing? That's something you can only do in the virtual world, which now extends to roasting and soaking your precarious plants, not smart to try for yourself.

This seems like a novelty, but testing plant hardiness could be an important tool when developing new cultivars, brand standards or even educational briefs for large operations. Why put the resources into the physical world when you can test your concepts with no consequences in the virtual realm while watching Netflix?

Texas' first walk-in medical cannabis dispensary provides high-tech CBD oil under the most stringent rules imaginable, showing everyone how well it can be done.

Technologies of Compassion

MOLLY CATE

TEXAS HAS NEVER been cannabis friendly. As far back as the 1960s, we would warn each other not to get busted in Texas, where possession of even the tiniest amount could send you to prison for up to 50 years. So, the passage of the Compassionate Use Act (CUA) in 2015 and the licensing of three dispensaries in 2017 were major triumphs of political persuasion and say a lot about the growing body of clinical evidence for cannabis as medicine.

According to NORML (the National Organization for the Reform of Marijuana Laws), all but four states (Idaho, South Dakota, Nebraska and Kansas) have some medical cannabis program either running or in development. Like most other states of the old Confederacy, the Texas law lists only severe, intractable epilepsy as a qualifying condition. Interestingly, six counties in Texas, all in or surrounding major urban areas, have passed local cannabis decriminalization laws. Texas' first walk-in dispensary is in one of those counties.

Compassionate Cultivation (CC), based in Manchaca, southwest of Austin, opened its doors on February 8,

2018. As well as delivering all over the state, it is the only authorized walk-in store and the only dispensary that is fully Texas-owned and operated. All three dispensaries must operate seed-to-sale, doing all the growing (indoor), processing and distributing, as well as providing security, and must follow the strict state requirement that their oil tincture contain .5% or less THC and 10% or more CBD.

When asked about the 2017 application process, Compassionate Cultivation CEO Morris Denton said, "Oooh, man!" He explained that an exhaustive juried process assessed all aspects of the proposed operation. "We had to leap a high bar, demonstrating proven capacities in resources, technologies and experience in building a for-profit business, and guarantee we could withstand two years of financial losses, too." On the positive side, Morris explained that the tight restrictions require them to maintain a "gold standard" in every aspect of the business. In May, that high standard brought Compassionate Cultivation a coveted A-list Award for New Business Start-ups from the Austin Chamber of Commerce, according to the *Austin Business Journal*. Perhaps the best accolades of all come from grateful



MAGGIE FITZ PHOTOGRAPHY



PHOTO BY RICARDO BACA

parents. In May, one wrote that CC “drove from Austin to East Texas to deliver on a Saturday.” Another wrote in June that “you would never know this was a new business; they operate smoothly and efficiently.”

Asked how they accomplish this, Morris lauded their “supremely dedicated staff of high-caliber individuals,” each a “deep expert in his or her domain, bringing best practices into a cannabis application.” According to CC’s website, their director of cultivation is a professional agronomist, and the co-founders are a corporate attorney and a “wildcatter” (Morris’ words), a classic Texas oilman. Morris Denton himself brings “three decades of leadership experience in technology, product and brand marketing.” And their Chief Medical Officer, Dr. Karen Keough, is “a board-certified pediatric neurologist who specializes in treating intractable epilepsy at Child Neurology Consultants of Austin.”

Dr. Keough is a very active presence at CC. Morris mentioned that she “came on board very early and was very important in developing their products.” She writes moving and very

informative blog entries on the CC website and has explained her journey from CBD skeptic to confident prescriber. The website includes her comprehensive resources for physicians, including a candid FAQ section.

Their website, TexasOriginalCC.com, reflects the enormous care taken at every step of the company’s formation. Besides the resources for doctors just mentioned, you’ll find patient FAQs posted in Spanish as well as English, a 10% discount for military families and a nifty “store” where you can buy swag like T-shirts and decals. Those purchases support the Compassionate Use Patient Assistance Program, created in partnership with the Texas Epilepsy Foundation, designed to help make their products even more affordable.

And affordable they are, especially in contrast to the array of pharmaceuticals conventionally prescribed for severe epilepsy. The CC tincture, made from the strains Charlotte’s Web and Ringo’s Gift, costs 13 cents per milligram, meaning somewhere between \$150 and \$600 per month, depending on body size and dosage recommended. Compare that



PHOTO BY RICARDO BACA

to the expected \$2,500 per month for the recently FDA-approved Epidolex, the first pharmaceutical preparation available in the U.S.

The tech side of Compassionate Cultivation is provided by Xabis, offering state-of-the-art extraction and analysis expertise in CC’s million-dollar-plus labs. Their two top officers hold Ph.D.s in chemistry. The closed-loop CO2 extraction method recaptures more than 90% of the gas used, and their comprehensive purification/distillation process results in a finished product that’s up to 99% pure. Each batch is then subjected to extensive chemical analysis, not because there’s any concern about content, but to be able to provide the public with exact data. You can read the reports on their website.

Morris said Compassionate Cultivation’s clients range in age from babies “under one year to [adults] in their sixties. The majority are children. For some, epilepsy diminishes over time.” He spoke of the

“amazing story” of one patient, age 16, who suffered weekly debilitating seizures but, under treatment, went on to enjoy summer camp and college. “She even got her driver’s license.”

The folks at Compassionate Cultivation, like their collaborators and colleagues in the Drug Policy Alliance, NORML and the Minority Cannabis Business Association, see this rigorous entry into the market as producing a positive ripple effect—building trust among legislators and the public, reducing cannabis stigma and paving the way for more illnesses to be included under the Compassionate Use Act. Morris said, “We can’t afford to screw up. Now is the time to demonstrate the effectiveness and integrity of the [CUA] program. That will provide solid arguments for increasing the program’s scope and reach.” Many of us are rooting for them to continue to succeed, but no one put it better than a joyous client who wrote in June, “Incredibly helpful. Going on 13 weeks seizure free!”

M C R L A B S

Massachusetts Safety Stop

KRISTEL COLEONGCO



FROM POTENCY PROFILING TO SAFETY SCREENING ON FLOWERS, CONCENTRATES, TOPICALS AND TRANSDERMAL PATCHES, MCR LABS COVERS ALL THE REQUIRED TESTING FOR COMPLIANT CANNABIS IN MASSACHUSETTS.

CANNABIS TESTING IS now a required element of the industry's sellers market. Cannabis, just like any other type of agricultural product, is inevitably exposed to variables that affect its quality and effects on users. These variables can be anything from pesticides to mold caused by extreme weather conditions. Testing cannabis provides consumers with peace of mind by eliminating health risks.

The *Emerald Magazine* reached out to Joe Crinkley of MCR Labs in Framingham, Massachusetts, to learn more about the lab and why it's important to test your product. According to Crinkley, "[MCR Labs] perform[s] potency profiling and safety screening on all manner of cannabis products, from flower and concentrates to topicals and even transdermal patches. Our [lab] cover[s] all of the testing required for cannabis products to be compliant with current regulations in Massachusetts. We work with a majority of the licensed cannabis retailers here in Massachusetts, [and are] also happy to offer our services to independent home growers, aspiring cannabis entrepreneurs, patients crafting their own medicinal products or researchers striving to advance our understanding of cannabis and the compounds therein."

In 2012, Massachusetts voters passed a ballot initiative for medical cannabis. That's when MCR's President and Founder, Michael Khan, had an epiphany and left his career in the pharmaceutical industry.

With encouragement from colleagues and friends, Khan found a window to leverage his chemistry background to put himself on the map for the budding industry. While there was no immediate need for testing then, Khan had the foresight to pre-empt the upcoming need for professional lab-testing services. One year later, Khan opened the first cannabis testing facility in Massachusetts.

MCR Labs ventured into the industry because of the unique opportunity that cannabis presented. Its rapid growth made for a solid foundation, and the early drafts of Massachusetts state regulations made analytical testing necessary, which made MCR Labs' position a critical and pivotal one in the industry.

The biggest challenge the lab has faced has been to establish itself in the legal landscape. Rules and regulations have created unusual challenges. MCR Labs have learned to ride the wave by maintaining positive relationships with their industry partners as well as government agencies overseeing the state's cannabis program.

"As the first independent cannabis testing laboratory to be certified by the Massachusetts DPH (Department of Public Health)," Joe Crinkley explained, "we are proud to offer analytical testing and R&D services to MMJ and adult-use cannabis providers, patients, doctors, caregivers or anyone crafting their own cannabis products. Our methods are ISO-17025 accredited, and we employ proven analytical practices developed in the pharmaceutical industry. Both our Founder, Michael Kahn, and our Director of Scientific Operation, Scott Churchill, got their start in pharmaceutical drug testing before transitioning to the cannabis industry. Their backgrounds with analytical testing, as well as Scott's experience teaching enthusiasts about lab testing and different extraction methods at the Northeast Institute of Cannabis, have made MCR Labs one of the most trusted labs in the state."

And while the main proprietors of MCR Labs give their life to science, they're also advocates of the plant outside the facility. Kahn works closely with cannabis advocacy groups as well as regulators and policymakers to help push for responsible and effective policy in relation to the industry within Massachusetts. He is seen as a trusted voice in the cannabis space for New England.

Crinkley closed the conversation by explaining how everyone at MCR Labs is "...passionate about cannabis science and strive[s] to supply our partners with accurate information that encourages safe and responsible practices. Additionally, we make every effort to collaborate with top advocacy groups, educators and fellow researchers in the field to further both the science and acceptance of cannabis."

FOR MORE INFORMATION, VISIT [MCRLABS.COM](https://mcrlabs.com).

NEW YORK STATE OF MIND

HILARY ANNE OSBORN

SENATOR DIANE SAVINO has represented the New York State Senate's 23rd District since 2005. She is a New York City native, hailing from Queens, and is a staunch advocate for medical cannabis access. She sat down with the *Emerald Magazine* on a rainy Wednesday in Manhattan, at the MedMen Medical Cannabis dispensary on 5th Avenue, down the street from Bryant Park. MedMen's surroundings are sleek, fully equipped with iPads to guide patients, and offering a full staff to answer any questions. MedMen's goal is to provide a wide variety of options for patients in a welcoming environment. The staff were accommodating but maintained a protective and respectful boundary for patients while we conducted the interview and photo session. Senator Savino arrived and was greeted warmly by the staff, as she has good relationships with MedMen and many other dispensaries. She understands the importance of dispensaries being both knowledgeable and approachable. She sat down with us to talk more about her district, New York regulations and how you can get involved in your local political processes.



EMERALD MAGAZINE: WHERE IS THE 23RD DISTRICT?

Senator Diane Savino: It's the southernmost part of New York City—Staten Island, parts of South Brooklyn, including the iconic community of Coney Island. You may not know Staten Island, but everybody knows Coney Island! Also some Brighton Beach—basically all the beach communities of New York.

EM: AND YOU'VE REPRESENTED THAT DISTRICT SINCE 2005, SO THEY MUST LOVE YOU THERE.

I think so—I hope so!

EM: YOU'RE ORIGINALLY FROM QUEENS, FROM ASTORIA. SO, WHAT WAS IT LIKE GROWING UP THERE, AND HOW DID YOU GET INVOLVED IN POLITICS?

Well, I got involved in politics kind of accidentally. I think most women do—they don't start out thinking, "I'm going to run for office." Men know that—they know in kindergarten that they want to be president. Women usually wind up in politics because they're actively involved in a cause or an issue that propels them. So, I got involved first in the labor movement. I worked for the City of New York, I was a caseworker in child welfare. As a city employee, first of all, you're unionized, and secondly, you're at the whim of the budget cycle every other year. We were very engaged and active in lobbying the city for funding of social justice programs, child welfare, shelters, etcetera. I became very active in the union as well, because I'm a union delegate, a staff member, a vice president. I ran the union's political program,



PHOTOGRAPHS BY CALEB OBERST

I took on running campaigns, I went to other states and worked with presidential campaigns, and I worked on local campaigns. The union was one of the founding members of the New York State Working Families Party. I sat on the executive board, so I was involved in politics on that level.

EM: WHO INSPIRED YOU GROWING UP?

Loads of people! Growing up in Astoria, Geraldine Ferraro was our councilwoman. She was a congresswoman, and she was the first woman to run for vice president on a major party ticket. She was someone you'd see in the neighborhood. She was a definite influence, not just on me but on young women. She was what you call an "outer-borough ethnic"—that's what they call us. You know, everyone thinks of New York, and they think of Manhattan. Here we are [sitting for this interview] on 5th Avenue, but this is just a tiny portion of New York City. There are these labels they place on the rest of us that were born in the other boroughs, and she was one of those people that no one expected to achieve anything, and there she was running for vice president.

EM: WE'RE HERE AT MEDMEN, WHICH IS A MEDICAL CANNABIS DISPENSARY IN MANHATTAN. WHAT'S YOUR TAKE ON THE FUTURE OF THE CANNABIS INDUSTRY IN NEW YORK?

Hopefully, what I see for the future of the medical industry is that we can expand it so that we can meet patient demand, and at the same time we continue down the path of increasing patient access, because that will bring down the price. This is an expensive product for a lot of patients, and if they can manage to get to a dispensary, the out-of-pocket costs can be prohibitive for some people. That's a real problem, because far too many people are depending on addictive drugs like opioids to deal with chronic pain and other conditions they have, because their insurance covers that. So, we have two paths in New York. One is that we are looking at the possibility of a legal adult-use market, and I think that's going to take another year or two to flesh out. It's important that we do a legal regulated market with tight

controls and that we don't over-tax the product. We have to make sure that it's not palatable to go into the black market and purchase drugs—we want to eliminate that possibility. So, we have to be careful how we do this. The beauty of New York moving forward on this now is that we can see how other states have done it. I'm hearing really good things about the Nevada market. They manage to do adult use and medical, and one market is not killing the other, as opposed to Washington State, where the adult-use market is killing their medical industry, and we have to be careful not to do that here.

EM: SO, YOU BELIEVE THE FUTURE AND FOCUS SHOULD BE EXPANDING THE MEDICAL INDUSTRY TO MAKE IT MORE ACCESSIBLE TO PATIENTS?

Yes. This is supposed to be about Public Health Policy. Re-socializing the way people think about cannabis helps. That's why a store like this dispensary is so important, because it's not hidden away in a corner somewhere—it looks like a place that people want to come in and maybe even just have a conversation with the people that work here. That's the kind of environment we want to create.

EM: DO YOU HAVE ANY ADVICE FOR HOW YOUNG PEOPLE CAN GET INVOLVED IN POLITICS, SPECIFICALLY FOR CANNABIS ADVOCACY, AND GENERALLY GETTING INVOLVED IN LOCAL POLITICS?

That's the key—to start local. Everyone wants to get involved in congressional campaigns, but you can also get involved in local races, state legislative races and town councils. Get involved in those, or join a club in your community. Also, a bit of advice for young people who want to get involved: Don't walk in and assume you know everything. You might want to learn something from people who have done this for a while. Take some time, get involved, do the grunt work. Learn the issues of your community, and volunteer when you can.



CANNABIS INSURANCE

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Here at Cover Cannabis we are asked 100s of questions every month about how to properly insure a cannabis operation. Here is a question we received recently:

Michael (Business Owner): I have a dispensary and sell a variety of cannabis-infused products. Recently I've seen cases of retailers being involved in lawsuits that I had expected would deal only with manufacturers. As a dispensary, am I liable for issues with the products I sell, even if I am not the manufacturer of the product?

Theresa: We are glad you brought this up. Product Liability in the Cannabis world is an evolving and complicated topic. The answer to your question becomes then more complicated, because it varies per state. In about half of the states where marijuana can be sold for medical and/or recreational use, a retailer who sells a defective product to a consumer can be subject to liability in the event the consumer is harmed. This would mean, in your specific situation, if you sell a defective edible to a consumer you could be liable even if you were not involved in the manufacturing of the product. In the other half of the states, retailers are not completely off the hook in the event of a tainted product. Retailers can still be liable if they provided misleading information about the product or if a judgement against a manufacturer is not enforceable. Either way, you can still be liable as a retailer for a product you did not manufacture.

Currently cannabis product liability cases are far and few in between, but as you mentioned there are open cases in court now. In 2015 a class action lawsuit was filed against a company for treating product with a fungicide that emits cyanide gas. Another case, a wrongful death case, in which three children are suing after their father killed their mother while under the influence of marijuana, in this instance the plaintiffs are suing both the manufacturer and the retailer. And more recently one of the first instances of a marijuana product recall in Oregon. We expect these cases to grow as the cannabis business expands. Furthermore, we see it becoming more and more problematic as the cannabis industry is not regulated on a federal level and individual states are creating their own legislation and guidelines. Without formal testing, packaging and safety standards in place, operators of all cannabis businesses are an easy target for lawsuits.

We recommend being proactive and minimizing your risk by informing yourself of the testing being conducted by your suppliers/manufacturers, as well as getting to know your state regulations. Here at Cover Cannabis we can help you protect your business in the event of an issue with the products your business cultivates, manufactures or sells. Call us today and let's explore your options.

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WHEN DID EVERYONE START VAPING?

A Smoker's Guide to Portable Vaporizers

GREG LEPKOFF

WITH LEGALIZATION SPREADING across the land, the cannabis industry is beginning to see major innovation. The days of home-built bongs and artisanal joint rollers have been displaced by a new era of dabbers, vapers and all of the new tech that comes with them. This explosion in options has left a lot of cannabis enthusiasts with an embarrassment of riches. Even the most in-the-know consumer could be forgiven for having fallen behind on what's new.

Vaping is the newest frontier in the cannabis industry, and it's the area where most of the progress is being made. Five years ago, all portable vape oil cartridges were made of extruded plastic. The material reacted with the terpenes in the cannabis solutions, causing discoloration and poor taste. They had cotton wicks, which could catch fire when the tank was low. They also leaked. Constantly.

Now, the vape industry has evolved to include many high-quality options. Few serious vapers make use of the disposable plastic options, preferring instead to purchase a reliable piece of equipment. A portable vaporizer is an investment, and there is no “right piece” for everyone.

The key to picking the right vaporizer is to know the technology. This simple guide breaks down everything you need to know in order to pick the vape pen that will fit smoothly into your lifestyle. When you finish reading it, you’ll know all the major categories of vape technology as well as how to pick the vaporizer that will best suit your needs.

WHAT IS VAPING?

Whether they are tabletop models like the original Volcano or the increasingly popular portable vape pens, all vaporizers function in essentially the same manner, in that they heat material to the point that it becomes a gas (vapor), which is then inhaled.

In the case of flower, this gas is composed of vaporized trichomes (the sticky resin glands of the cannabis plant). In the case of vaporized concentrate, this gas is composed of highly concentrated trichrome fluid and terpenes (chemicals found in cannabis, which give the buds their distinctive smells and tastes).

Vaping has a lot of benefits over combustion. Though cannabis has been shown to be far safer than tobacco, it is an undisputed fact that burning and inhaling any sort of plant material is not a healthy habit. This is true for recreational consumers, but it is particularly true for those who consume for medical reasons.

Many former smokers come to prefer vaping because it allows them to enjoy the flavor of their flower without the additional tastes associated with combustion. No matter the level of filtration in your bong, no matter how many ashcatchers and diffused downstems, combustion simply cannot compare to the taste of a quality vaporizer.

WHAT KIND OF VAPE DO I NEED?

The most important thing to do is to know what you expect from your vape before you start shopping. As long as you know what you want, you’ll be able to find the right vaporizer in no time. Here’s a rundown of the main things you should consider when shopping for a vaporizer:

WHAT DO I WANT TO VAPE?

This is the most important question of them all. Very few vaporizers are built to excel at vaping multiple forms of THC. Instead, most are designed with one particular substance in mind, be it flower or concentrates. It’s a good idea to buy a vape with the intention of using it for one particular substance, rather than seeking out one that claims to do it all.

One exception to this rule is a system that comes with multiple tanks—one for flower and one for concentrates. Future vapers who cannot choose between flower or the infinite menu of concentrates should go with this option.

WHAT KIND OF CHAMBER DO I WANT?

This is another point where herb vaporizers and wax pens diverge. Vaporizers designed for herb all tend to have relatively similar metal chambers. They are a permanent fixture of the device, meaning that they do not have to be replaced regularly. Unfortunately, this also means the chamber cannot be upgraded or replaced.

Vapes made for concentrates are mostly differentiated by the quality of their chambers and the coils within them. Ceramic coils last longer and heat more evenly than the traditional steel coils. They have to be replaced less frequently. Many high-end vapes now use two coils in order to heat more rapidly and vape more evenly.

Wax vape pens frequently have chambers that are made of titanium, quartz or ceramic. These materials all have different selling points, and the jury is still out on matters like which provides the best taste or which best holds heat in the ideal range. One thing that is agreed upon is the fact that quartz and ceramic chambers will eventually crack, while titanium will not.



WHAT SORT OF BATTERY LIFE FITS MY NEEDS?

Vape pens tend to have the smallest batteries out of all the vaporizers currently available on the market. These slim devices are usually charged by a USB device, which threads onto the battery to charge it directly. As you might imagine, adding heat and electricity to a device that regularly comes into contact with plant material and fluids can cause unpleasant reactions. These batteries are cheap, which is great, because they regularly fail.

Other batteries tend to vary as much as the devices they’re attached to. Some things to consider are: Can the device be used as it charges? How long does it take the battery to charge from empty to full? How many hits can be taken from the fully charged device before it dies? One thing to note is that vaporizing dry herb requires quite a bit more power than heating a concentrate to its boiling point. This is why concentrate vape pens can last for days, while flower vapes usually need to be charged after every session.

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HOW DO I LOAD IT?

If you're going to use your vape at home and never leave the house, this doesn't particularly matter. For everyone else, this is very important, particularly for those who are seeking discretion. Loading ground flower into a vape while on the go is a surprisingly difficult thing to do. Add a little wind, and the situation becomes dire. Concentrates are a much better option for those who intend to use their vaporizers on the go. Concentrate vapes are also a bit more discrete, as many will assume you are loading a nicotine-filled vape.

HOW MUCH HEAT CAN I HANDLE?

Ideal vaping temperature for concentrates is much higher than for flower. Regular smokers will be used to inhaling hot substances, so this aspect isn't necessarily important. New users and those who are consuming cannabis for medical reasons may find that they are more comfortable inhaling the cooler vapor produced by a vaporizer designed for flower.

HOW MUCH CONTROL DO I NEED?

Temperature is the factor that most affects your vaping experience. One good general rule is that low temperatures result in smaller clouds but bigger flavor. Many inexpensive vape pens do not have specific temperature settings. Instead, they use color-coordinated temperature ranges. This is enough for many novices, but more experienced users looking for a more nuanced experience may want to seek out a vape that offers temperature control in 10°, 5° or even 1° increments.

HOW MUCH MAINTENANCE CAN I TOLERATE?

A concentrate vape involves a bit more maintenance than one designed to be used with dry herb. Dry herb vapes tend to clog frequently. The chambers must be scraped out to ensure that no unvaporized plant material

remains to get clogged in the air intakes. Concentrates can leave a residue, which must be removed via scraping or an alcohol solution. This often takes a bit longer than the process of clearing a dry-herb vape.

KEY FEATURES IN ANY VAPE

Regardless of the system you choose, there are a few things that everyone needs in their vaporizer. It's easy to get caught up in the cloud-filled YouTube ads and the sponsored Instagram posts. No matter what kind of vape you're looking for, there are three things you should expect from your device.

Discretion. A good vape isn't covered in pot leaves or strangely shaped. It needs to blend in.

Ease of use. Look for a vape that doesn't require extensive set-up.

GENERAL TIPS

Got your vape picked out? Ready to join the non-combustion movement? Here are a few tips to get you started.

DRY HERB VAPES

Use a grinder. The finer the grind, the more even the vape. Clean or change the filter screen regularly for maximum airflow. Start at the lowest heat setting, and work your way up.

CONCENTRATE VAPES

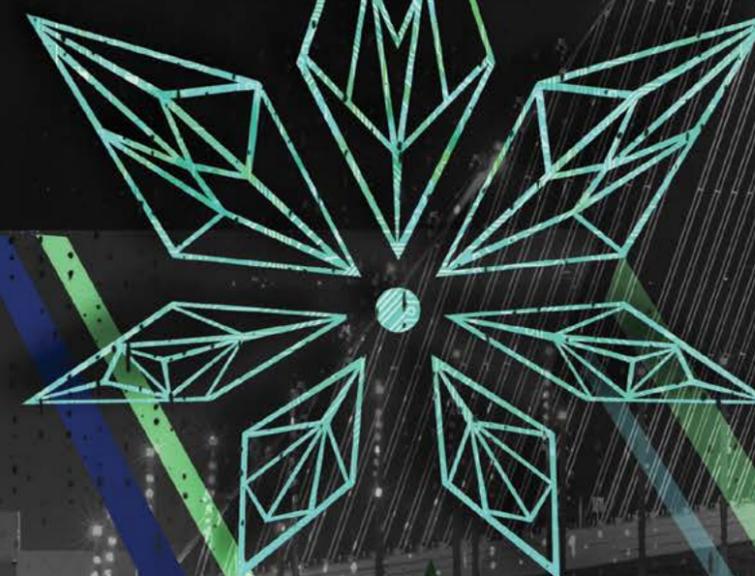
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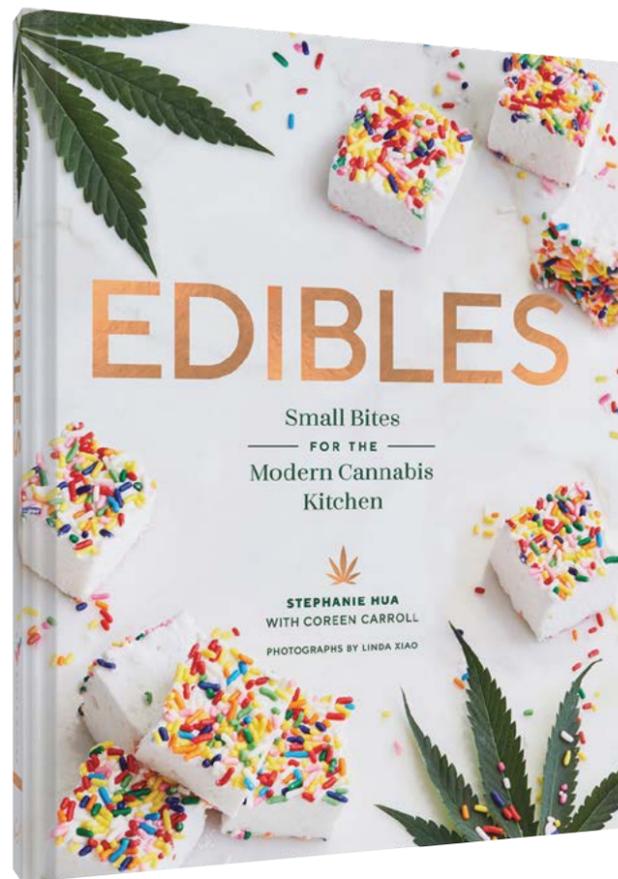
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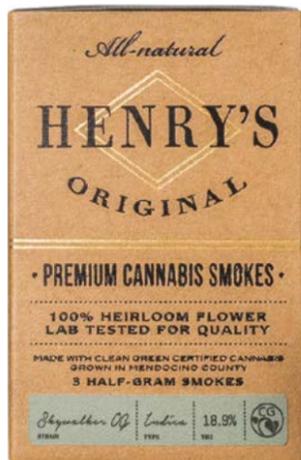
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 STAMPED PERMIT for 27K sf OD & ML; CA TEMP STATE LICENSE. ±42 Ac turn-key w/ abundant water & house.

KETTENPOM - \$699,000
 Trinity Co Permit for 15K sf. 3/2 home on ±170 AC w/ creek access, pond, well, PG&E, paved roads.

BERRY SUMMIT - \$599,000
 Interim Permit for 10,700 sf OD & ML. ±40 Acres w/ yr round spring, 2/3 home, garden sites.

MAD RIVER \$750,000
 Interim Permit for 11,700 sf OD & ML. ±40 private acres w/ home, timber, creek, pond, greenhouses.

WILLOW CREEK \$950,000
 Interim Permit for 11,276 sf OD & ML. ±160 Ac w/ spring, pond, well permit, flats, shed, roads.

WEITCHPEC - \$2,900,000
 Interim Permit for 43,560 sf OD & 22K sf ML. ±320 Ac w/ home, spring, creeks, pond.

WILLOW CREEK \$550,000
 Humboldt Co Permit App on file. ±21 Ac w/ well, pond, water storage, gardens, shop, 200-amp PG&E.

HAYFORK \$599,000
 Trinity Co Permit for 10K sf ML. ±40 Ac w/ 2 ponds, springs, well, water storage, outbuilding, cabin.

WILLOW CREEK \$425,000
 Interim Permit for 5,000 sf ML. ±2.5 Ac w/ community water, 200-amp PG&E, greenhouses, gated drive.

WILLOW CREEK \$400,000
 Interim Permit for 5,000 sf ml. ±2.5 Acres w/community water, cargo containers, & greenhouses.



WILLOW CREEK - \$725,000
 New Listing!
 Interim permit for 7,300 sf ML. 20 Acres w/ PG&E, 2/1 house, 2 springs, 50'x75' shop, greenhouses

MAD RIVER - \$849,000
 Permit App on file for 21,750 sf ML. ±40 Ac turn-key w/ spring, pond, well permit, barn & cabin.

HAYFORK - \$2,600,000
 Trinity Co Permit for 10K sf ML & 10K nursery. ±30 Ac w/ well, pond, next gen greenhouses & geodesic dome.

HAWKINS BAR - \$419,000
 Trinity Co Permit App on file. ±147 acres w/ NCTHP, good roads, 10gpm well, cabin, shop, existing ag operations.

JUNCTION CITY - \$695,000
 STATE & County Permit for 10K sf ML. ±7 Ac w/ 400-amp PUD, well, irrigation system, house & shop.

BERRY SUMMIT - \$995,000
 3/2 home on ±46 Acres w/ dual commercial power drops, ag building, terraced flats, pool, garage. AG zoned.

ISLAND MOUNTAIN \$699,000
 ±193 Ac on Eel River w/access to swimming holes, springs, creek, pond, rolling meadows, greenhouse.

ISLAND MOUNTAIN \$1,475,000
 ±803 Acres w/ 6Mil BF timber, 2 springs, seasonal creek, orchard, PG&E, easy road access.

FERNDALE \$1,690,000
 ±480 Undeveloped acres w/ ocean views, springs, creek, pond, open meadows, timber, easy access.



MIRANDA \$849,000
 Interim Permit for 10,000 sf ML. ±120 Acres w/ creek frontage, well, springs, home, permitted structures, THP.

ELK PRAIRIE VINEYARD - \$1,650,000
 ±20 Acres w/ 3 homes, pond, decks, pool, winery, cellar, tasting room, mature grapes, olive trees.

WILLOW CREEK \$675,000
 Interim Permit for 24,500 sf OD. ±160 Ac w/ water, flats, greenhouse, PG&E.

WILLOW CREEK - \$525,000
 Permit App for 17,500 sf OD & 2500 sf ML. ±80 Ac w/ yr round creek, large flat, mountain views.

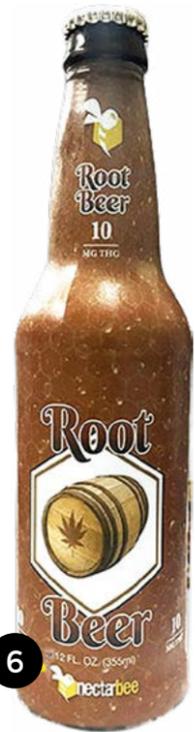
McKINLEYVILLE - \$589,000
 STAMPED PERMIT for 10K sf ML. ±10 Acres w/ spring, well, water storage, metal shop, garage, house.

WILLOW CREEK - \$849,500
 STAMPED PERMIT for 10K sf ML. ±5 Ac w/ public water, 3 phase power capability, ADA processing shop.

REDWOOD VALLEY - \$489,000
 New Listing!
 ±1.2 Ac w/ creek frontage, 2/1 home, guest cabin, pool & deck, garage/shop, tool shed, orchard.

KING SALMON - \$109,000
 Reduced Price!
 Three parcels totaling ±.4 acres on the canal in King Salmon. Water and power on the property.

KNEELAND - \$295,000
 Reduced Price!
 ±40 Remote acres w/springs, meadows, timber, undeveloped building sites. Great retreat spot.



6

6 • NECTARBEE
Root Beer
Cannabis-infused carbonated soda with the sweet, old-fashioned root beer taste. Available in 12 oz bottles that deliver a single 10 mg dose of THC. MYGREENSOLUTION.COM

Gift Guide



7

7 • SAUCERY Curry Truck Style Tikka Masala
Created by Chef Andrew, over 17 different spices are put together to bring just enough heat to tickle your palate.
Two 15 oz jars for \$20
Free shipping.
THESAUCERY.NET



8

8 • PAPA & BARKLEY Releaf Balm
Targeted relief to the applied areas. The cannabinoids are absorbed through the skin but do not enter the bloodstream and are non-psychoactive. Its THC-rich formulation is good for ongoing acute aches and pains. Its ratio is reported to be helpful for joint pain, cramps and migraines.



Available in 15 ml: Approx. 120 mg of Cannabinoids (3 parts CBD, 1 part THC) and 50 ml sizes: Approx. 400 mg of Cannabinoids (3 parts CBD, 1 part THC). PAPAANDBARKLEY.COM

9

9 • EXTRACT LABS
CBD-Rich Muscle Cream
The muscle cream contains CO2-extracted full-spectrum hemp oil, shea butter, jojoba, arnica, menthol, lavender and rosemary. It's non-psychoactive. Available in 1.6 oz tins with a choice of strengths.
\$50
EXTRACTLABS.COM



10

10 • MILK MAKEUP
Roll + Blot
Made from unbleached hemp fibers to absorb oil and reduce shine.
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MILKMAKEUP.COM



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11



11 • EDEN Diamond Line Cannabis Vape Cartridge. Detail and quality for a smooth, crisp and powerful hit. EDENEXTRACTS.COM

12 • IRIS Illuminating Eye Massager. Uniquely designed and ophthalmologist-approved IRIS eye massager utilizes alternating T-Sonic™ technology to reduce the visible signs of crow's feet, dark circles and bags under your eyes. \$139 FOREO.COM

13 • WHOOP! & MAYA Relax Tincture. This herbal tincture is made with an intentionally chosen group of medicinal herbs and superfoods. Serving size: 1 dropper. THC servings: approx 30 3.3 mg droppers per 1 oz bottle. WHOOP!ANDMAYA.COM

12



13



14



14 • JEFFREE STAR COSMETICS Black 63 mm grinder. 4 part, 3 chamber steel grinder, custom mini-scraper, featuring the Jeffree Star Cosmetics emblem for removing any resinous accumulation.

\$20 • JEFFREESTARCOSMETICS.COM

Gift Guide

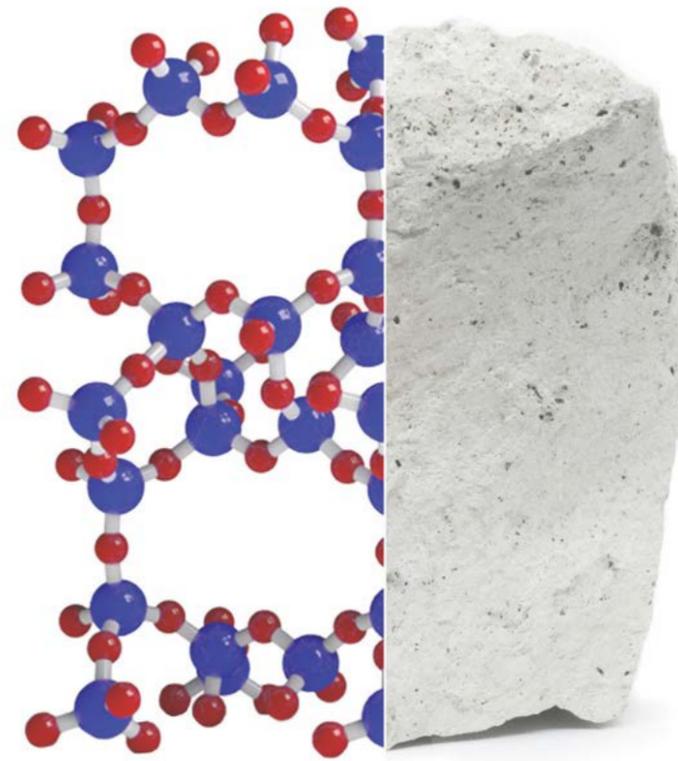
SEPTEMBER

15



15 • DOSIST Calm. A high-CBD formula that harnesses the anti-anxiety properties of CBD coupled with the calming effects of myrcene and the balancing influences of beta-caryophyllene and limonene. The pre-filled Dose Pen™ offers over 200 doses (2.25 mg per dose) and ensures a precise hit every time. DOSIST.COM

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www.kmizeolite.com

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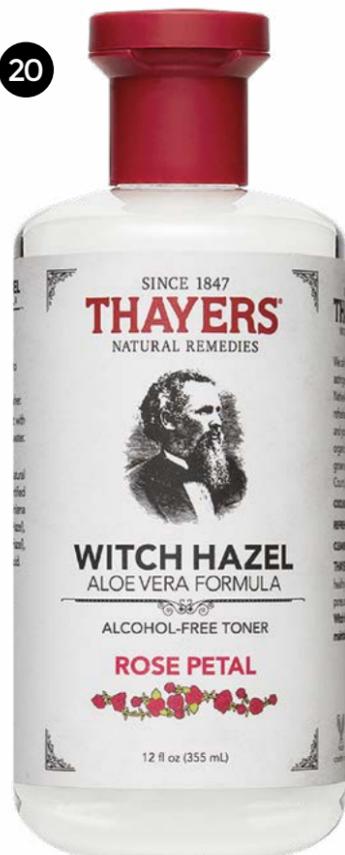


17 • OLO Infused Sublingual Strips. Made with a proprietary blend of cannabis extracts, Olo redefines the cannabis experience with biochemistry and neuroscience in four distinct experiences. **GETOLO.COM** • **18 • NECTARBEE** Nerve Salve. Handcrafted topical, eases various ailments while keeping skin healthy, nourished and glowing. Combines THC, CBD and St. John's wort with herbs and essential oils. \$19.95 • **19 • YOGA DEMOCRACY** Basically Perfect Black Crops. Subtle sheen, great stretch and moderate compression for the best of movement and control. \$65 yogademocracy.com • **20 • THAYERS** Rose Petal Witch Hazel with aloe vera. Soft rose petal fragrance cleanses and conditions face and skin without removing essential moisture. Made with organic aloe vera and free of alcohol, parabens and propylene glycol. 12 oz (2 pack) \$10.95 THAYERS.COM



Gift Guide

16 • MILK MAKEUP
Kush High-Volume Mascara
Conditioning hemp-derived cannabis oil fuses heart-shaped fibers to lashes for thickness without the fallout. The hydrating formula also fills the hollow fibers for a double dose of volume.
\$24 • MILKMAKEUP.COM



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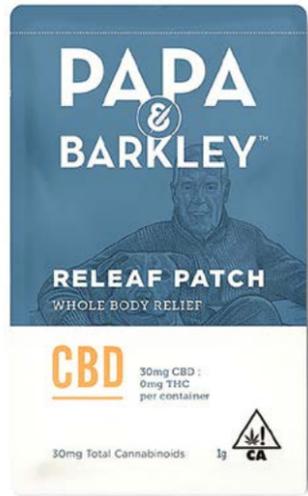
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WWW.CBDEXPO.NET



21



21 • PAPA & BARKLEY
Relief patch
CBD transdermal patch, good for overall well-being and calmness. Helpful for muscle recovery. Total cannabinoids: 30 mg per patch.
PAPAANDBARKLEY.COM

Gift Guide

SEPTEMBER

23

23 • FIDDLER'S GREENS
Pre-packaged Flowers
Each jar is filled with premium sun grown, hand-trimmed strains using organic and biodynamic practices. All herb is slowly cured to preserve the terpenes and cannabinoids.



FIDDLERS-GREENS.COM

24



24 • KUSH CREAMS
Super Lemon Haze
Energizing citrus scent with only hemp seed ingredients.
\$25 • KUSHCREAMS.COM

25



25 • RAD EXTRACTS
Super Crack Vape
Fresh, piney, grassy crossover of Jack Herer and Green Crack that will give you a burst of creativity and euphoric energy.
RADEXTRACTS.COM

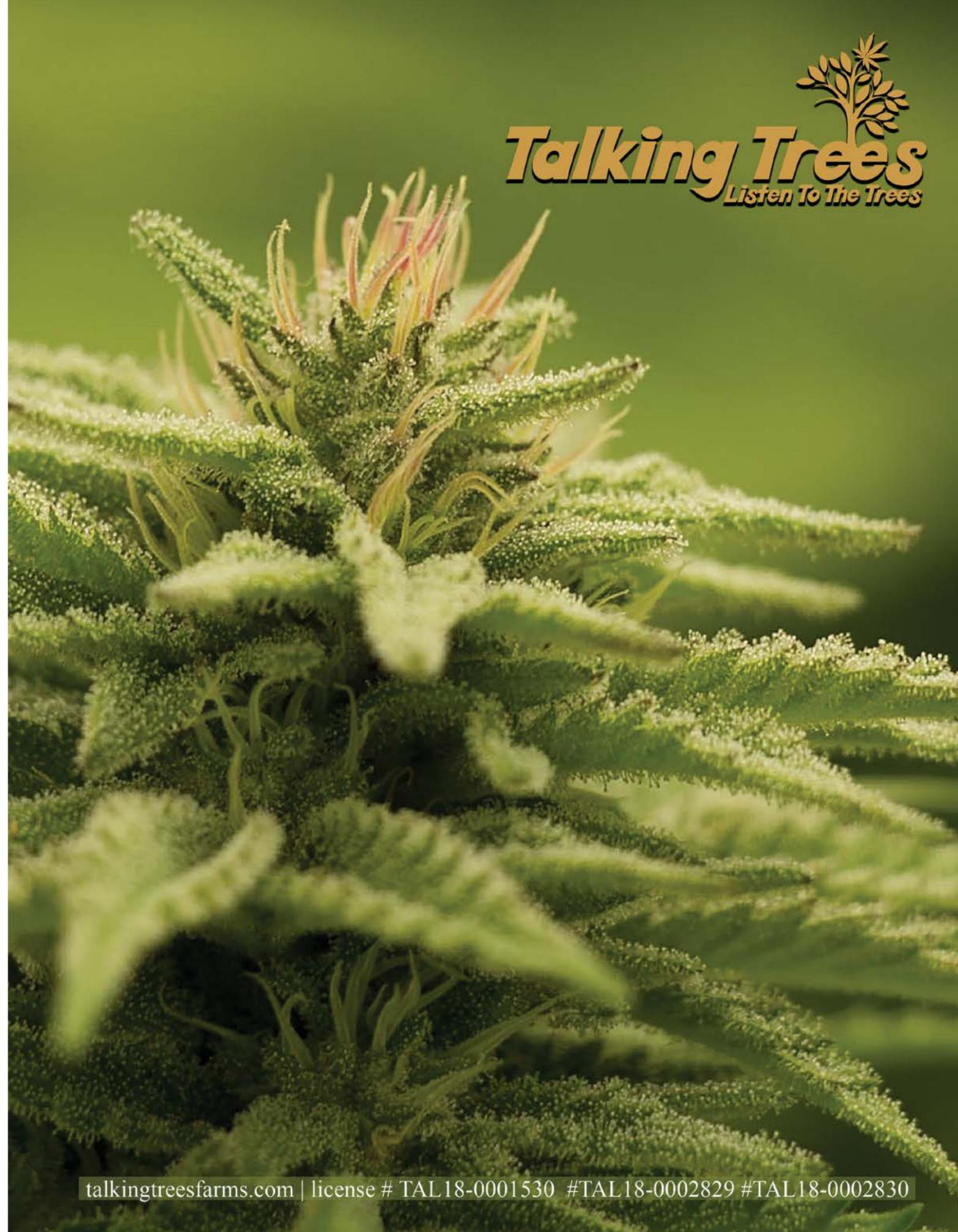
22



22 • LIME CRIME
M\$LF 2 Velvetines Set
Celebrating all the hot moms out there. M\$LF 2 celebrates cool moms who inspire. Smoky takes on neutrals are the go-to shades for modern superbabes. Pop-culture case holds 4 long-wear velvetines.
\$49 • LIMECRIME.COM



Talking Trees
Listen To The Trees



Mom's Formula

QUALITY OF LIFE THROUGH CANNABIS

LUCY DAGNILLO,
GREENLOVE DENVER



Dr. Robert Flanery

DR. ROBERT FLANERY has always had a passion for plants. While playing football at UC Davis, Robert studied Biology, gaining a reputation as the “ultimate flower nerd.”

After graduating, Robert decided to pursue a Ph.D. in Plant Biology at University California Davis with an emphasis on environmental horticulture, making him one of the few people in the industry with this specialized background in floriculture.

Robert holds a specific expertise in hydroponic crop optimization for cut-flower production that led him to cannabis in the early 2000s, when he started to research and create processes to modernize growing techniques.

In 2013, Dr. Robb worked as the Production Director at SPARC Dispensary in San Francisco, overseeing five facilities. He managed every segment of cannabis cultivation, including genetics, harvest, production, packaging and delivery of final product to retail.

Three years later, while working at SPARC, he received a phone call that would change his life and career path forever. His mom had been diagnosed with an aggressive form of breast cancer.

Fortunately, doctors had caught the cancer in time, but his mother would have to go through various rounds of chemotherapy and surgery to combat it.

It was during that time that Dr. Robb's mom expressed the desire to consume cannabis during treatment in order to relieve the harsh symptoms associated with chemotherapy.

Dr. Robb knew he needed to provide his mom with a safe, controlled method of consumption. She was not comfortable with traditional methods of smoking cannabis, so Dr. Robb had to come up with a safe alternative for her to use during her chemotherapy.

MOM'S FORMULA

As a direct response to his mother's cancer diagnosis, Dr. Robb created “Mom's Formula” microdose CBD:THC tablets that were a safe consumption method for people like her, who were looking for an alternative to smoking. Mom's Formula comes in various CBD:THC microdose ratios of 5:1 CBD to THC, 1:1 CBD to THC and 1:5 CBD to THC, offering consumers the opportunity to find their ideal ratio of cannabinoids.

Cannabidiol (CBD) is the non-intoxicating counterpart to THC that is becoming more appealing to mainstream consumers. It is noted for its anti-anxiety, anti-inflammation, pain relief, nausea and insomnia benefits



without the psychoactive effects of THC. Utilizing the Mom's Formula as a daily “multivitamin” is great way to boost one's overall health and well-being.

Many consumers have noticed a significant decrease in sleepless nights, pain relief for various ailments and a more general sense of health and well-being when used consistently. Dr. Robb has noticed that the formula helps to slow his brain down at night, allowing him to go to sleep more easily while easing stress and anxiety within the body and mind.

Microdosing is becoming more popular as it provides the consumer with a controlled, specifically dosed product. For new consumers, microdosing is appealing as there are less concern of overconsumption as the tablets contain only 2.5 mg of THC.

Currently, Mom's Formula can be found in dispensaries across Orange County, LA and San Francisco, selling for \$40.00 for 30 tablets.

THE FUTURE

As California works through the legalization process, Dr. Robb plans to continue to work closely with legislators to write and influence laws and regulations. It is important as a business owner to have an influence over legislation in order to ensure that the laws in place are fair for all businesses involved in the cannabis industry.

Dr. Robb is also honored to be the Vice Chair of the Agriculture Committee for the California Cannabis Industry Association. He hopes to continue to push for cannabis research for commercial cultivations seeking more sustainable ways to grow cannabis.

California's indoor cultivations are currently accounting for 3% of the state's electricity usage, making it imperative to come up with sustainable lighting options for the future. In response to the rising electricity-consumption issues, Dr. Robb has been reviewing LED technology for indoor cultivation.

Robert is also interested in greenhouse cultivation and the concept of CO2 injection in order to increase terpene and cannabinoid profiles within plants.

The cannabis industry needs business professionals to continue to push this movement forward, and that's exactly what Dr. Robb aims to do. With a strong educational background in horticulture and a passion for safe, responsible cannabis use, Dr. Robb will continue to make waves in the industry, working closely with legislators and business owners in the industry to ensure that consumers are receiving the best product possible.

IF YOU ARE INTERESTED IN DR. ROBB'S STORY, OR TO LEARN MORE ABOUT HIS COMPANY, VISIT DRROBBFARMS.COM.

Mom's Formula can be found in dispensaries across Orange County, Los Angeles and San Francisco, selling for \$40.00 for 30 tablets.

You Light Up My Leaf

Emerald Metrics Mixes Software and Hardware to Help You (and Your Business) Grow

ERIC DANVILLE



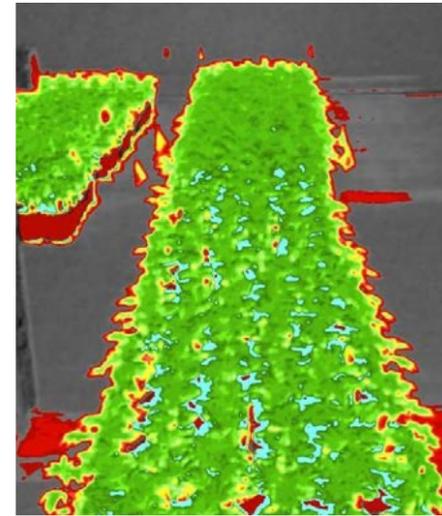
SOME OF THE most enduring propaganda images from the 1980s-era War on Drugs come from grainy, almost psychedelic color footage, usually shot from a helicopter or airplane, showing a row of houses. Most of the buildings are dark, but one has the tell-tale glow of a large amount of concentrated, constant heat: the sure sign of a clandestine cannabis growing operation. A more updated application borne of this electronic detection technology—but relying on the refraction of light instead of the detection of heat—is the concept behind Emerald Metrics (EM), which allows it to increase yield instead of busting growers.

The use of high-tech equipment to help the farming industry—a concept called “precision agriculture”—isn’t exactly new. John Deere helped pioneer it in the 1990s with GPS tech systems that helped to more efficiently guide farmers’ tractors while laying seed to avoid wasting time, energy and other resources. Other aspects of precision agriculture can be traced back to the 1960s. But EM’s adoption and application of this approach to farming is not only novel, it’s increasingly crucial in the fast-paced world of commercial cannabis cultivation.

“The technology has evolved immensely since the War on Drugs,” says Rob McCorkle, who retired from a twenty-year career with the Las Vegas Police Department as a lieutenant commander working SWAT and anti-terrorism details before taking this decidedly different career path. “They were using forward-looking infrared to find heat signatures. But they also used, and today still use, mul-

tispectral cameras to find methamphetamine dumps.” McCorkle, who also holds degrees in criminology and criminal justice administration, describes just how precise the technology can be: “We worked overseas in Afghanistan and Iraq finding bomb makers planting IEDs. We could identify from 10,000 feet in the air if they had bomb-making chemicals like gunpowder, TNT or C4 residue on their bodies. We do the same thing now with cannabis, just at different levels.”

Through the use of their own office-based hyperspectral cameras and handheld spectrometers, plus the installation of multispectral cameras in their clients’ grow facilities, Emerald Metrics can determine whether a grower’s crop is healthy or in danger of anything, from mold and moisture to residual pesticides to insect infestation, with hardware that “looks at 125 different layers of light to determine the spectrum and how the biologic reflects light, based on algorithms we’ve created.” Based on what they discover, their clients are able to decide whether a plant is ready for sale to the public (or to other growers in the form of clones) or whether the plant is no longer viable and should be destroyed.



“Our operation makes sure that every plant you’re moving forward at propagation is healthy,” says McCorkle. “The industry accepts anywhere from a ten to twenty percent reduction in yield due to unhealthy clones and teens, because you can’t really see how healthy the plants are. The plants may look healthy to the human eye, but they aren’t necessarily.” EM’s system not only can ensure that a clone is up to 90 percent healthy, it offers the exact images of the healthy plants for its customers to pass along after sale as proof of the product’s quality.

Such pictures are taken of a grow company’s product and processed using a combination of Amazon’s web-based Artificial Intelligence (AI) and EM’s own original algorithms and software. “We’re looking for specific biologic signatures that we have in the background, and the camera then uploads those images

“
Our operation makes sure that every plant you’re moving forward at propagation is healthy.
”

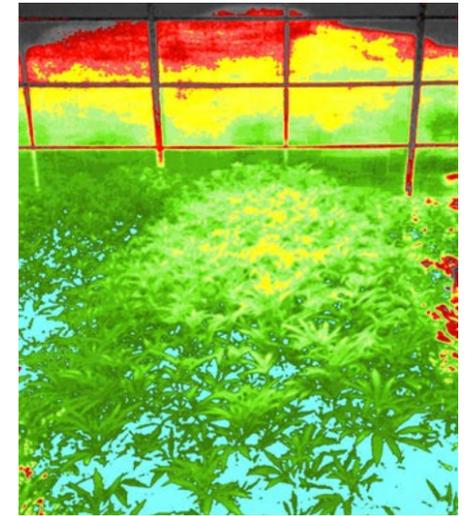
by the pixels to our servers. Those servers go through the algorithms and determine whether each pixel of an image contains any anomaly or unhealthy plant tissue.” That information is sent back to EM and routed to a dashboard system, which is then accessed by the grower remotely or sent back to the grower client’s own electronic set-up.

“Some of our clients use the health table just to see whether the tissue of the plant is healthy or not,” he says. The process can start, obviously, at the cloning stage. “Almost all of our clients start with our cloning tables, when they’re just looking toward moving forward the best clones possible into propagation, so they have the greatest potential for a 100 percent yield. We look through the molecular structure of the plant, how it’s refracting light, how much energy it’s uptaking and outputting, and we can tell you if your clones, vegetative and flowering plants are healthy or not.”

McCorkle uses a particularly deadly enemy of cannabis farmers as an example. “Powdery mildew refracts light three different ways: pre-spore, spore and at depth. We can see powdery mildew on the plant before it spores, that is, before it turns white. Once it spores, it’s in the air, and at that point it’s spreading. We can also image plants and tell you if there are spider mites that are stifling the tissue underneath the plant’s leaves. Right now, the



MOTHER PLANT
Plants with issues but not disease.



only way to find spider mites is by lifting up the plant leaves and looking underneath. We can tell you if they’re eating the tissue by imaging the top of the plant, not the bottom, so you already know which plants to go look at instead of spending days digging through your grow operation.”

After all this information is gathered, Emerald Metrics relays it to growers by means of a “CannaIntelligence” dashboard that can be used remotely through EM’s iOS or Android-based apps, a dedicated desktop or laptop computer system or by growers who have their own sophisticated grow operations. “A lot of our growers already have dashboards tied into their water, humidity or CO2 sensors, so we can integrate our data into their dashboards, or they can migrate their data out to our dashboard.” Growers can then generate an anomaly report that shows the existence of irregularities that can affect their plants, and then can act accordingly.

If this sounds complicated, well, it is. But the end result is much simpler. The marriage of Emerald Metrics’s high-tech visual and analytic technology with the hands-on, practical advancements in cannabis cultivation over the decades can weed out destructive elements from your harvest, giving you a higher yield and, of course, a higher return on your investment. And it doesn’t take a genius to understand that.

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IMMERSIVE CANNABIS REALITIES

Q&A with Matthew Dula, Founder of the Cannabis Virtual Reality Network

ASHLEY PRIEST



VIRTUAL AND AUGMENTED reality are breaking barriers like never before. Cannabis is the most significant industry to emerge since the dot-com era, it only makes sense that it would utilize the most innovative technologies and sciences to help break barriers.

According to the *Oxford English Dictionary*, Virtual Reality (VR) is defined as “a computer-generated simulation of a three-dimensional image or environment that can be interacted with in a seemingly real or physical way by a person.” VR is an exciting way for people to experience different places around the world as though they were there in person. Depending on the devices being utilized and the specific scenario, it can be quite realistic.

Augmented Reality (AR) is a bit different, but offers many benefits to the cannabis industry. *The Oxford English Dictionary* defines Augmented Reality as technology that “superimposes a computer-generated image on a user’s view of the real world.” This provides the end-user with a composite view of the real world with an overlapping computer-generated image. One great example of AR that many people are familiar with is the hit game, *Pokémon Go*. In the cannabis sector, however, AR could offer a great solution to the many advertising and marketing obstacles facing businesses in the legal industry.

This month, I had a chance to speak with Matthew Dula. Dula is a military veteran and the founder of the Cannabis Virtual Reality Network, also known as the CVRN. CVRN currently offers several different Virtual Reality options,

► Cannabis Virtual Reality Network

“A New Way To Explore Cannabis.”



which include an inside look at cultivation centers, dispensaries, expos and more. All of which is available to explore online, without any special equipment requirements.

EMERALD MAGAZINE: WHAT IS THE CANNABIS VIRTUAL REALITY NETWORK?

Matthew Dula: The Cannabis Virtual Reality Network is an immersive media company providing augmented, virtual and mixed reality experiences for the cannabis industry.

EM: WHAT TYPE OF CONTENT CAN OUR READERS EXPECT TO SEE IN THE COMING MONTHS FROM CVRN?

MD: We are working on providing more virtual reality and 360-degree content from cultivation facilities, farms, extraction manufacturing labs, and live-streamed entertainment like festivals and concerts in the cannabis industry. On the AR side of the house, we are working to provide marketing opportunities to companies to augment their pre-existing materials for higher immersion and branded experiences. We also should be opening up our library of 3D models of company products and brands.

EM: ARE ANY SPECIAL TOOLS OR GADGETS REQUIRED TO EXPERIENCE THE FULL EFFECT OF WHAT CVRN OFFERS?

MD: We built our ecosystem for the lowest common devices, which are laptops and mobile phones. All of our products and services can be viewed native on any device. However, to truly experience CVRN, having a VR headset like the Oculus Go will truly put you into the subject matter.

EM: WHAT WAS YOUR DRIVE BEHIND CREATING CVRN?

MD: Traditional media in the cannabis industry are lacking the ability to bridge the gap with an audience base that has a hard time relating to it because of our federal prohibition. If you live in a state that doesn't have a legal cannabis industry, how are you to ever truly understand issues like cultivation, manufacturing, current affairs, medical discoveries and personal experiences with 2D? With 360-degree video, VR, AR and MR, we can put people into cannabis, helping to



Putting People into Cannabis.

break down political, economic and legal barriers to speed up people's understanding of the best commodity we have ever had the privilege to grow.

EM: HOW HAS CANNABIS HELPED YOU?

MD: I left the [United States Marine Corp] in 2014 after five years and two tours (Afghanistan, 15th Marine Expeditionary Unit). I exited with a handful of medications and no direction. Cannabis, and specifically CBD, allowed me to heal and get off my meds. That peace, and the gift of my new health and freedom directed me to make cannabis my life and show my path of healing to others. CVRN is the tool I use to share that power.

EM: HOW DID CVRN COME TO FRUITION?

MD: CVRN, Inc. was founded in late 2016 out of the Cucalorus Film Festival in Wilmington, North Carolina. I was asked to participate as one of the 10x10 entrepreneurial founders showcasing Port City Dispensary, my first venture in the industry. I was shown the power of immersive media and immediately began working with the professionals from Expect VR to create CVRN.

EM: WHAT IS THE PROCESS FOR BEING INCLUDED IN ONE OF YOUR OFFERINGS OR ACQUIRING YOUR IMMERSIVE REALITY SERVICES?

MD: We would love to work with any company who wants to help their customers immerse into the brand with our services. E-mail us at info@cvrnusa.com, or visit our website at Cvrnusa.com, to speak to us about what CVRN can help you achieve. We would love to work with activists, lawyers, lobbyists, patients and non-profits to create experiences to share with our representatives and members of Congress regarding why we need prohibition repealed.

Thank you, Matthew, for the interview and for teaching us about Virtual and Augmented Realities. Through offerings such as CVRN, technology and science can help break down the barriers that still surround this widely misunderstood plant and can help free it from the chains of prohibition once and for all.

"Federal legalization is closer than we suspect, but we still have critical work as an industry to do to showcase why cannabis is so important," closed Dula.

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– Scott Zarnes CEO, High Llama Brand, Anderson Valley, CA



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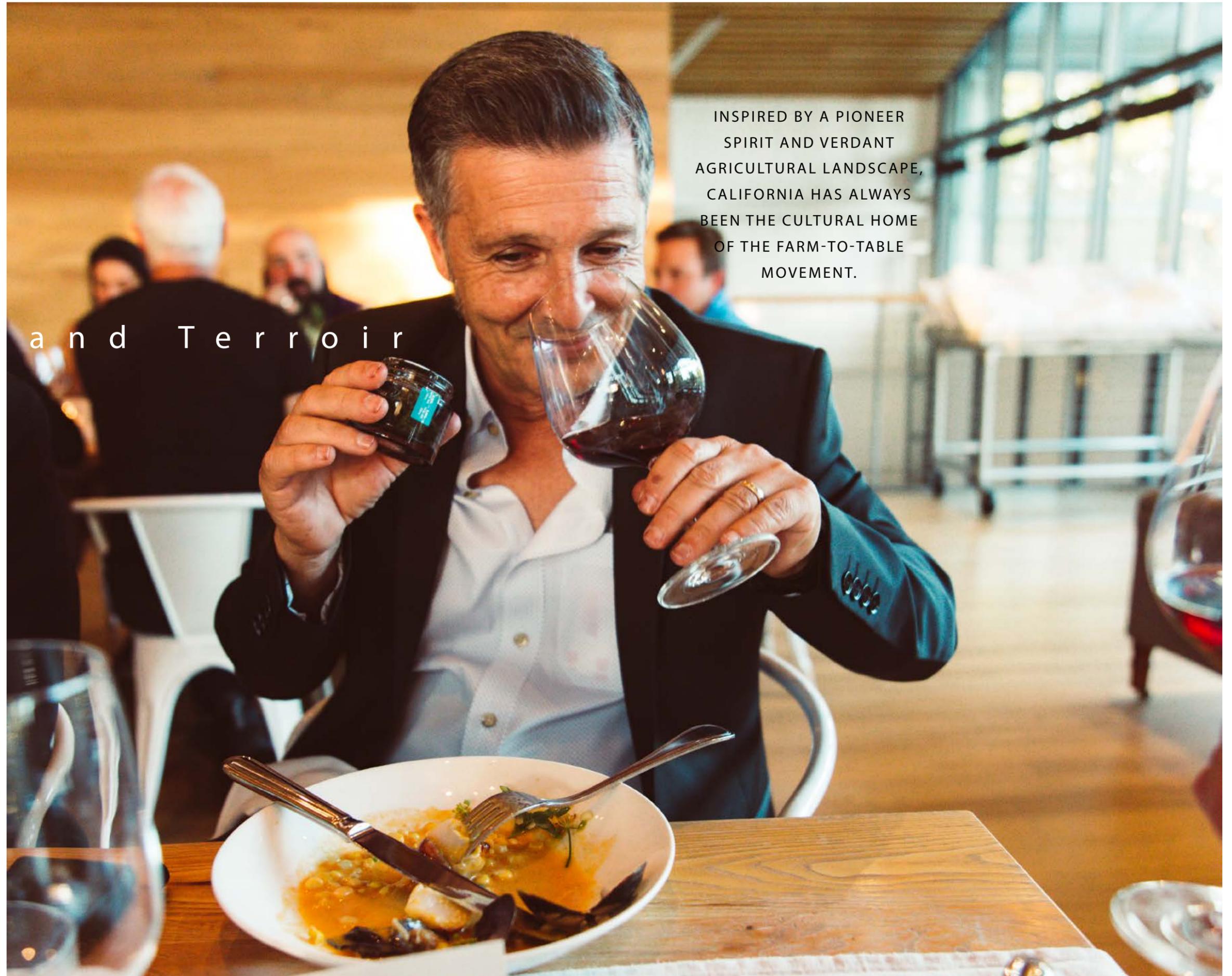
NORA MOUNCE
PHOTOGRAPHY BY UNTOLD CREATIVE AGENCY, JOSH SEMOLIK

FORTY-SEVEN YEARS since Alice Waters opened Chez Panisse in Berkeley, people continue to identify California with food and wine that is refined yet unencumbered. On a kitchen table or restaurant menu, agriculture that expresses a sense of place—with deference to organic standards—is what Californians want to consume and celebrate.

Cannabis has never been entirely absent from this rosy picture. Many are devoted to the practice of a pre-feast smoke to elevate the senses. But far from representing California's bounty, cannabis has been prescriptively removed from accepted rituals of breaking bread. While passing a joint is fundamentally communal, it's typically shared with micro-communities bound by discretion. Today, things have changed, a story we all know well. But beyond the dramatic shifts in cultural perception, cannabis is a fascinating plant. Just like a potato or pinot noir, cannabis can express itself in array of styles ranging from the mass-produced to the boutique. Also, like wine, there are various scales of measure: Do you prefer a strain by bud size, aromatics or physical and psychological effects? The variables are endless.

At the second annual Wine & Weed Symposium in Santa Rosa this August, the similarities between California's two powerhouse agricultural industries were on display for the hundreds in attendance.

INSPIRED BY A PIONEER
SPIRIT AND VERDANT
AGRICULTURAL LANDSCAPE,
CALIFORNIA HAS ALWAYS
BEEN THE CULTURAL HOME
OF THE FARM-TO-TABLE
MOVEMENT.



An all-day event, breakout sessions with industry leaders covered cannabis tourism, legal options for tasting rooms and direct-to-consumer marketing. Overall, the take-home message was that opportunities for collaboration between wine and weed are potentially endless yet still immensely fettered by legislation.

Stylishly wading into this emergent space, three wine industry professionals haven't wasted any time finding creative ways to give cannabis a seat at the table: At "Terpenes and Terroir," a wine country-style dinner following the symposium, industry leaders were given a glimpse of an inclusive—and delicious—future. Hosted by Jamie Evans of The Herb Somm, and Devika Maskey and Allison Kosta of TSO Sonoma, the three women have leveraged decades of collective wine industry experience to host canna-culinary events throughout the Bay Area. Events like Terpenes and



PICTURED ABOVE, THE WINE AND WEED SYMPOSIUM IN SANTA ROSA, CA

S O N O M A C O U N T Y



PICTURED LEFT TO RIGHT, DEVIKA MASKEY AND ALLISON KOSTA OF TSO SONOMA AND JAMIE EVANS OF THE HERB SOMM.

Terroir are intended to educate consumers about the nuances of cannabis while highlighting the plant's role in California's culture of slow food and organic agriculture.

Held at Healdsburg's rustic foodie temple, The Shed, the dinner opened with a green salad of sorrel and breakfast radishes paired with a dry sparkling rose to whet our appetites. Moving on to the first course, The Shed's kitchen plated a generous boule of creamy burrata cheese with a bright handful of herbs, Armenian cucumber and sumac. Billed as the Sonoma course, the dish was smartly paired with a tropical Semillon produced by Alexander Valley's Carpenter Wines. Cameron and Shannon Hattan of Fiddler's Greens—the first permitted cannabis farm in Sonoma County—were invited to recommend a second pairing of their farm's *Pineapple Thai* flower. As per most licensed cannabis events in California, Terpenes and Terroir

was a non-consumption event; in a creative workaround, featured cultivators passed around their flower in wine glasses. With each pairing, guests enjoyed the fragrant terpenes of each cannabis selection, showcasing the provenance of each region, microclimate and farm.

For the second course, the hosts drew our imaginations further north with a pairing featuring roasted Diver scallops, a coastal pinot noir and Mendocino County's legendary cannabis. The flower selection was *Harmony Rose*, a 1:1 THC:CBD strain cultivated by Emerald Spirit Botanicals and Flow Kana, offering a fragrant bouquet of cedar, rose petals and honey. A collective with stringent standards for sustainable practices, Flow Kana has helped numerous mom-and-pop cannabis farms stay competitive in the exploding cannabis industry. The enchanting aromas made the scallops and corn custard mutually decadent and medicinal, bookending the dish with herbal aromatics.

For the main course, The Shed's kitchen truly shined with an imaginative wild king salmon served over roasted leeks, nettles, cranberry beans and chermoula, a



green and garlicky Moroccan herb sauce. A full-bodied zinfandel from the Ellipsis Wine Company, and *Coyote Blue*, a proprietary strain from southern Humboldt's Alpenglow Farms, rounded out the heady pairing.

As the sun set in Healdsburg that evening, small groups of new friends ducked outside to enjoy the fresh air and partake of the therapeutic rituals of a smoke break. No longer consigned to the back alley, lawyers, winemakers, farmers, writers and photographers openly enjoyed the fruits of California at face value. Making our way home under the Sonoma County stars, we were left with a nostalgic appreciation for California's diversity and raw beauty. As they said goodnight to their guests, the Herb Somm and TSO Sonoma, who are savvy marketers, promised more unique and educational events soon—they know that the world is ready to experience California like never before.

TO LEARN MORE ABOUT THE HERB SOMM OR TSO SONOMA, VISIT: THEHERBSOMM.COM TSOSONOMA.COM



ALL-PURPOSE FLOUR
1 ½ cups



BAKING POWDER
1 ½ teaspoons



BAKING SODA
¼ teaspoon



SALT
¼ teaspoon



EGG WHITES
2



BANANAS
1 cup mashed



WHITE SUGAR
¾ cup



CANNABIS INFUSED COCONUT OIL
3 tablespoons



LEMON ZEST
1 teaspoon



WALNUTS
¼ cup chopped

Blazed Canna Coco Banana Nut Muffins

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START THE DAY OFF RIGHT, at any time of day, with these infused Banana Nut Muffins and some cold brew coffee. We also included an easy recipe so you can make your own cannabis-infused coconut oil, which comes in handy for a number of the dishes we share here.

INSTRUCTIONS:

- Preheat oven to 350 degrees F (175 degrees C).
- Spray muffin tins with non-stick cooking spray.
- In a large bowl, stir together flour, baking powder, soda and salt.
- In a medium bowl, beat egg whites slightly.
- Stir in bananas, sugar, oil and lemon peel. Add to flour mixture, stirring just until combined.
- Stir in walnuts. Fill muffin pan cups ¾ full.
- Bake for about 20 to 25 minutes, or until tops are lightly browned. Remove muffins from pan.

CANNABIS-INFUSED COCONUT OIL

INGREDIENTS:

64 oz coconut oil
1 oz of lightly ground cannabis bud, or trim

SPECIAL EQUIPMENT:

Container with lid, twine, glass or ceramic bowl, refrigerator and heat safe, CrockPot or any brand slow cooker, spatula knife, cheesecloth, baking sheet or oven pan

INSTRUCTIONS:

Preheat oven to 215 degrees F. Buds should be in small pieces. Spread evenly over the surface of the pan and cover with aluminum foil. Bake for 15-20 minutes. This is a preliminary step called “decarboxylation”: heating the cannabis to release active natural substances, making it much stronger. The cannabis will be light

brown, dried out and the active ingredients will be concentrated. Pour the coconut oil and then decarboxylated cannabis into the CrockPot. For a lower-dose canna infusion, add less cannabis to get a less potent ratio of cannabis to butter. Keep the mixture simmering on low for 7 hours, stirring occasionally. Make sure it doesn't reach a boil. Then remove from heat, and let it cool enough to safely touch. Strain out plant material with cheesecloth. Tie your cheesecloth with twine to make a lid covering your glass or ceramic bowl or other container. Carefully pour the hot mixture into your bowl while straining it with the cheese cloth to remove all plant substance. You can also use a permanent coffee filter or mesh for straining. Remove the cheesecloth. Cover the mixture, and place it in the refrigerator for hardening.



Mellow Yellow

LEMON

THC TART

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INGREDIENTS:

½ cup freshly squeezed lemon juice
Zest of 1 lemon, about 2 teaspoons
3 large eggs
⅔ cup sugar
¼ teaspoon sea salt

6 tablespoons cannabis-infused butter
One 9-inch tart shell, homemade or store-bought, baked
Dollop whipped creme fraiche
Dollop whipped cream

INSTRUCTIONS:

- Heat the lemon juice and lemon zest in a small saucepan over medium-high heat until just boiling. Remove from the heat.
- Whisk the eggs, sugar and salt together in a medium saucepan until well combined. Slowly drizzle the eggs into the lemon mixture, whisking constantly. Cook the egg mixture over medium heat, stirring constantly with a rubber spatula or spoon, until the custard is thick, about 8 minutes.
- Remove the custard from the heat, and stir in the cannabis butter. Once all of the butter melts and is fully incorporated, strain the custard through a fine mesh sieve into the tart shell. Leave the tart to set up in the refrigerator for at least 1 hour 30 minutes. Serve with a dollop of whipped creme fraiche and whipped cream folded in together.



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Stoned Chicken Stroganoff

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INGREDIENTS:

1 lb boneless skinless chicken breasts
½ teaspoon salt
½ teaspoon ground pepper
5 tablespoons cannabis-infused butter
2 tablespoons all-purpose flour
½ cup chicken broth
½ cup milk
1 teaspoon Worcestershire sauce
½ cup sour cream
1 tablespoon olive oil
1 cup sliced mushrooms
½ cup diced onions
12 oz uncooked egg noodles, cooked as directed on package
Chopped parsley
Ed Rosenthal's THC Stardust Powder

INSTRUCTIONS:

- Place chicken breasts in slow cooker; sprinkle with salt and pepper.
- In 1-quart saucepan, melt cannabis butter over medium heat. Beat in flour with whisk. Cook 1 minute, beating constantly. Beat in chicken broth, milk and Worcestershire sauce. Continue cooking about 3 minutes or until mixture is thickened. Pour mixture over chicken. Cover and cook on high heat setting 2 hours or low heat setting 4 hours or until chicken is tender and cooked through.
- Shred chicken; stir in sour cream. Cover and cook on high heat setting 10 minutes.
- Heat olive oil in 6-inch skillet over medium heat. Stir in mushrooms and onions; cook about 10 minutes or until fork-tender.
- Stir mushrooms and onions into chicken mixture; serve over cooked egg noodles. Sprinkle with parsley and Ed Rosenthal's THC Stardust Powder just before serving.



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SUPER BAKED

Nutty Baklava

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INGREDIENTS:

1 (16 oz) package phyllo dough	1 teaspoon ground cinnamon	1 teaspoon vanilla extract
1 pound chopped almond nuts	1 cup water	½ cup Cannabis Infused honey
1 cup cannabis-infused butter	1 cup white sugar	



INSTRUCTIONS:

- Preheat oven to 350 degrees F (175 degrees C). Butter the bottoms and sides of a 9x13 inch pan.

- Chop nuts, and toss with cinnamon. Set aside. Unroll phyllo dough. Cut whole stack in half to fit pan. Cover phyllo with a dampened cloth to keep from drying out as you work. Place two sheets of dough in pan, butter thoroughly. Repeat until you have 8 sheets layered. Sprinkle buttered 2-3 tablespoons of nut mixture on top. Top with two sheets of dough, canna-butter, nuts, layering as you go. The top layer should be about 6 – 8 sheets deep.

- Using a sharp knife, cut into diamond or square shapes all the way to the bottom of the pan. You may cut into 4 long rows the make diagonal cuts. Bake for about 50 minutes until baklava is golden and crisp. Make sauce while baklava is baking. Boil sugar and water until sugar is melted. Add vanilla and honey. Simmer for about 20 minutes.

- Remove baklava from oven, and immediately spoon sauce over it. Let cool. Serve in cupcake papers. This freezes well. Leave it uncovered as it gets soggy if it is wrapped up.



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HUMBOLDT COUNTY
INDOOR



WE HAVE SOME SIMPLE PHILOSOPHIES AT HUMBOLDT COUNTY INDOOR.

Waste no water, use no pesticides, and test our cannabis beyond what is necessary to ensure we are always delivering the finest flower possible. Powered 100% by solar and renewable energy sources, our state of the art cultivation facility allows us total control over the environment, with monitoring systems that ensure our ladies are kept happy around the clock. We strive to create the cleanest cannabis possible and would never put anything on the shelf we wouldn't give our brothers or sisters.

Welcome to the Humboldt County Indoor family.

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“Was it grown with Advanced Nutrients?”