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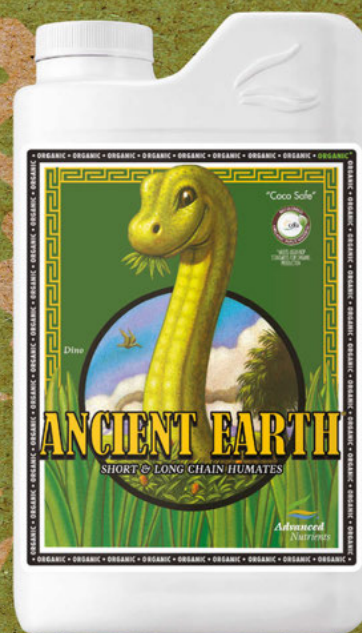


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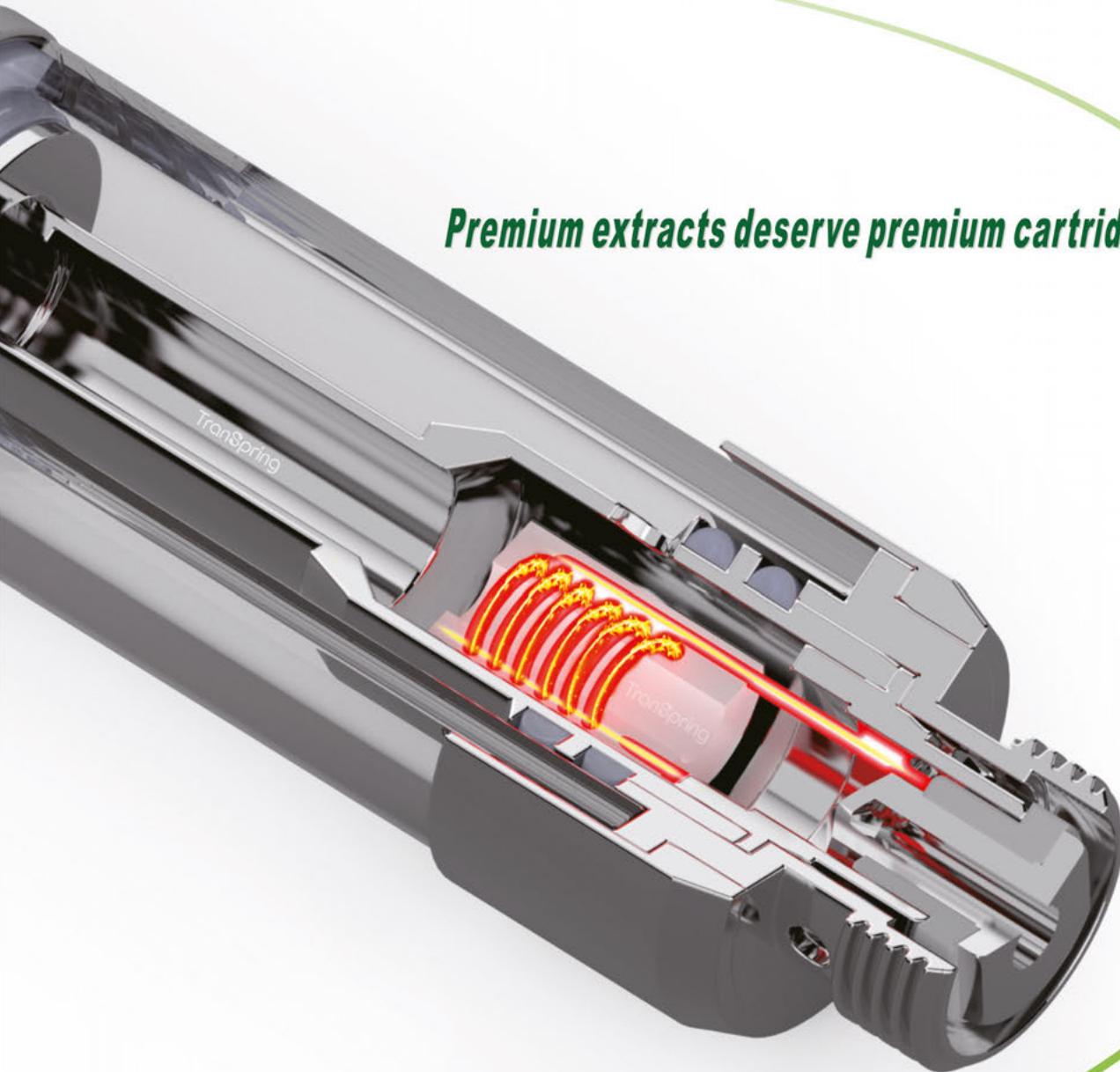
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COVER

Mendocino
County grower
Justin Calvino
is hellbent on
saving craft
cannabis and
the world.



A woman with long, wavy blonde hair is standing against a dark background. She is wearing a sleeveless, floor-length dress that is covered in a dense arrangement of various colorful flowers, including roses, daisies, and hydrangeas. She is holding a vintage-style metal watering can in her left hand, tilted as if watering. A bright, ethereal light emanates from the lower half of her dress, creating a glowing effect. The overall mood is magical and elegant.

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ADVENTITIOUS

A previously rogue but now permitted cannabis farm nestled in the hills of Mendocino County, California. Pictured here two weeks prior to the devastating Northern California wildfires. The farm has been reported as being unaffected.

 *Kristen Angelo*





Wild Fires

DRIVEN BY STRONG WINDS and combustible lands, the NorCal fires of 2017 swept through the unsuspecting towns and valleys of Mendocino and Sonoma like a thief in the night, stealing lives and livelihoods swiftly and seemingly at random. The stories of survival take your breath away, and the ones of utter loss devastate your heart. Some people lost everything, escaping with only their lives and animals...and the knowledge they have no insurance with which to rebuild. Too many of those people are cannabis growers who find themselves without insurance, credit, or banking—not because they want to go through life without protection, but because the government withholds basic business services from them with the same calculated determination with which it used to incarcerate them and, now, seeks to tax and regulate them.

But like all disasters, wildfires also reveal the strengths and weaknesses of a region and the systems that bind it together. The fires exposed many strengths, but also a deep and profound unfairness and imbalance that will continue to undermine local economies until it is fixed, which it must be. No community can thrive for long with such tension.

Fundraising efforts by the cannabis industry already have begun with the goal of helping individuals, but they cannot mask the work necessary to ensure this region of this nation claims its natural birthright as a premier place on this planet to grow world-class cannabis. That birthright must hereafter be protected, proudly, like the national treasure it is. For Americans, who like to think they are chosen to make of the land what they want, that simply cannot be too much to ask.

Tom Hymes

Tom Hymes

Tom@cannmg.com

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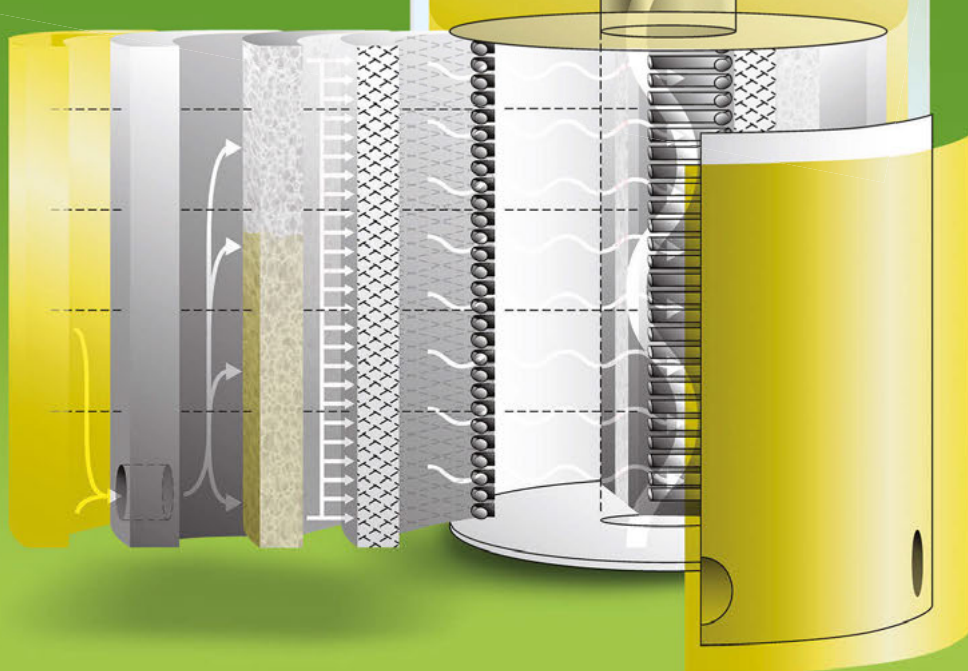
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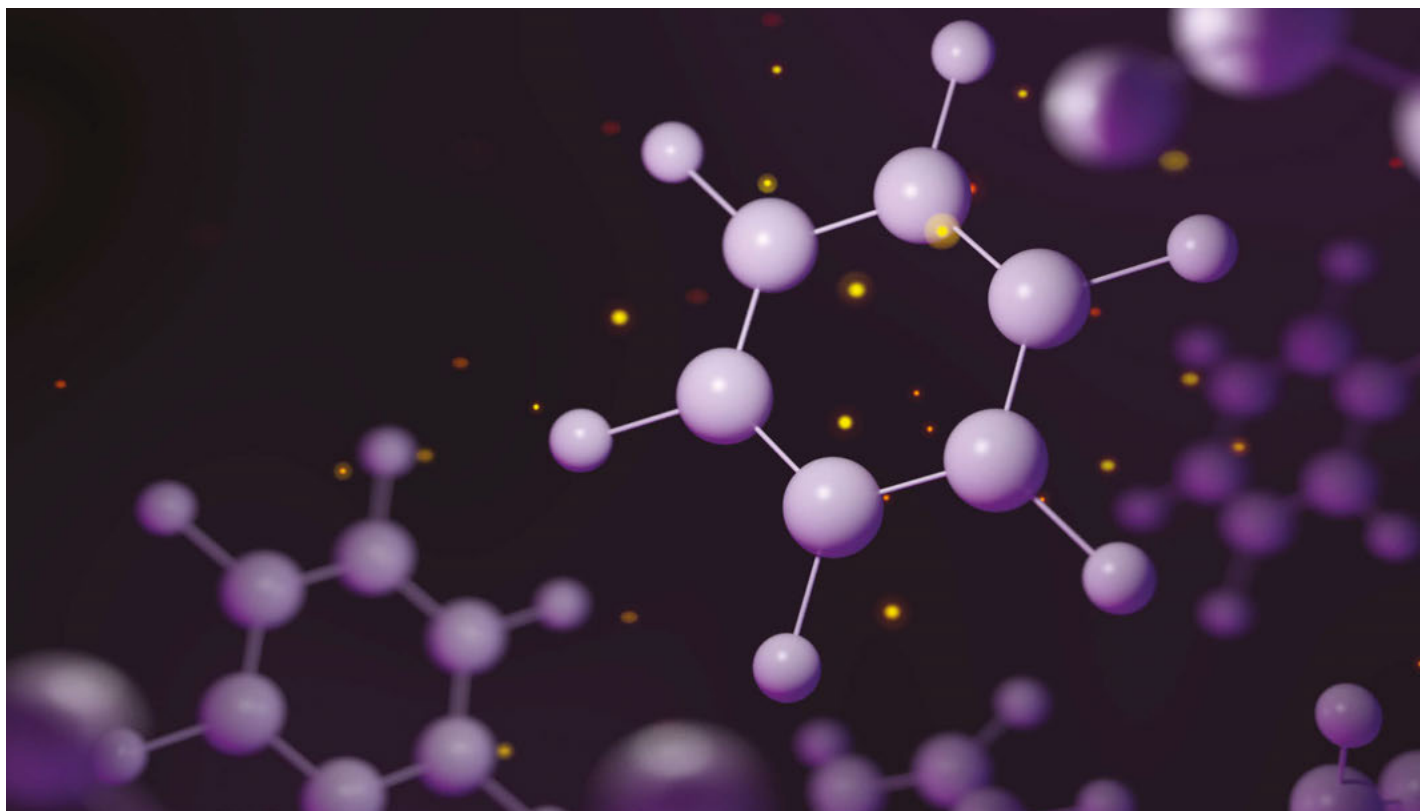
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CANCER-CAUSING COMPOUNDS DISCOVERED IN CANNABIS OIL

DABVILLE— The health benefits of dabbing/vaping often are extolled as superior to those offered when smoking by flame, but a recent study warned of potentially extreme dangers lurking within the oil when it is vaporized at high temperatures.

“Findings from the new study—published recently in *ACS Omega* in an article entitled ‘Toxicant Formation in Dabbing: The Terpene Story’—raises health concerns about dabbing or vaporizing hash oil,” reported GenEngNews.com. “The practice consists of placing a small amount of cannabis extract (a dab) on a heated surface and inhaling the resulting vapor. The practice has raised concerns because it produces extremely elevated levels of cannabinoids—the

active ingredients in marijuana.”

Researchers analyzed the chemical profile of “myrcene and other common terpenes found in cannabis extracts,” the report continued. “Methacrolein, benzene, and several other products of concern to human health were formed under the conditions that simulated real-world dabbing. The terpene degradation products observed are consistent with those reported in the atmospheric chemistry literature.”

The authors concluded, “The results of these studies clearly indicate that dabbing, although considered a form of vaporization, may, in fact, deliver significant amounts of toxic degradation products.”



Pennsylvania's first legal marijuana crop gets the green light

JEFFERSON COUNTY, Penn.— Pennsylvania kicked off its medical cannabis program in October with the news that Cresco Yeltrah in Jefferson County, one of twelve grower/processors licensed under the state's medical marijuana program, has been given the green light to begin production.

"Cresco Yeltrah is cleared to begin accepting seeds and clones to grow medical marijuana after undergoing several state health inspections," reported LehighValleyLive.com. "It also is fully integrated with the state-approved seed-to-sale tracking system."

In an official statement, Gov. Tom Wolf said, "Every day we hear from patients who are desperately waiting for medical marijuana to help alleviate the symptoms of their serious medical conditions. My message to them is that Pennsylvania's medical marijuana program is moving forward, and we will have medication to them sometime in 2018."

Acting Health Secretary and Physician General Rachel Levine added in a statement, "In the coming weeks, we expect the eleven other grower/processors to be ready to grow and process medical marijuana. We are working with them, as well as the dispensaries, to ensure the program stays on track."



TEXAS'S FIRST MEDICAL CANNABIS DISPENSARY TO OPEN IN DECEMBER

SCHULENBURG, Texas— The Lone Star state begins its experiment with medical cannabis in December with the opening of Knox Medical, the first dispensary licensed by the state.

"Texas's medical cannabis law, known as the Compassionate Use Program, works like this," reported HoustonPublicMedia.org. "Patients with epilepsy and a doctor's recommendation can register with the state, which allows them to visit 1 of 3 licensed dispensaries to purchase cannabis oil. The oil must only contain 0.5 percent THC or less for it to be legal in the state."

Knox's owner, Jose Hidalgo, chose to locate the shop in Schulenburg, population just under 3,000, because of its location. "We require a large amount of land for us to even consider that, and then the next consideration after that was how can we get the closest to the largest amount of the population," said Hidalgo. "Schulenburg was a good location because you are right near the triangle of Houston, San Antonio, and Austin."

The way in which patients interact with the dispensary may wind up being unique to that area. "Knox Medical says registered patients with the state will be able to call in and pick up their orders at their Schulenburg location, but they anticipate most of their business will occur online," noted HoustonPublicMedia.org. "Registered Texas patients using the company's website will place an order and then have it couriered to their location, which will begin happening by the end of December."



Atlanta reduces penalties for cannabis possession

DECRIM NATION— It isn't total decriminalization, but Atlanta is moving significantly in the right direction in the penalizing-for-cannabis-possession department. Mayor Kasim Reed recently signed into law an ordinance eliminating jail time for "possession of less than an ounce of cannabis," reported MarijuanaMoment.net. "Instead, those caught with small amounts will be subject to a maximum fine of \$75. Currently, people caught with cannabis face fines of up to \$1,000 and up to six months in jail."

In a press release, Reed stated, "People of color, young, and low-income people are disproportionately jailed—with sentences up to six months—for possessing small amounts of marijuana. An average of 1,000 people are arrested each year in Atlanta for possession only. We needed to change that. I believe our public safety resources are better directed to stopping and preventing violent crime."

It is unclear when the new provisions will go into effect, but they come with a caveat. "The changes only apply to city policy," noted MarijuanaMoment.net. "Even when the proposal takes effect, Georgia state marijuana criminalization will remain on the books and enforceable in the city of Atlanta."



California cannabis raids continue

CALIFORNIA — Law enforcement actions against cannabis businesses continue unabated as the state moves inexorably toward January 2018, when adult-use sales technically may commence. The following cases are just a few that took place in October.

In the Sacramento area, raids on illegal grows resulted in the arrest of Chinese nationals, raising “questions about who is recruiting them and financing their operations,” noted the *Sacramento Bee*.

“Recent police raids in Yuba, Yolo, Placer, and Sacramento counties have resulted in multiple arrests of people with Chinese passports, some of them speaking no English and apparently providing little help to investigators,” added the *Bee*. “One recent indictment obtained by McClatchy asserts that money from a southern China bank account was transferred to California to pay for down payments on homes that later became grow

houses, suggesting that at least some in China are investing in the illicit U.S. marijuana market.”

Farther south, a coordinated sting conducted over several hours on October 12 netted several delivery providers. Per *High Times*, “The San Diego County Sheriff’s Department reportedly arrested seven medical marijuana delivery providers...after a sting in which officers placed orders and lured the drivers to a golf course in Santee, California.

“Once the drivers arrived at the specified delivery location, Carlton Oaks Country Club, they were arrested by deputies and taken into custody on charges of misdemeanor transportation of marijuana, and their vehicles were impounded,” added *High Times*.

“This is the first time that I can recall a sting set up specifically to target what would otherwise be a state-law-abiding interaction,” said Dan Shook, who manages the MMJ delivery services San Diego Organics and San Diego Native.

In Bakersfield, California, where local cannabis dispensaries remain illegal, the police department made six felony arrests and fourteen misdemeanor arrests in mid-October after officers served ten search warrants at local stores. “Officers seized a large amount of marijuana, 15 grams of rock cocaine, four firearms, and \$20,866,” reported *Bakersfield.com*. “They also confirmed many of the employees of the dispensaries were illegally receiving electrical power from neighboring businesses. Code Enforcement Officers found structural violations and determined each structure was unsafe for occupancy, making them unfit for use.”

The dispensaries searched previously had been told they were illegal by the City Attorney’s Office, but they refused to stop business.

Bakersfield Police Department said it will continue to conduct lawful searches of marijuana dispensaries.

\$1.8 billion

The amount of capital raised in the first three quarters of 2017 surpassed this amount, up from \$720 million in the same period last year.

(Source: Viridian Capital Advisors)



Melissa Etheridge popped for vape pen at border

PORTAL, North Dakota – Technically, singer and cannabis activist Melissa Etheridge was busted for possession of cannabis oil, which she consumes for medical reasons. A police canine unit found the oil by sniffing out a vape pen in her bag after U.S. Customs and Border Protection agents pulled over her tour bus in the middle of the night while the vehicle was crossing back into the United States following a gig in Alberta. That's how Melissa Etheridge came to be photographed for a mug shot.

The charge is a misdemeanor, but Etheridge told *Variety* she still feels responsible for what happened. "I'm mad at myself," she said. "I was careless. It's an international border; I should've known better. But I hope this can move the issue forward; shed some light on how many people use cannabis as a medicine."

Variety added, "In California, where she lives, Etheridge has a cannabis card given to patients with a variety of conditions. They're allowed to make legal purchases at dispensaries around the state." Unfortunately, North Dakota state program has yet to start.

Etheridge was held for a couple of hours before being released without bond. She told *Variety* she has decided to "put the brakes" on her cannabis company, Etheridge Farms. "When the new administration came in, the whole cannabis industry went, 'Woah!' Legalization is so brand-new that nothing is happening quickly. Our products are close, but they aren't here yet," she said.





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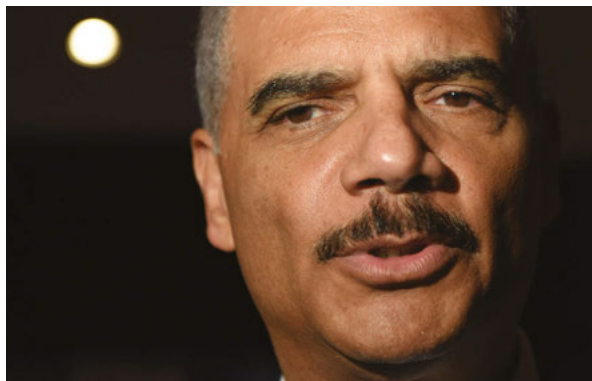


ERIC HOLDER NOTES SESSIONS'S 'ALMOST OBSESSION WITH MARIJUANA'

WASHINGTON, D.C.— Former Attorney General Eric Holder last month publicly noted current AG Jeff Sessions has an “almost obsession with marijuana.” Speaking at the John Jay College of Criminal Justice in New York, Holder said, “I think the policy we had in place was a good one: Let the states experiment with the notion that again we have these eight or nine federal factors, and if you trigger one of these eight or nine factors the feds are going to be coming in.”

About a week after Holder's comments, Sessions appeared before the Senate Judiciary Committee, where Senator Orrin Hatch asked about the MEDS Act, a bill the Utah Republican co-sponsored that would help expand research into medical cannabis by lessening obstacles put in place by the federal government.

Though he remains “opposed to the broad legalization of marijuana,” Hatch believes “scientists need to study the potential benefits and risks of marijuana,” and expressed concern the Drug Enforcement Administration and the Department of Justice are not effectively coordinating applications to grow marijuana for federal research. In August, DEA officials said they were waiting for the DOJ to sign off on moving forward with the applications.



“Can you clarify the position of the Justice Department regarding these applications?” Hatch asked Sessions.

“We have a marijuana research system working now,” Sessions responded. “There is one supplier of the marijuana for that research. People have asked that there be multiple sources of the marijuana for medicinal research and have asked that it be approved.

“I believe there are now twenty-six applications for approval of suppliers who would provide marijuana for medicinal research,” he continued. “Each one of those has to be supervised by the DEA, and I have raised questions about how many and let's be sure we're doing this in the right way because it costs a lot of money. I think it would be healthy to have some more competition in the supply, but I'm sure we don't need twenty-six new suppliers.”

STUDY



Cannabis is saving lives

COLORADO— Recent research indicated states that legalize the adult use of cannabis may see reduced opioid deaths as a result. “According to a report set to run in November's edition of the *American Journal of Public Health*, the amount of opioid-related deaths dropped by 6.5 percent in Colorado during the two years following the legalization of recreational marijuana in 2014,” reported BigThink.com.

The researchers—at University of North Texas, University of Florida, and Emory University—analyzed opioid-related deaths in Colorado from the beginning of 2000 to the end of 2015. To determine whether recreational or medicinal marijuana potentially impacted opioid death rates, researchers compared data from Colorado with data from Nevada and Utah—states where only medicinal marijuana was legal during the time periods considered for the study.”

The researchers said more research is necessary despite the positive results. “Although we found an apparent public health benefit in a reduction in opioid-related deaths following recreational cannabis legalization in Colorado, we note that expanded legalized cannabis use is also associated with significant potential harms,” the authors wrote. “For policymakers to balance the potential beneficial and deleterious effects of these laws, researchers must continue to examine the full range of health effects in both clinic- and population-level research.”

8

The number of months in 2017 it took Colorado to surpass \$1 billion in cannabis sales. Last year, it took 10 months to reach the same threshold.

(Source: *The Cannabist*)



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Green Flower Media launches video platform to help the world grow better cannabis



LOS ANGELES— Growers Quest, a division of Green Flower Media, has launched an online video platform that provides access to advice from grow legends like Mel Frank, Kyle Kushman, Kevin Jodrey, Daniel Grace, Mike Angelotti, Casey O'Neil, Swami Chaitanya and Nikki Lastreto, Steve DeAngelo, Mean Gene, and many more.

Designed for both home growers and professional cultivators, membership includes exclusive product discounts on grow products plus an online community where for connecting with growers around the world.

"With the laws changing and millions starting to grow their own cannabis, we partnered with the world's top grow legends to give people a trusted source for growing the highest quality organic cannabis," said Green Flower Media CEO Max Simon. "From natural pest control to biodynamic farming techniques to advanced terpene strategies, people will be blown away with how much invaluable grow knowledge is instantly available to them inside the Growers Quest."

LearnGreenFlower.com



MCIG LAUNCHES CANNABIS-CENTRIC DIGITAL AD NETWORK

LAS VEGAS— mCig, a diversified company serving the cannabis, hemp, and CBD markets, has launched eHESIVE, a cannabis-focused digital ad network offering online publishers and advertisers a full-service, user-friendly platform for generating revenue and reaching cannabis consumers.

Developed under the oversight of Andrus Nomm, the technical wizard behind the MegaUpload network, eHESIVE provides in-depth analytics and highly tailored targeting options that let advertisers optimize their digital marketing. The system also gives publishers complete control over their sites' content.

"Our extensive experience in cannabis e-commerce has informed every aspect of eHESIVE to make sure it is intuitive and effective for advertisers who want to reach the cannabis consumer, as well as cannabis-focused publishers who want to monetize their sites' traffic," said mCig Chief Executive Officer Paul Rosenberg.

eHESIVE.com

74

Percentage of respondents to 2017 New Frontier/Women Grow survey who agreed that cannabis businesses should establish targets to encourage greater racial and sexual diversity throughout the industry.

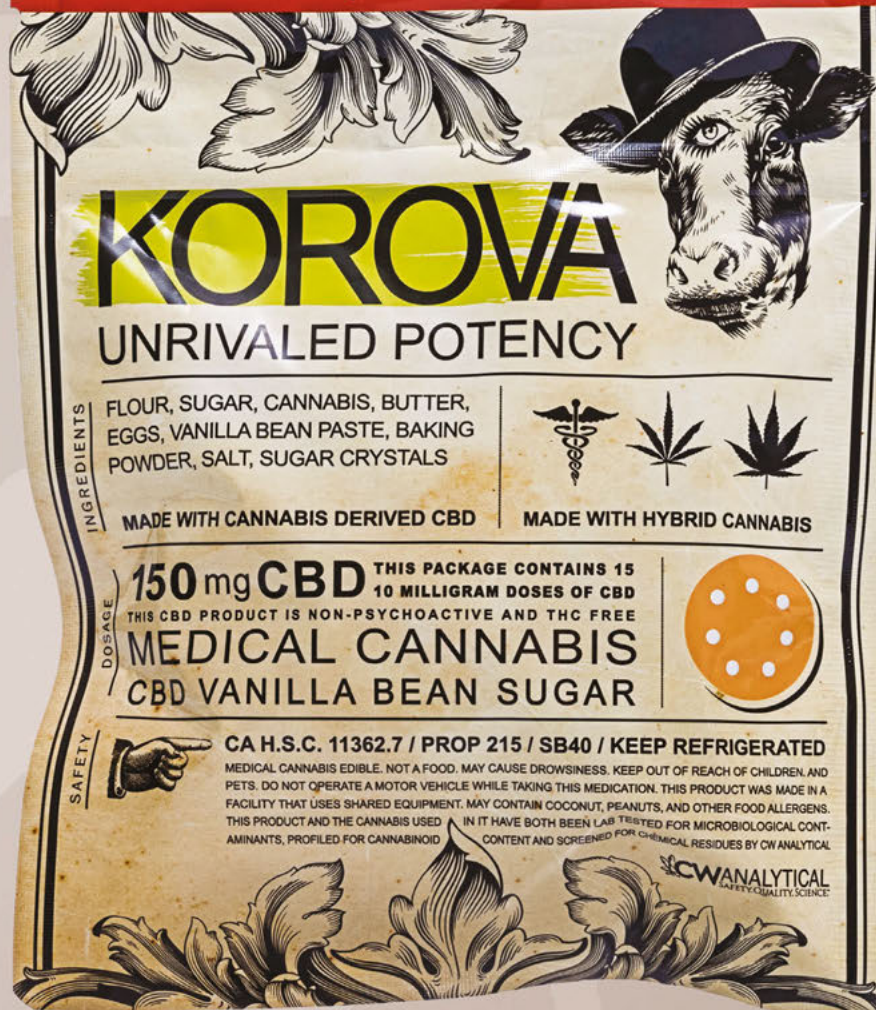
(Source: New Frontier Data)

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STEEP HILL OFFERS REMEDIATION ADVICE FOR THOSE WITH WILDFIRE-IMPACTED PRODUCT

BERKELEY, Calif.— Jmichaelé Keller, president and CEO of Steep Hill, extended the lab's support to the 2017 California fire victims and their families. "We were deeply saddened by the overwhelming devastation caused by the fires in Northern California and in other parts of the state," the company said in a statement. "We stand by to assist the cannabis community in answering the numerous questions we have received about the impact of smoke/ash-tainted product."

Steep Hill has prepared a report, available on its website, to help the community better understand best practices in handling smoke/ash-tainted product.

"Once cannabis is contaminated, it is hard to clean up. In addition, cleanup can be very expensive," said Steep Hill's chief scientific consultant, Dr. Donald Land. "Smoke taint destroys product. Smell and visual tests should be conducted immediately to check for tainted product. The presence of smoke and ash particulates can promote growth of unwanted and dangerous yeasts and molds. We strongly caution cultivators from further adulterating cannabis with solvents and cleaners in an attempt to strip particulates. These products are detectable on final product and can be quantified by the lab."

SteepHill.com

130-acre medical cannabis development park coming to Michigan

WINDSOR TOWNSHIP, Mich.— Windsor Township, located west of Lansing in Eaton County, will be home to the largest medical marijuana development east of the Mississippi. Dubbed Harvest Park, it will provide up to 1,000 new Michigan jobs in the medical marijuana industry.

Harvest Park Development, led by managing director Jeff Donahue, was formed to develop the most advanced agricultural-centric industrial park for growing, processing, testing, and secure transporting of medical marijuana in Michigan.

"We've worked with the township and gained approval for the local zoning and ordinances required to enable licensure for all levels of cultivation, processing, testing, and secure transport," said Donahue. "It will be a modern industrial park featuring fully improved lots and on-site utilities in an exceptional location that

has access to two major highways and is strategically located in the center of the state."

The sixty-three acres in Phase One of the park are divided into ten lots for sale to licensed cultivators, processors, secure transporters, testing labs, and ancillary suppliers to the medical marijuana industry. The company has seen strong demand in advance of the formal launch, with two lots already under contract and additional offers pending.

Michigan plans to begin licensing, regulating, and taxing medical marijuana in early 2018.

SummitRealtyService.com



Medicine Man secures German cannabis client as international activities expand

DENVER— Medicine Man Technologies recently entered into a contract to provide cultivation support for a German-based applicant competing for up to seven of the ten tender bids related specifically to growing medical cannabis in Germany. Medicine Man's substantial support for the will include indoor GMP-compliant facility design services, operating plan guidance, and cultivation standard operating procedures, among other deliverables.

The agreement marks Medicine Man's first European medical cultivation client and further expands the company's international presence that includes partnerships with Canadian and South African clients. The company actively is exploring additional international opportunities with prospects that seek the efficiencies and product quality from both indoor and greenhouse-based growing environments in South America and Australia.

"I am very pleased this opportunity has come our way and believe that we will be able to deliver to a superior indoor cultivation experience and knowledge base that should provide for a very solid foundation on which our client may build their German brand presence," said Joshua Haupt, Medicine Man's chief cultivation officer.

MedicineManTechnologies.com

MASSROOTS AND DIETRICH PART; CANNAREGS DEAL TERMINATED



DENVER— In two 8K forms filed October 18, MassRoots provided a formal, if cryptic, narrative about September's sudden meltdown ending both Isaac Dietrich's association with the company he founded in 2013 and a pending merger with CannaRegs.

In one of the filings, Item 5.02 reads, in part, "On October 17, 2017, Mr. Isaac Dietrich and [MassRoots] entered into a Separation Agreement providing for, among other things, the resignation of Mr. Dietrich as Chief Executive Officer, effective on the date hereof, with Mr. Dietrich's last day of employment on October 16, 2017. Pursuant to the Separation Agreement, Mr. Dietrich has

agreed to (i) separation benefits equal to four months' payment of his current salary equal to [\$7,916.66 per month], less all relevant taxes and other withholdings to be paid; and (ii) to reimburse the company for up to \$25,000.00 in expenses that he incurred to which the company may seek reimbursement. If he so elects, under [MassRoots's] current group health plan, the company shall pay the COBRA premium for Mr. Dietrich for four months after his separation from the company."

A separate notice under the same item read, "On October 16, 2017, the Board of Directors appointed Mr. Scott Kveton, the company's Vice President, as the company's Chief Executive Officer. The terms and

conditions of Mr. Kveton's employment are being discussed, and the company expects to reach an agreement with Mr. Kveton shortly. Once an agreement with Mr. Kveton is reached, the company will provide updated disclosure regarding his employment."

In the other 8K filed the same day, item 1.02 reads, in part, "The Merger Agreement [between MassRoots and CannaRegs] was terminated upon receipt of written notice from CannaRegs on October 17, 2017, and the company's written mutual agreement to such termination on October 18, 2017, pursuant to Section 10.01 of the Merger Agreement."

MassRoots.com



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EVENTS CALENDAR



DECEMBER 2017 EVENT SCHEDULE

The following is a list of select industry events taking place during December 2017.

INTERNATIONAL CANNABIS BUSINESS CONFERENCE DECEMBER 1-3

Kauai Grand Hyatt, Kauai, Hawaii

With high-end production, world-class speakers, legendary performers and networking parties, the ICBC is responsible for tens of millions of dollars in business brokered during and after the event.

InternationalCBC.com

TOMMY CHONG PRESENTS: BLAZERS CUP DECEMBER 2-3

NOS Center, San Bernardino, California

A two-day celebration of the best medical marijuana in California, recognizing the premier medical marijuana growers, breeders, edible chefs, and extract artists. Draws more than 500 vendors and more than 25,000 attendees.

BlazersCup.com

IMPERIOUS EXPO + DIRECTORY DECEMBER 6-7

State House Convention Center, Little Rock, Arkansas

This show promotes the legal medical and industrial benefits of cannabis, emphasizing the business sector, with a primary goal of connecting businesses to businesses.

ImperiousExpo.com

THE EMERALD CUP DECEMBER 9-10

Sonoma County Fairgrounds, Santa Rosa, California

The Emerald Cup annually brings together cannabis experts and educators to teach our fellow farmers, patients, and patrons. What started as a community celebration has grown into a global movement honoring the year's finest organic, sun-grown, medicinal cannabis harvest.

TheEmeraldCup.com



JACK HERER CUP DECEMBER 15

333 Live Nightclub, Los Angeles

Featuring a meet-and-greet with celebrities and industry leaders, the Jack Herer Cup awards show, and lots of live entertainment, this one-day competition celebrates the "emperor of hemp."

JackHererCup.com

STAY CURRENT ON ALL INDUSTRY EVENTS: mgretailer.com

The Emerald Cup



DECEMBER 9TH-10TH, 2017 SONOMA COUNTY FAIRGROUNDS

THE ROOTS • PORTUGAL. THE MAN

GRAMATIK • HIEROGLYPHICS • PIMPS OF JOYTIME

Contest Intake October 2nd - November 10th: visit www.theemeraldcup.com for intake locations and entry requirements. Industry-leading thought leaders and expert speakers.

World-Class Glass, Artists, Organic Food, Vendors, Healing Arts. Community Fire Relief Fundraising.



Tourists: Opportunity or Trap?

THEY'RE OPEN TO NEW PRODUCTS AND EXPERIENCES, YET NEED MORE CODDLING AND TEND TO BROWSE, BUT IF YOU KNOW HOW TO SERVE THEM, OUT-OF-TOWNERS CAN PROVIDE A HEALTHY BOOST TO YOUR BOTTOM LINE.

IN 2016, some 42.9 million people visited Southern Nevada, spending \$35.5 billion—16.3 percent more than in 2015, when they left behind \$30.5 billion. Per person, Las Vegas visitors spent an average of \$827, up from \$721 in 2015. Now that recreational cannabis use is legal, dispensaries expect about 70 to 80 percent of their business will be driven by tourists.

The situation is more complicated than it seems at first glance, though. While tourists can walk into any shop and buy cannabis products, they can't smoke anywhere except private residences. That presents a Catch-22 that has made budtending in the state more challenging. "I make sure right off the bat to tell tourists that the casinos are hitting people with huge cleaning fees if they find evidence of cannabis use in their rooms," said Tony Robertson, a former high school teacher turned budtender at The+Source. "That seems to get people's attention more than any legal stuff." (Consuming cannabis in casinos, hotel rooms, cars, or anywhere in public carries a fine of \$600.)

Many tourists are from states that are not steeped in the cannabis industry, and that presents another challenge: They either have a lot of questions or they're merely looky-loos. "A lot of tourists are just content to browse," said Robertson, 32. Nevertheless, he has a go-to for quick tourist sales: vapes and edibles. "For tourists, it comes down to discretion," he said.

Robertson has some other tips.

1

KEEP THE TOURIST EXPERIENCE IN MIND

“We live here,” Robertson said, “and Vegas has lost a lot of its fantasy appeal.” However, visiting a Sin City cannabis dispensary might be a special treat for a tourist. They may not become a repeat customer; they may never visit Vegas again. But you could become a part of their vacation storytelling experience by introducing them to great products. “I try to make that story awesome,” Robertson said.


2

BE CREATIVE, LISTEN, AND KNOW THE PRODUCTS

Many tourists have limited experience, and they may not want to stray far from the familiar. “I usually smoke/eat this brand,” they’ll say. “Do you have something with similar effects?” While most shops do offer comparable products, it’s the budtenders job to find the right product, and fast. “The first time someone came in and asked for Brass Knuckles, I was completely lost,” said Robertson. “Then the guy explained that Brass Knuckles makes high-quality cartridges. After hearing that, I was able to help him out.”

3

REMEMBER: VISITORS ARE ON VACATION

People visit Vegas for an experience. They want to get outside their comfort zone. For some of them, that might mean recreational marijuana. For more regular users, that might mean trying an exotic edible, dab, transdermal patch, or extract. “Hunter S. Thompson made Vegas a place for weird experiences,” noted Robertson. “And people tend to embrace that ethic. It’s like, ‘Cannabis nasal spray? Why not? We’re in Vegas!’” 



4 ways to expand your marketing efforts:



**UPPING YOUR SEARCH ENGINE
OPTIMIZATION (SEO) STRATEGY**
so your dispensary’s
website is the one that
pops up first when tourists
search the web.



USING SOCIAL MEDIA,
including hashtags, to market
your dispensary to the tourists
you want to attract.



CREATING SPECIALS
like “Tourist Thursdays” that
cater directly to out-of-towners.



PARTNERING
with a cannabis tour outfit by
offering discounts to their clients.



Nordic Minimalism in Portland

VESSEL IS FLOURISHING IN A STATE WITH DECLINING SALES, INCREASED COMPETITION, AND EVER-CHANGING LAWS.

VESSEL, the Dutch-inspired dispensary in the northwest Slabtown district of Portland, has been ranked the best dispensary in Portland by the hip local newspaper, the *Willamette Week*, two years in a row. The paper noted, “Flanked by two glass-manufacturing companies, it resembles a spotless Nordic pharmacy and caters to people who know their pot and will make a trip for good seed or concentrates.”

That’s just what the owners wanted to hear after struggling to take Vessel from idea to reality. Their mission was to have the best organically grown flower in the state, harvested just outside Eugene, and have it served by the most compassionate and empathetic budtenders in town. With only three employees, two budtenders, and a manager, the shop is intimate. Nevertheless, it sees a whopping 100 patients a day. But business hasn’t always been smooth sailing.



VESSEL



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“We struggled a lot in the beginning trying to figure out what kind of shop we wanted to be, what prices we would offer, and what types of customers we wanted to attract,” said manager Sara Kemple.

Kemple has worked in and around cannabis for years, cultivating, growing, and working in other shops, but she said managing Vessel has changed her life. The experience has taught her how to run a cannabis business properly and help customers in need. “We have helped people alleviate the symptoms of brain fogginess from coma, cancers, broken bones, anxiety, depression, sleep loss... You name it, and we have helped treat it,” she said.

Stepping inside Vessel feels like entering an origami paper lamp. The minuscule space is moon-dust-white with a wall of elegant wood shelves. Twig-like glass pieces from the adjacent Elements glass studio are suspended from the ceiling at a series of vaulted angles. The owners wanted to give a sense of upscale affordability. “The design aesthetics were based off our owners’ lifelong pursuit of glass-blowing,” said Kemple. “Vessel is a name used in the glassblowing industry. Also, the name describes the size and shape of the building.” The shelves are stocked not only with organic flower, but also with a colorful smattering of hand-blown pipes, bongs, and twenty or so types of concentrates and edibles. The shop sells about ten strains of organic seeds from GI Grow and an equal number of organic clones from Taproots. But flower is king.

“Our best-selling item is our flower,” Kemple said.

The tiny staff is well-trained and gets excellent reviews from Kemple: “They are extremely passionate and spread that love to our customers.” This has been key to the shop’s success, as the Oregon market has gone through myriad of compliance and legal issues in the past few years.

In October 2015 the state enacted “early start,” a provisional measure allowing dispensaries to begin selling only flower to recreational customers 21 and older. Recreational sales were tax-free in the remaining months of 2015, but in 2016 the state began mandating the collection of taxes from recreational purchases. In June 2016, “early start” expanded to include concentrates, edibles, and topicals. In October 2016, the state began issuing licenses to recreational retailers and phasing out the “early start” program.

With the transition to a fully regulated recreational market, the state enacted more stringent testing requirements. Newly licensed retailers could purchase products only from similarly licensed vendors who were required to adhere to stricter product-testing protocols. Unfortunately, with an understaffed licensing apparatus, delays in licensing and testing resulted in product shortages, and the market suffered its first recession. All this, combined with declining sales and increased competition, makes Kemple’s job a monthly puzzle.

“Our big challenges have been the licensing, the competition, the laws, and testing requirements,” she said.

Leafly gave the shop a 4.6-star rating, noting the thirteen in-house strains at reasonable prices, friendly staff, and superior flower. Weed-Maps called the combination of Clean-Green-Certified flower like 9 Pound Hammer and Sunset Sherbert, as well as flower from Wynberry Farms, Lucky Lion, and Sweet Life Distribution, a winning formula. Grams of outdoor, indoor, and greenhouse range from \$8 to \$16; the shop offers \$20 eighths every day.

Kemple is extremely proud of the small shop’s big reputation. To maintain it, she adheres to a very simple philosophy: “The motto I live by is if you work hard every day and surround yourself with a good community of people, good things are bound to come of it.” *mg*

—Rob Hill



“OUR BIG CHALLENGES HAVE BEEN THE LICENSING, THE COMPETITION, THE LAWS, AND TESTING REQUIREMENTS”

— Sara Kemple, manager

75-100

Average customers per day



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The Data Man

CY SCOTT, CO-FOUNDER AND CHIEF EXECUTIVE OFFICER FOR HEADSET INC., ON THE CHANGING DEMOGRAPHICS OF CANNABIS PURCHASING, THE SLOW EROSION OF FLOWER'S MARKET DOMINANCE, AND WHY HE'S BEARISH ON THE MEDICAL MARKET.

CONCENTRATES, pre-rolls, and vapor pens have high growth as well as large market shares, so they are well positioned to do well in 2018, although those categories are getting more and more crowded,” Cy Scott said from Headset’s headquarters in Seattle. Scott should know. He, along with his engineering buddies Scott Vickers and Brian Wansolich founded Leafly (“the Yelp of cannabis”) in June 2010. The website was a huge success, eventually becoming the world’s largest cannabis site with 40 million page views across its website and mobile apps. “I knew we needed to treat cannabis in a more mainstream light,” Scott said. “I do think us treating the industry in this way really helped Leafly stand out from the pack.”

Privateer Holdings acquired Leafly in 2015. Not one to embrace idle time, Scott, 38, co-founded Headset shortly after the sale. The website was a sort of “follow up to Leafly and focused more on supporting growers, processors, and retailers through data and analytics,” he said. Headset, currently tracking Washington State, Colorado, and California, aims to be the data layer of the industry, helping to illuminate what’s happening on the sales and inventory fronts and taking the assumptions and guesswork out of operating a cannabis business.

Headset was a byproduct of Scott’s years of exposure to the industry, getting to know a lot of operators and learning about how a lack of data limits their decision-making abilities. In January 2017, the

company closed \$2.5 million from Hypur Ventures, a leading-edge venture capital fund headquartered in Arizona, and Salveo Capital, a Chicago-based private equity fund specializing in cannabis-sector investments.

“Headset specializes in seeing ahead of the curve in terms of trends and innovation in the hyper-competitive cannabis market,” said Hypur Managing Director Christopher Male. “There’s a lot of synergy with the ecosystem of the Hypur Ventures portfolio.”

Headset employs fifteen people spread across three divisions, all of which publish in real-time: Bridge, which provides automated inventory, sell-through, and price point data from client retailer accounts; Retail, which offers easy-to-understand reports about sales, inventory, vendors, products, and budtenders; and Insights, which comprises data-driven decisions based on actionable data.

WHAT METHODOLOGY DOES HEADSET USE?

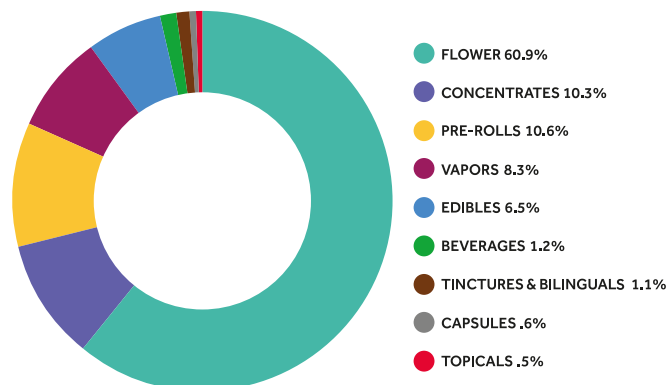
The market data you are seeing, which is one of our core offerings, is based on aggregated data we are able to analyze

through connections at the retail level. We map and classify these sales in real-time and are able to report back trends in minutes, not months. Since we began in Washington State, we now directly track well over 50 percent of each dollar spent in that market and are getting close to that type of coverage in other states, including California and Colorado.

“ONE COMMON THREAD WE’RE SEEING ACROSS THESE MARKETS IS THE DECLINE OF FLOWER’S MARKET SHARE WITHIN THE INDUSTRY. THIS TREND IS PARTICULARLY RELEVANT AROUND THE YOUNGER DEMOGRAPHIC, WHO ARE PURCHASING A LARGER SHARE OF CONCENTRATES AND PRE-ROLLS WITH RESPECT TO OTHER GENERATIONS.”

—Cy Scott

Concentrates are currently the 2nd largest category next to flower, making up 11.7% of July 2017 sales. This is up from only 10.3% of sales in July 2016, when concentrates were the 3rd largest category behind pre-roll.



WHAT'S THE CURRENT MARKET FOR FLOWER?

One common thread we're seeing across markets is the decline of flower's market share within the industry. This trend is particularly relevant around the younger demographic, who are purchasing a larger share of concentrates and pre-rolls with respect to other generations. While the total percentage of sales of flower is still spectacular, over 50-percent market share in all the regions you mentioned above, it looks like over time it will have a continuing smaller piece of the pie. There are a number of factors that can be driving this, from the explosion in availability of other types of products to new consumption preferences to just overall convenience of other categories like vapor pens.

TO WHAT DO YOU ATTRIBUTE THE HUGE RISE IN CONCENTRATES?

I think there a number of factors, starting with changes in consumption patterns like moving away from smoking. The rise in new consumption devices for concentrates is also helping adoption. Convenience, price point, and potency no doubt play a role, as well.

ON WHICH STATES ARE YOU BULLISH?

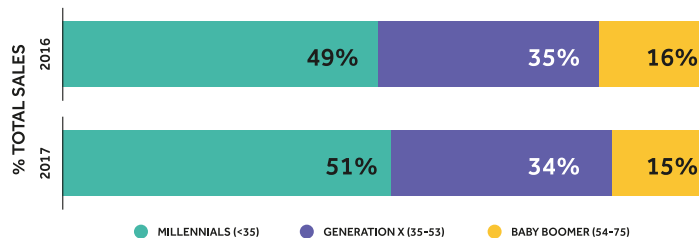
California is going to be the market for some time, just based on population. It also has the benefit of learning from other adult-use markets that have been active for a number of years, hopefully re-



Did you know?

While flower is the top category across the Gen X, Millennial, and baby boomer generations, each generation had a different second-place category. Millennials prefer concentrates, Gen Xers prefer vapor pens and concentrates, and Baby Boomers like vapor pens and pre-rolls.

PERCENTAGE OF TOTAL SALES ACROSS THE GENERATIONS




Millennials have dominated the market since Headset began looking at the data, holding 49 percent of the total market share in 2016, with a slight increase to 51-percent in 2017.

sulting in a great implementation. I really like the idea of Nevada, particularly for the tourism that will be exposed to the industry. Of course, Massachusetts is interesting as well, and hopefully we will begin to see a wave of legalization as a result on the East Coast. Washington and Colorado have a great ecosystem, mature product lines, and continued growth, too. So, I suppose I'm pretty bullish on all adult-use markets. If I have to be bearish, it might be on certain medical markets, particularly on the East Coast, that are a bit limiting on access and the types of products available.

WHAT ARE YOUR PREDICTIONS FOR CALIFORNIA?

California will mirror what we've seen in other adult-use markets, which includes price pressure, emerging brands, and non-traditional category growth [i.e. vapor pens]. We will probably see larger brand reach with distribution models coming. Consistency in products, testing, and quality will get better, as it will be required for all operators. A trend towards lower dosages, as the casual consumer starts visiting recreational stores will appear, as well. But whatever happens, it's going to be very exciting to watch unfold.

WHAT OVERALL PRICING TRENDS ARE YOU SEEING?

Pricing trends can be quite interesting as the market continues to mature. Edibles, capsules, and beverages have just over 50 percent of units sold, inside a range of +/- 10 percent of the average price, while concentrates, flower, and pre-rolls seem to have the least price variance, with only about three quarters of their unit sales within +/- 10 percent of the average price. This could be because extracted oils and flower products are more popular and are less likely to be offered as specials, whereas consumables like edibles, capsules, and beverages might require more price breaks to get customers interested. Price variance trends can tell us a lot about overall market trends, in that the products that see lots of sales at a deep discount might be products that are difficult to move on their own, or are great complementary products to drive up overall purchase totals. 

— Rob Hill



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From the Ground Up

EAST FORK CULTIVARS GROWS CBD-RICH STRAINS OUTDOORS WITH MOTHER NATURE'S HELP.

WHEN IT COMES TO CANNABIS CROPS, conventional wisdom says grow indoors and aim for high-yielding, THC-dominant strains. That's exactly what most growers do.

Recent data from cannabis market research firm Headset indicated CBD-dominant flower—grown indoors or under the sun—made up less than 10 percent of Washington State flower sales in 2016. For most growers in legal states, CBD-heavy strains are a secondary consideration, if even in the crop rotation at all for anything more than oil extraction.

But in Oregon, East Fork Cultivars is growing CBD-dominant hybrid strains and doing it outdoors, at the mercy of Mother Nature. Mason Walker, chief executive officer at EFC, knows it's a long-term gamble, but he has a lot of faith in the earth—like, literally, the legendary dirt of southern Oregon's Illinois Valley.

"We grow CBD-rich cannabis using flower-focused cultivation methods. We grow in our native soil, using highly efficient drip irrigation and soil amendments generated onsite, including compost

teas, to further take advantage of our location and reduce our impact on the environment," Walker explained. "For us, it's about the way we cultivate, not the plant's historical origin."

The magic in the soil of which Walker speaks sometimes is called *terroir*, a term typically used to describe environmental conditions and qualities for wine grapes produced in specific regions, like champagne or Burgundy. *Terroir* is defined as the combination of factors including soil, climate, and sunlight that give grapes—and cannabis—a distinctive character. For medical patients and connoisseurs, complex cannabinoid profiles and flowers rich in terpenes yield effects that are both beneficial and artisanal.

"Growing outdoors has a number of advantages. For starters, it's far more environmentally sustainable. Our electricity bills are puny," Walker revealed. The state of Oregon also offers cannabis farmers (and other industries) access to alternative, renewable energy from solar and wind farms. EFC goes to the original power source—the sun. Some of the strains the farm grows have CBD levels of up to 20 percent, and some have a 1:1 ratio of CBD to THC.

“Many of the compounds found in cannabis, particularly minor cannabinoids and terpenes, are only produced with full-spectrum light—in this case provided by the sun, the best source of full-spectrum light,” Walker said. “An element of stress on the plant” also provokes chemical reactions.

“Growing outdoors with inclement weather and pests causes stress reactions in the plant,” he continued. “That stress signals the plant to create a rich array of compounds as defense, leading to a more robust chemistry for us to enjoy upon ingestion.

“Lastly, our farm is located in Southern Oregon, a location known as the tip of the Emerald Triangle. Due to soil, climate, and other environmental factors, this region produces some of the best cannabis in the country. If we grew indoors, we’d miss out on this wonderful terroir.”

Founded by Nathan and Aaron Howard, EFC’s focus on potent CBD strains was inspired by their brother Wesley, who suffered from seizures caused by a rare medical condition. As caretakers, the Howards were motivated to try CBD because of its reputation as an effective alternative treatment for other seizure-prone conditions.

“Through early experiences in Oregon’s medical market, it quickly became clear that people found relief from a range of maladies by using CBD—one of the large advantages of growing CBD-rich plants,” Walker said. “The way medical-grade cannabis has traditionally been grown is that the flower of these plants includes compounds other than CBD that work in concert with CBD to greatly increase its array of benefits.”

Unsurprisingly, a few consumable and cosmetic products already hint at offering the benefits of CBD and contain imported hemp seed oil or even the hulled seeds themselves, which are high in fiber and protein. Walker hopes patients and the general public begin to understand the complexity of cannabinoids and how they work.

“Hemp-derived CBD often isolates just the CBD molecule,” he said. “While CBD by itself can do some nifty things, combining it with other compounds found in cannabis makes something greater than the sum of its parts.

“Most industrial hemp is not grown specifically for its flower,” he continued. “It’s often grown for its biomass [fiber] or seeds [for hemp seed oil]. We have a richer matrix of other compounds than most industrial hemp, including minor cannabinoids, terpenes, and flavonoids that all contribute to additional medical efficacy, as well as nuanced feelings and effects.”

EFC partners with twelve processors to produce infused products, including vaporizer cartridges for cannabis manufacturers like O.penVAPE, Quill, Peak Extracts, Kalapooya Fire, and Toko. The farm’s oils can be found in “three lines of tinctures [Luminous Botanicals, Modern Medicinals, Cascadia Herbals], a caramel [Periodic Edibles], two lines of chocolate [Grön, Peak Extracts], and a line of raw oil [Chronic Creations],” Walker said.

EFC already offers its own line of trimmed flower and pre-rolls, and more products are coming soon, “including infused honey, nut butters, transdermal patches, and capsules,” Walker said. “We’ve be-



gun developing a few of our own branded products, but they’re only in the design phase.”

Like a lot of small cannabis farmers and small business owners, Walker worries corporations will come in soon, wielding their money and influence like greedy gophers pulling plants down while they’re prime and tasty, undermining the little guys by the roots. He knows more serious research is needed to unlock the real benefits of CBD and other cannabinoids, but that’s being held up, as ever, by federal restrictions in the United States.

Walker expressed confidence in Oregon state officials’ positive attitude toward the cannabis industry and evident commitment to small, local businesses. Oregon licensing regulations limit EFC to a little less than an acre of fully cultivated land. Last year’s yield was around 1,300 pounds of untrimmed flower.

“This year we’re expecting between 4,000 and 7,000 pounds,” Walker said. “We’ll continue to invest in our soil and hone our cultivation methods, which alone could boost our yield as high as 10,000 pounds on our single license. We also have the option to obtain another license, expand to other states where recreational cannabis is legal, or focus on vertical integration to develop more of our own infused products. Or open a small CBD-focused retail location.”^{mg}

—Joanne Cachapero

**“IF WE GREW
INDOORS, WE’D
MISS OUT ON
THIS WONDERFUL
TERROIR.”**



eastforkcultivars.com



The Originators

ORIGINAL 420 BRAND'S APPROACH IS DRIVEN BY UNDERSTANDING WHAT PATIENTS NEED.

WITH A FLOOD OF NEW COMPANIES offering CBD products, patients can have trouble deciding whom to trust. Wade Atteberry Original 420 Brand's founder and chief executive officer, is well acquainted with their dilemma: For him, the right CBD products ultimately provided relief from the exhausting side effects of the chemotherapy used to treat his cancer ... twice.

Since surviving two rounds with the disease, Atteberry has been driven to do as much as he can to spread awareness of CBD's potential, as well as offer effective treatments for those suffering. He said he formed Original 420 Brand in 2012 with the goal of bringing "quality products to the market from quality-minded partners so our customers can have peace of mind."

Original 420 Brand produces CBD vape oils, tinctures, and gummies, but the company doesn't just push out a line of products and call it medicine. "We use organic vegetable glycerin in our vapes and tinctures, because who wants to vape GMO products?" he said.

The company also serves as a resource for patients interested in growing their own medicine. "Our latest invention, the DeBudder Bucket Lid, has revolutionized the 'bucking' phase of the marijuana harvest process," Atteberry explained. The DeBudder requires no


electricity and costs a fraction of the price of most trim machines.

Unlike products containing THC, Original 420 products are available in all fifty states. The wide distribution has helped the company become a recognizable brand and created a demand for both current and future products. "We have several new products currently in the final [research-and-development] phase," Atteberry said. "They are ready for production, and we already have purchase orders for 5,000 units." —*Daniel Reed*

"WE USE ORGANIC VEGETABLE GLYCERIN IN OUR VAPES AND TINCTURES, BECAUSE WHO WANTS TO VAPE GMO PRODUCTS?"

—Wade Atteberry, founder and CEO, Original 420 Brand

original420brand.com



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Know Thy Customer

KNOWING YOUR CUSTOMERS' WANTS, HABITS, AND NEEDS IS KEY.

"There are many times that I remembered something that a patient said once, and the next time they came in I was ready to build on that," said Pep Tintari, founder of the Green Light Pharmacy in Sylmar, California. Having such knowledge opens the window for an up-sell. Why? Remembering customers shows you care and were listening. Customers who feel important are more likely to trust your suggestions. By knowing your patients, up-selling will come naturally and won't feel forced. "For instance," Tintari said, "a patient came in looking for heavy indicas. I could tell he was a Whole Foods shopper, so I showed him our Select line, which is our absolute cleanest and organic. He bought the whole line: flower, pens, edibles."

Dos and Don'ts

- ✓ RECOMMEND things "you like and have tried," said Shannon Ayers, head budtender at the Parlour Cannabis Shoppe in Portland, Oregon.
- ✓ BE SINCERE and honest about the products you up-sell. "This is vital," Ayers said.
- ✓ KNOW YOUR CUSTOMER AND THEIR NEEDS. No two customers are alike.
- ✓ GET EXCITED. "Customers dig it!" Ayers said.
- ✗ BE PUSHY. "Too much pressure will drive them to a different store," said Ayers.
- ✗ Recommend products you DON'T KNOW.
- ✗ SAY YOU CAN'T AFFORD IT. "It may be true, but it won't help sell product," said Ayers.
- ✗ GUARANTEE RESULTS. "I always ask the client to come back and let me know how the product worked for *them*," Ayers said.



Mookie's Take: R.I.S.E.

FORMER BUDTENDER AND AUTHOR OF THE BOOK AND WEBSITE *BUDTENDER'S BIBLE*, ADVISES...

RELATE

Always try to put yourself in patient's shoes. You must listen, be attentive, and use empathy when making an ethical recommendation you feel would best suit their needs.

INSPIRE

Letting customers know prolonged use of the same medication can cause a tolerance effect, meaning the same medication no longer has the same effects. Having this knowledge puts the budtender in a position to educate and inspire the patient and make a recommendation for something with a stronger potency, etc.

SOLVE

Actively engage the patient to help them find the best medication for their ailment. Always ask why they medicate: Pain? Anxiety? Do they prefer daytime or nighttime medicating? Ask questions, listen to their needs, and then point them in the right direction.

EXCITE

As a budtender you must stay one step ahead so you can relay information to your patients as they decide what to purchase. Look them in the eye, explain why you are making a recommendation, and answer their questions. "I don't like edibles; I prefer the instant gratification of smoking," soon can turn into, "Whoa! You mean I can eat that little thing and be medicated for how long? Uh, yeah!" *Budtendersbible.com*

To Bundle or Not to Bundle?

Bundling, a process that begins long before products hit the floor, takes time and training but can be highly effective. Management should discuss bundling options and create "packages" budtenders can use to up-sell. When bundling, offer some type of special deal or discount when the customer adds related products to their purchase. Example: "If you buy this [more expensive] smoking device, you can get half off on our in-house strain of your choice." Then: "You're probably going to need a good jar to keep your flower fresh, and some cleaning products, but if you buy them all now, you'll save money compared to buying all these products individually at a later date."

BOTTOM LINE

Bundling is all about showing added value, which makes the proposition of spending more money logical.

"BY KNOWING YOUR PATIENTS, UP-SELLING WILL COME NATURALLY AND WON'T FEEL FORCED."

—Pep Tintari, owner of *The Greenlight Pharmacy*, California.



The Fibs Customers Tell and How to Handle Them.

WE CAN'T AFFORD IT

"We can't afford it" is not the same as "we have no money." According to Bob Phibbs, founder of the website Retail Doctor, customers buy even during down times. Phibbs believes it is "paramount to help them see that by not purchasing that specific product, they are making their life more difficult, not easier."

JUST LOOKING

Translation: They are looking, but they're not sure exactly what they want. Phibbs said the best answer is, "That's great. We have lots to look at, including our newest product we just got in over here" and then leave them to browse. Once you see them pick up something, wait a bit, return, and try to build rapport.

IT'S TOO EXPENSIVE

Sales people hear "you're products are over-priced" but, according to Phibbs, price doesn't make something a good value—people do. "What the customer is really saying is it's too expensive for the amount of benefit they'll get out of it." While you work around cannabis every day and understand why certain items cost more, your customers don't.



Regenerating MENDO

A GENTLE FAMILY MAN WITH AN UNCOMPROMISING VISION TO EMBED REGENERATIVE DESIGN PRACTICES INTO THE FABRIC OF MENDOCINO COUNTY, JUSTIN CALVINO IS HELLBENT ON SAVING CRAFT CANNABIS AND THE WORLD.

BY TOM HYMES

JUSTIN CALVINO'S life is a moveable feast of the highest order. To get a true sense of it, however, you need to set aside all expectations of linear outcome and eagerly enter the maelstrom that is his daily existence. You're not in Kansas anymore, but Mendocino County, a land of ridges and bridges, wineries, waves, and weed. A quiet battle for the soul of the county permeates the region. Say all the great things you want about Humboldt, Sonoma, and the rest of the NorCal cannabis growing regions where the sun is still worshipped, but Mendocino is the beating heart of the Emerald Triangle. No one comes away unmoved by the sheer, pristine beauty of its winding roads and isolated coastline.

That's an outsider's perspective. For Calvino, who moved to Mendocino in 2007, it's about family and the survival of a craft cannabis community uniquely deserving of respect and support. He is deeply rooted in the area—the father of seven beautiful children and husband to Autumn, a certifiable martyr pregnant with his eighth child—and appreciative of its unique qualities. Those he values most include the geographic isolation and the lack of a municipal authority and police force. “There’s no government in the village area,” he said. “It’s very participatory, which doesn’t mean easy. It’s actually harder when you participate.”

Calvino participates. Rushing from task to task, he appears to revel in the opportunities available within the organic social construct of the region. “The ability to become sovereign,” he added. “We’ve got a real shot at creating a true local living economy that sustains itself, creating community choice aggregates for energy, healthcare, transportation, education. I’ve worked a lot in that space and have used cannabis money to fund regenerative economics studies and modeling for the communities in which we live.”



The Emerald Exchange

A multitude of projects and plans build upon those words. Vehicles like the Regenerative Design Center, the Emerald Exchange, and the Mendocino Appellations Project are just a few of the interwoven ventures Calvino (and his partners) have initiated and are deeply involved in producing and promoting. A board member of the California Growers Association, Calvino also chairs the trade group's Appellations Committee and is working on a new initiative called The California Cannabis Tourism Association. All this in addition to cultivating, being a dad and husband, organizing frequent local farmers' markets, and playing host to a steady stream of guests at the two local properties where he hosts workshops and demos about live cultivation and other subjects of direct interest to the now and future livelihoods of local craft cannabis growers.

FULL MOON LIVE RESIN HARVEST

I was invited to attend a live resin harvest in Mendocino on the first night of the full harvest moon in early October. Calvino billed the event as including "an all-star cast of terp aficionados." With one day's notice, I drove from Los Angeles through the night to meet him in the small town of Navarro at 6:30 a.m. It was an impulsive thing to do, but I couldn't pass up the chance to meet legends like hash-maker William "Kind Bill" Fenger, who'd come from Colorado to share his fresh-frozen method for making live resin. Frenchy Cannoli also was in attendance, as were several master extractors and a sampling of the best growers in Mendo, "all discussing the grading and standards for high-end refined cannabis," explained an excited Calvino. "While we're creating these markers for quality, the producers can raise the bar to those levels, to those set standards."

The interest by the gathered was discernibly intense. With flower prices falling, they feel a sense of urgency to begin utilizing the entire plant in order to derive the revenue they need to survive, and that means harvesting the sun-kissed tops famous for producing what Calvino calls "some of the best terp heads in the business. You're capturing provenance, the true expression of that thing in that space. That's the beauty of the live resin process." One can hardly argue the point. In the crisp October night, before the sun comes up, the resin

“
WE'RE TAKING SMALL, CRAFT,
ARTISANAL FARMERS, MOM-AND-
POPS, AND MOVING THEM INTO
THE BRANDING SPACE...

—Justin Calvino, about the Emerald Exchange.

”

on some of the plants nearly bubbles in the moonlight.

Live resin is popular and can retail for up to \$120 a gram, but that's just the beginning of what Mendocino has in store for lovers of fine terpenes. "We're talking about enfleurage," Calvino explained. "We're going to take pig fat from my pigs and put it into an air compressor and spray it on the plants, and then two days later go harvest the pig-fat-laden plants, press them between panes of glass, and bury them in a cannabis cellar. In six months, we'll come back and harvest the pig fat, which was the original perfume process for creating terpene extractions. It's called enfleurage."

FAMILY

Calvino was born in 1980 in Dover, New Hampshire, and raised mostly in Rhode Island, where he was an athlete in school and the smartest one in class even though he never did any work. "I always had the answer, and the teacher was like, 'Could you just write it down?'" But he was headstrong, and not long for the constraints of school. "I knew there was something different. I always had a question. I questioned everything. I was born with a critical-thinking gene." His genes told him it was time to split, and at the tender age of 16 he lit out and hitchhiked alone to California. "I left and didn't talk to my parents for six months, [because I was] embarrassed that I had left."

He wound up in Santa Cruz, lured by surfing, skating, and cannabis. Over the next four years, he made cannabis his trade. "I started selling weed in 1996 on the street at a place called hippie corner in Santa Cruz," he said. "I also worked Haight Street." A deadhead, he'd met his sources during the band's tours. They remain family to this day. "Most of the weed came from Humboldt and Boulder Creek," he recalled. "I'd hitch up to Arcata and get fronted a couple of pounds." As he learned, his ambitions grew. "From 16 to 18, I was working the streets. From 19 to 20, I was heavily involved in the trafficking part of it, from California to the east coast."

And then, when he turned 20, it all came to an end. "I went clean from 20 to 24. I met my ex-wife and had three kids. She was anti-cannabis trade, so I went back to Georgia, where I owned a land-



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scape design business.” The business thrived. “I made more money than I ever made in cannabis. I could sell a thousand pounds a month and not make as much as if I built four swimming pools.” But those heady days were not to last.

“I got divorced and sold the company,” he said. He had a few million dollars’ worth of real estate, but that didn’t last, either. “I squandered every dollar on a beautiful college chick, a new house, and an Audi. I was 27, went on a bender for two years, and walked away from everything.” Except his kids. “They had new everything. They were members of the zoo, the aquarium, the natural history museum.”

He could afford the lavish lifestyle because he had reconnected with cannabis, but something was missing. He had aspirations. His father was an “open-hearted philanthropist with no money” who had been responsible for initiating social equity programs. “My dad and my step-mom were responsible for starting the Social Venture Network, Businesses for Social Responsibility, Business Alliance for Local Living Economy,” said Calvino, explaining his activist roots. “Ben from Ben & Jerry’s was in my living room most nights. There was a real cosmic connection for creating what we now call regenerative economics: supporting local living economies within communities. So, I linked back up with all of that.”

The west coast also beckoned again. “Coming back to California, it was about how do we remediate all the waste from all these homes and turn it into energy and build houses out of it,” he said. “I started working with various social initiatives like The Esalen Institute. I was going to a lot of backdoor conferences in San Francisco, and was very active in the Bioneers (biological pioneers) movement. Basically, social movements to enact real change.”

Still, his priorities remained focused on family. Determined that his kids would not know a life without him, he spent two weeks here, two weeks there. In 2007, he moved to Mendocino, dividing his time until he could reunite his family two years later. “I didn’t move out here full-time until 2009 because of the children, but I was out here with farms and all the stuff.”

REGENERATIVE DESIGN CENTER

In 2011, Calvino founded The Regenerative Design Center in a small building on Ukiah Street in the village of Mendocino. The center serves “as a hub for new ideas and social initiatives by offering a shared office facility and a venue for meetings, workshops, events, and movie screenings.” It also functions as the fulcrum for local farmers’ markets and swap events, and a lot more.

“The idea in starting a regenerative design center was to start approaching permaculture not just in the garden, but in the community,” explained Calvino. “A lot of people are using permaculture principles and applying them to regenerative agriculture to create more abundant and less resource-intensive food systems. But food systems are the low-hanging fruit—the ones we can enter easiest but not necessarily the most impactfully.”

“Think municipal waste authorities or energy, healthcare or transportation, education or clothing,” he continued. “If you apply the permaculture principals, you have the ability to map these resources. In permaculture, you start out with a resource map: What do I have, where does it exist, how far from where I am is it, and how far is it from where it gets used? So, for instance, if I’m processing apples, I’m not going to put the apple orchards over here and the apple mill



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WE’VE GOT A REAL SHOT AT
CREATING A TRUE LOCAL
LIVING ECONOMY THAT
SUSTAINS ITSELF.

—Justin Calvino

”

way over here. I’m going to flow them through, and I’m also going to put the compost pile in a certain way so that when I’m finished picking, cleaning, and pressing the apples, I can process the waste from the apples, which includes the compost and the soil, which then goes back out to the soil through the composting process.

“You wouldn’t draw that in a line but in a circle, because it’s all coming back,” added Calvino, extrapolating the lesson another few notches. “Other things are feeding off that as well. It’s the way galaxies are designed, and the way molecules and cells are designed. All these things in nature are designed in a cyclical manner, because everything’s coming back.”

The proof is in the pudding. “The Mendocino Appellations Project was born out of the Regenerative Design Center,” said Calvino.

APPELLATIONS

“The Mendocino Appellations Project is there to create a regulation of standards,” explained Calvino, who is counting on appellations of origin to play a big role in the renaissance of Mendocino County as a celebrated source of superlative sun-grown cannabis and a destination for canna-tourists from around the world. “We talk about the plant’s epigenetic qualities coming out through their environmental factors. That is amazing and is what we want for the appellation.

“We’re collecting data on appellations, moving the research component forward so that we can begin to prove some of these unique identifiers for terroir for these regions,” he added. “We have to prove terroir to be able to claim appellation. It will take two years, but we can advertise that we’re working on it and show the progress. As the data comes in, we can start to work on all the indicators: the full terpene expression, certain strains in certain regions.”

California, which has no experience with appellations, recently hired someone to oversee the process for the state. “We’ll meet him soon, and then we’re off to the races,” said a galvanized Calvino, who explained how it will work. “The state is going to come out and say, ‘We believe a petitioned appellation is to these baseline

standards.’ They could be soil-grown, sun-grown, or sun-grown in a greenhouse.

“The state baseline is going to be the standard that applies to all regions, and then you can create as stringent a standard as you like underneath that standard,” he added. “Let’s say the state standard is 50-percent native soil and the plant spends over half its life in a non-greenhouse, outdoor environment. We could raise those standards in Albion, say, if we were to claim that it needs to be 100-percent native soil and 100-percent sun-grown.

“One of the great things about our efforts moving forward is that we are collecting data, so we can inform true appellation of origin,” he continued. “That’s what makes this process unique. Once we have appellation of origin defined, we can create these regional heritage zones, and each one of those standards for a sub-appellation can be petitioned for varieties and origin under that appellation of origin. You’ll be able to petition for an appellation for as high a standard as you like within your appellation by 2021.”

In the end, the project is a no-brainer, Calvino said. “It just makes sense to put things together like value-add appellations,” he insisted. “I think of that as a protection. No one can come in and tell us what to do in our region. That’s our space, our heritage.”

Of course, a product also needs a market. “At the end of the day,” warned Calvino, “if we can’t sell our weed, we’re nothing.”

EMERALD EXCHANGE

That’s where the Emerald Exchange and micro-branding come in. “We’re taking small, craft, artisanal farmers, mom-and-pops, and moving them into the branding space, and from the branding space into direct consumer marketing,” said Calvino, who, along with partners Michael Katz and Jessica Cure, founded the Emerald Exchange (“From Mendo to Malibu”) as a way to put NorCal sun-grown cannabis growers and their products in front of Southern California retailers and consumers. The two-day festival features a complete spectrum of immersive and engaging activities to engage the senses and the mind.

The team has big plans for the Exchange, including eventual dis-

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tribution of product from north to south. For the foreseeable future, there will be three events annually: in March and November in SoCal, and a summer event in NorCal. Overriding all of it is the intent to brand farmers by their farm into the brains of Southern California consumers.

“Micro-branding is what we do through the Emerald Exchange,” said Calvino. “It’s going amazing. We have forty-five farms that will have their own jars and separate design. We are a vehicle for them to get into the Southern California marketplace. The more market share we can get to go to traditional sun-grown farmers from Northern California, the more farmers feel called to brand themselves and to create their own cannabis line.”

Calvino can bring those who don’t want to bother with branding under the auspices of his Green Goat Estates. He currently has five farms onboard, and can accommodate about five more this year. “We’ll be making their product into cut flower, oil, and rosin,” he said.

COMMUNITY

A day or so after the live resin moonlight harvest, I drove back down the 101, unaware of the conflagrations about to sweep the NorCal area, destroying lives, homes, vineyards, and cannabis crops from Petaluma up past Ukiah and beyond. The following week, I spoke to Calvino by phone as I prepared to head back north. He had just returned from helping a grower friend in the path of the fire move his large animals off his property, only to be subject to a multi-agency raid as they were gathering the animals. “They did this because they thought we were on the farm trying to remove crop,” he

said. Ironically, the farm was one of the few in Mendocino to have already received a local permit. No matter. Under threat of arrest, the men, including the owner of the property, were ordered off before having gathered all the animals. They left with the fire only a few miles away and headed in the farm’s direction.

Fortuitously, the farm and its animals were spared, but for Calvino the raid epitomized the state of unease that exists in the county. “We’re still public enemy number one in a lot of people’s eyes and, unfortunately, they are often the people who matter—the regulators and law enforcement,” said Calvino, who cringes at the suggestion people like him need to toe the line or else. “The message that needs to be driven home is that right is relative. You’re taking a community that’s been jailed, extorted, and essentially demonized by large parts of society. We’re still a Schedule 1; still under federal prohibition. We’re still under state prohibition.

“The fact is that there are so many people who aren’t permitting because they’ve been pushed back behind these locked gates for so long that coming out makes them nervous,” he added. “And the ones that came out this year, a lot of them have been harassed and arrested. So what incentive does someone have to continue in a market that won’t support them?”

Calvino is speaking on behalf of his community, which he defines as people like him. “Of course, I’m a pebble dropped in the water to ripple out, but I believe we’re all in the same pot,” he said. “So, I see my community as people who are like myself and facing similar situations and may not have a voice at that moment.

“I include Casey O’Neill in my community, and he’s two-and-a-half hours away,” he continued. “I include Terra Carver in my com-



Justin Calvino and Michael Katz with Green Goat Estates-branded bud.



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munity, and she's over four hours away. Jesse and Chris from Terra Vida are in my community—people like myself who have stepped out into a place that might be uncomfortable to try and survive. Not someone who's riding on the backs of others, who got into the industry because they're trying to figure out a better way for themselves financially, but the people who might go away because all these people just entered in.”

ETERNAL RETURN

Calvino is just one among a multitude of individuals working to save sun-grown craft cannabis as an identifiable and quantifiable value-add in the marketplace, but neither he nor his partners seem interested in participating in the so-called green rush. “Capitalism is messed up, at best,” he said while speaking on a panel at a recent trade show, and he means it. Having erred with venture capitalists before, he is not about to make the same mistake again. He doesn't have to.

“One call, and I could have 200 pounds of cannabis down [in Los Angeles] in ten hours, and I wouldn't have to pay for it,” he said. “A VC would have to pay for it.

“We already have what we would call equity,” he continued. “We have a commodity, collateral, and a supply chain of product. We

also have land. We don't need much capital at all, in fact—just enough to start distributing the products we already have to bring money back into the space. We need startup capital to buy the cannabis we already have to put the money back into the entity to then continue to buy that cannabis.

“In other words, we need to bring on a partner who receives something immediately for their investment. What we're telling VCs now is to come buy our weed and you'll have a partner, because we'll keep growing it for you and we'll even give it to you for no money down once we open the distribution channel.”

In that scenario, the farmers will retain ultimate control of their destiny by, among other things, creating a community mill so the community can process its cannabis. If successful, and there is no reason to believe they would not be, the benefits would be incalculable.

“The goal is to use the sensational nature of cannabis to influence the whole,” said Calvino. “For people to look upon the systems that we create in a collective and cooperative manner and then recreate those systems to save the earth, to revitalize industry, to regenerate economies, and to build upon the human genius that exists within each of our communities to survive, become adaptive, intuitive, and own our power once more. It not only can happen, it will happen.”

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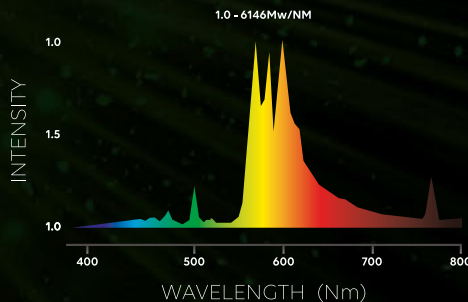
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BY ROB HILL

WHEN MICHAEL BECK was a teenager in southwest Michigan, he fell in love with the region’s rich, aromatic, untouched soil. On weekends, he explored the magical, unadulterated clays for hours. Now the international sales manager and director of marketing for Royal Gold Soils, Beck found his calling during a plant science course at Indiana University, which solidified his passion for all things dirt.

As a fledgling cannabis consumer on the fast track to becoming a connoisseur, Beck became obsessed with bettering horticultural practices through understanding and combining the principles of organic, biological, and traditional farming practices. With more than a decade of experience in research and development, quality control standards, customer support, and marketing prior to joining Royal Gold Soils ten years ago, Beck, 39, has earned a reputation as a soil crackerjack. He revels in improving gardens.



Emily's List

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FAVORITE SOIL RECIPE IS...

Vegetative Tea: 55 gallons

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220ml Emerald Goddess

110ml Honey Chome

110ml Root Wizard or 2 heaping tbsp
mycorrhizal inoculant

Bloom Tea: 55 gallons

2 liters Alaska Humisoil

1 liter earthworm castings

220ml Emerald Goddess

110ml Honey Chome

110ml King Kola

110ml Root Wizard

EmeraldHarvest.com

"Every day we receive calls from gardeners who are having issues or need support," Beck said. "And almost every time, overwatering is the primary issue."

While some farmers simply overwater a bit, damaging the growing process, others actually drown their plants. Arcata, California-based Royal Gold Soils, the original coco soil company, has developed a magic bullet for the overwatering problem: Tupur. The extremely aerated soilless blend helps maintain a balance of oxygen and water within the medium to allow proper nutrient uptake and prevent soil-borne pathogens from taking hold in a compromised root zone.

"To avoid these issues, start with a well aerated medium, and allow plants to develop a healthy root mass by utilizing two to three wet to dry cycles [respectively] before beginning a more aggressive feeding and watering program," Beck advised. "Just remember: Roots need to breathe, too."

Providing the right nutrient at the right time is essential to maximizing the potential of any crop. Beck noted the balancing act requires an understanding of the plant's needs and the processes required to meet each of those needs at just the right time. Nitrogen is crucial to building a healthy plant and creating the structure and

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EVERY DAY WE RECEIVE CALLS
FROM GARDENERS WHO ARE HAVING
ISSUES OR NEED SUPPORT.
AND ALMOST EVERY TIME,
OVERWATERING IS THE
PRIMARY ISSUE

—Michael Beck, international sales manager and director
of marketing, Royal Gold Soil

”

vegetative matter needed to prepare a plant to flower effectively. The need for that nitrogen gives way to the need for more phosphorous and potassium to create flowers after the photoperiod shift.

Another pivotal requirement is the pH. "Regardless of the nutrients available the plant cannot process them properly if the pH is not correct," said Beck. "With coco-based soils, a pH on the lower end is typically most effective. I prefer about 5.8."

"As with nutrients, biology is all about balance," he continued. "The balance between bacteria and fungus is just beginning to come to light. Short-life-cycle plants like cannabis are typically in the middle to lower end of the ecological successional scale and thrive in bacterial-dominated soils with a significant fungal presence."

A slightly acidic environment can encourage slow-growing fungi to establish in the comparatively short life cycle of a cannabis plant. Royal Gold Soils products benefit from the company's revolutionary focus on repurposing the waste of other industries. Royal Gold utilizes ingredients based on sustainability and functionality to build soils that are effective right out of the bag and can stand up to reuse, re-amendment, and long-term soil-building programs.

"We process all of the coco fiber we use at our own facility, under the watchful eyes of our dedicated staff," Beck said.

THE MICROBE WHISPERER

Founded in 1996 by agronomist and landscaper John T. Aquila, Primordial Solutions is renowned for developing a potent living compost extract as the base for its products. When mixed with water, the extract alchemizes into an "instant compost tea," said Joseph L. Johnson, chief microbe whisperer for the company. The solutions can be used as standalone nutrients or to compliment any existing nutrient regimen, organic or conventional. In fact, according to Johnson, the simple addition of Primordial Solutions's Sea Green prevents nutrient lockout in conventional growing environments, while True Blooms accelerates flowering and improves flavor.

A recent functional group analysis of True Blooms revealed a mind-boggling 71 trillion organisms per mL, reportedly making the product the most concentrated biological on the market.

Johnson, 38, noted that Sea Green, derived from fish protein



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SIZES



Big Mike's Take: What I've Learned About Soil So Far

BACK IN THE 1980S, a buddy of mine showed me a pot patch he'd found in a swamp. The plants were monsters—well over ten feet tall. I'd been growing outdoors for a while but had yet to grow beasts like these beauties. I dug my fist deep into the earth. The soil was so soft that my arm sank damn near to my shoulder. I'd never seen anything like it. I scooped up a handful of the fluffy soil, rolled it through my fingers, examined it. It was much more aerated than the soil I was used to growing in. I sniffed it. It smelled rich with nutrients.

I had to find soil like this to grow my own patches in. I drove to the county offices and made a discovery that changed the course of my life as a grower: maps that classified various types of soil within the county. I'd struck gold. There were spots all over the county with the exact same soil. Most of the spots were located along swamps and creek beds, so the soil remained moist year-round; I almost never had to water my plants.

The fluffy, black soil enabled the plants to

develop massive root systems, high in both beneficial bacteria and beneficial fungi. It was the perfect soil. In fact, the soil made it so easy on me, that after the planting phase I rarely ever had to visit the gardens. The soil did all the work for me. And just like the crop my friend had shown me, come harvest time, my plants had grown into eleven- and twelve-foot monsters loaded with heavy and healthy buds. They were unlike any plants I'd ever seen.

That's the power of soil.

Soil is a living thing, and if we work with it, we can coax it to facilitate massive growth for both our roots and our plants. Within the soil exists a symbiotic relationship between beneficial microbes and plants. Research has shown that through fungus, not only can a tree communicate with another tree, but trees hundreds of yards away from each other can communicate, and microbes can travel from one tree to another, wherever they're needed most.

Soil blends typically are composed of

several biodegrading components that provide nutritional value to the plant. These components tend to break down at different rates, making it tricky to control the plant's nutrient uptake. Depending on environmental conditions, certain components can become too available, while others break down too slowly, causing deficiencies.

Nowadays, many of the world's top growers utilize either sphagnum/peat-based mediums or coco coir. These types of mediums provide the same root protection and forgiveness of a traditional soil while giving the grower complete control over the plant's nutrition.

I've dedicated my life to the science of cannabis, and as new discoveries are being made, I will keep our community posted so we can continue to realize marijuana's full genetic potential together.

Michael Straumietis is the chief executive officer for Advanced Nutrients.

AdvancedNutrients.com

hydrolysates, is the company's best-selling product due its effectiveness and versatility in how and when to apply. Sea Green may be foliar-sprayed or watered in. As a foliar spray, the product functions as a nutrient feed; when watered into the soil or hydro reservoir, Sea Green accelerates plant nutrient uptake and prevents nutrient lockout. "There is almost no wrong way to use it or time to apply it," noted Johnson. "That is why we often jokingly ask, 'Sea Green—what can't it do?'"

PPM LEVELS, FOLIAR SPRAYING, AND RUNOFF TESTS

"I prefer soil-growing, because it mimics the natural environment and creates little waste," said Emily Chavez, growing specialist and sales manager for Emerald Harvest. Chavez, 35, grew up on lush farms in Northern California, recognizing at a young age how intrinsically the soil food web is woven into maintaining an ecosystem. Creating unnecessary pollution, she reasoned as a teenager, can become harmful very quickly. "I looked at it the same way I would poisoning my own body," she said.

Chavez has found overfeeding plants is easy, and common, when farming outdoors. Why? Because soil collects residual amounts of nutrients. In a classic hydroponic system, on the other hand, grow-

ing medium can accumulate smaller residual amounts. To avoid nutrient build-up, always do a run-off test before feeding, she advised.

"In addition to measuring ppm levels, my practice to avoid over-feeding is to rotate one feeding day followed by two water days," she said. "This feed-water-water-repeat cycle means only adding nutrients to my garden every third day."

Some growers, however, have complained about inability to achieve accurate ppm readings in their soil runoff tests. Chavez recommends mixing six to eight mL base nutrient per gallon of water and running that through the soil. Then, collect the run-off and measure its ppm. The charged ions in the tiny amount of added base nutrient will bind to any ions already in the soil and bring them into the runoff. Measure the ppm levels and then tailor the nutrient amounts in the next feeding.

MR. HEMP AND THE PRISTINE PRAIRIE LAND

When Michael Bowman, a.k.a. "Mr. Hemp," harvested his first hemp-for-CBD crop earlier this year, the rich, tangy smell hung heavy, and heavenly, in the air for weeks, he said. Its sweetness reportedly could be smelled miles away.

Bowman, 58, a fifth-generation Colorado farmer and the former chair of the National Hemp Association, has cultivated a variety of

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crops: corn, organic alfalfa, sunflowers, and dry beans, among others. Over the past decade, he has spent a great deal of time advocating the end of cannabis prohibition, specifically as related to industrial hemp.

As an avowed agriculturalist—he's worked with legendary Zimbabwean ecologist Clifford Allan Redin Savory for decades—Bowman approached his first hemp crop with an uncommon mindset. The pristine prairie land where he planted has been largely untouched by machinery, fertilizers, pesticides, or herbicides. It has, essentially, been mummified in the same state it was when the buffalo roamed. Bowman's goal: to use as few amendments as he could while maintaining a healthy crop.

"The prairie is full of trace minerals," Bowman said. "Our only application was groundwater from the Ogallala Aquifer. The plants thrived; we were thrilled with the results."


"While this experiment is one that would be hard to replicate en masse, our goal was to see if we could produce the most pristine hemp product and make it work from an economic standpoint," he continued. "I'm happy to report that we were successful on both accounts and intend to replicate the grow next year."

THE DIRTY TRUTH

To be sure, myriad factors influence optimal soil craft: technology, cost, fertilization programs, and the bottom line. Variables includ-



ing fungi, bacteria, pH, pests, water management, nematodes, and numerous other factors can make designing the ultimate utopian soil broth a mystifying coil. Think about this dizzying fact: A single teaspoon of soil may have billions of microbes divided into more than 5,000 different species. A highly sophisticated ecosystem can break down waste, cycle nutrients, convert atmospheric nitrogen into organic forms, synthesize vitamins and enzymes, and suppresses pathogens, and each of those factors is critical in allowing a plant to reach its potential.

Only one thing is sure: No one knows how soil will perform until they run a crop cycle in it. Always perform a test run or two. 

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The Trouble with Testing

FAST, ACCURATE, ETHICAL LAB TESTING REMAINS
THE HOLY GRAIL OF THE CANNABIS INDUSTRY.

BY JOANNE CACHAPERO

WITH FEWER THAN THREE MONTHS to go until recreational cannabis sales start in California, a literal patchwork of regulatory challenges looms over the market rollout. More than 500 county and city jurisdictions have implemented their own regulatory schemes for medical marijuana sales and now must comply with quickly developing state regulations. A smooth transition may be difficult, at best, for state officials, industry stakeholders, and consumers.

A bug in the works, almost literally, is the big, fat spider mite sitting in the middle of the grow room. Mr. Mite and his party-crashing friends (mealy bugs, aphids, caterpillars, etc.), happily munching away on crops, have led to a problem for legal cannabis: pesticides and other contaminants.



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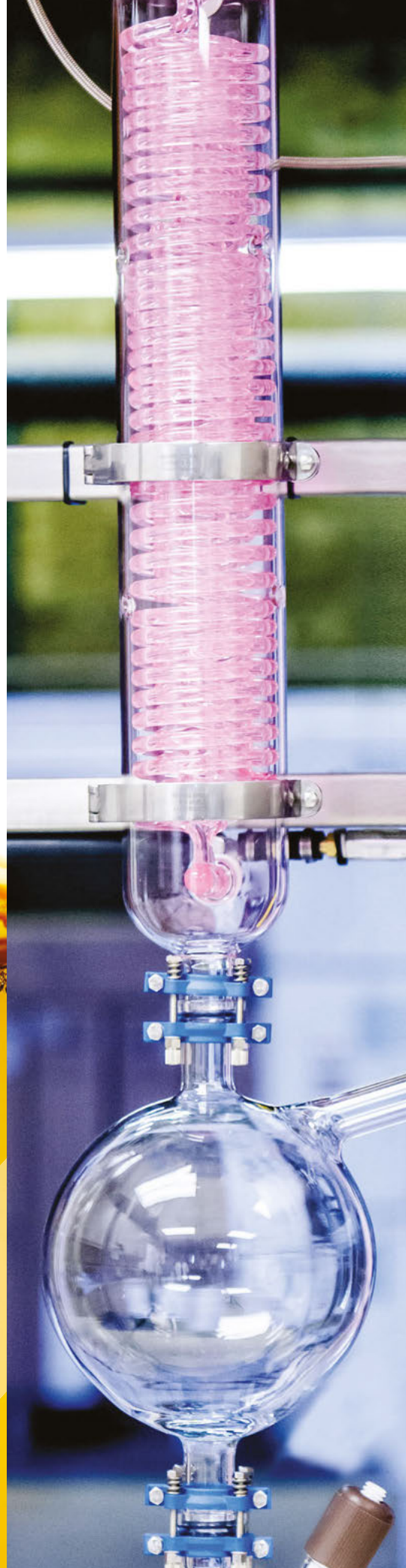


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“

**THERE SHOULD BE TESTING FOR PESTICIDES,
BUT NOT BE ANY MORE ONEROUS THAN ANY
OF THE AGRICULTURAL THRESHOLDS.**

—Steep Hill's Dr. Reggie Gaudino

”

In September, Berkeley, California-based testing facility Steep Hill Labs announced a recent study found 86 percent of tested clones showed positive for pesticides.

“The presence of pesticides in the California cannabis supply is endemic and can be sourced to the persistent presence of pesticides in clones,” the announcement stated.

In October 2016, national media attention focused on Steep Hill's announcement of results from a related month-long study. Headlines screamed 80 percent of California cannabis samples submitted for testing showed positive for pesticides, despite growers' insistence their production processes had been clean, even organic.

Steep Hill Chief Executive Officer Jmichael Keller explained the lab's research process in the most recent announcement.

“When we released the first study on pesticides in October 2016, many growers approached Steep Hill saying that they did not use pesticides, they were organic, they were trying to do the right thing for their patients and consumers,” he said. “After hearing this over and over again, we knew there was something wrong in the supply chain. It dawned on me: It's in the clones. We started formulating a plan to discover the root of the problem, because our mission is to make sure that growers have all of the tools and expertise needed to successfully pass new California regulations.

“We undertook this study to understand the concern of our clients who were also perplexed by the pesticide reports we were issuing,” Keller further stated. “The conclusions in the study indicate a significant number of failures at the clone stage. We realized that serious problems in the California cannabis supply chain could result in 2018, if the very source material from which the cannabis was being grown for large-scale production was already contaminated with pesticides failing current regulations.”

THE ROOT OF THE PROBLEM

“Unsafe types and amounts of pesticides are not required to grow cannabis,” said Hezekiah Allen, executive director for the California Growers Association. “That type of pesticide use is a symptom of unhealthy, industrial agricultural practices. Lots of cannabis is grown sustainably in California every year.”

Allen, like any other responsible cannabis grower, would like to see reasonable regulation for the cannabis industry. Ideally, well-thought-out policies and standards would put the priority on producing safe products for consumers while making sure not to overregulate, thereby driving out small businesses and farms.

“As long as regulations solve a real problem, then we don't think overregulation is possible,” Allen wrote in an email. “We have a responsibility to grow safe, sustainable products. If regs focus on those outcomes, there is no problem. The problem comes when regulations are enacted with no clear reasoning.”

Then, pointing out an issue with regulations that vary by jurisdiction, Allen added, “Our members are less concerned about the pesticide regs than they are about the failed approach to microbial contamination in the Berkeley regs that have become the norm in the last few years.”

City of Berkeley Ordinance No. 12.27.070 outlines requirements for cannabis production, including product safety, quality assurance, and labeling. The ordinance requires testing for the presence of contaminants and mandates permissible amounts of pesticides, microbial contaminants, and residual flammable solvents.

Under the Berkeley regulations, “EPA-approved pesticides commonly used in cannabis cultivation” are permissible to 100 parts per billion, or PPB. Microbial contaminants including APC4, yeast, mold, coliforms, pseudomonas, salmonella, and E. Coli are measured in CFUs, or colony-forming units, and are restricted to various acceptable levels.

Currently, the state's Department of Consumer Affairs's Bureau



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of Cannabis Control, the Department of Food and Agriculture, and the Department of Public Health are evaluating the proposed California Medical Cannabis Regulation and Safety Act and the Adult Use of Marijuana Act, which would set state standards for industry testing requirements and acceptable contaminant levels.

“There should be testing for pesticides, but not be any more onerous than any of the agricultural thresholds,” said Dr. Reggie Gaudino, Steep Hill’s vice president for Science, Genetics and Intellectual Property. “In other words, no better or worse status.”

One important point upon which industry members, experts, advocates, and lawmakers agree: Researchers should study all aspects of cannabis’s impact as a consumable crop, especially when science serves the interest of consumer safety. Properly documented research has been prevented by legal limitations at the federal level, even as legal states attempt to develop regulatory schemes, businesses are trying to move into compliance, and markets are rapidly expanding.

“Pesticide use in tobacco was banned, so there are no studies on the effects of inhalation of pesticides. There are limited studies from Europe that can provide guidance, but they limit pesticide use more than we do, generally,” Gaudino said. “GRASS is generally regarded as safe, and certain compounds in 25B will most likely to be found safe and effective as insecticides. Not all compounds, but certain categories could be helpful.

“We know where to look, but the studies need to be completed,” he added.

ROLLOUTS, RULES, AND REGULATIONS

California industry proponents also have noted Oregon’s rollout of adult-use sales in late 2016 nearly was derailed by implementation of strict rules for pesticide testing, as well as lack of accredited labs to handle the influx of crop samples needing to be tested. Weeks-long delays in test results from state-accredited labs meant some of Oregon’s 400 dispensaries had to lay off staff and were low on inventory until the issues were resolved. Oregon growers also complained about increased testing fees.

“The studies need to be done so we know what to ban completely for and inhalation impact. We would like an outright ban on myclobutanil for use on cannabis because we know it turns into cyanide gas when heated. As an industry, we must embrace supporting our ecosystem through the minimized use of pesticides,” Gaudino said.

With potentially stringent state regulations for pesticides currently under evaluation and Steep Hill’s announcement pesticides are evident at the clone level, what is a sustainable resolution for producing the safest consumer cannabis products possible and safeguarding the environment while still seeing returns on investments?

Are industrial farming methods inevitable, as demand for prod-





ucts increases? Will small growers interested in maintaining pesticide-free environment be limited to smaller-scale production by those practices, while large growers allow acceptable levels of contaminants in order to accommodate larger crops? For “organic” growers: With 86 percent of clones currently testing positive for pesticides, are there safe alternatives for stocking crops and seeds?

“The clone problem in California is clear; we suspect it is an industry-wide issue,” Steep Hill’s Gaudino said. “We know that farmers who use organic processes are better off than those who don’t. We can’t rule out ground soil or water issues.

“We have never had the opportunity to test large batches of seeds—hard to come by and expensive—[but] if someone wants to donate seeds to us in large batches, we are more than happy to study them and release our findings,” he continued. “The amount of pesticides in seeds is assumed to be very low—but we need to prove it.”

Right now, all anyone has is “an educated guess,” Gaudino added, regarding assumptions about low levels of pesticides in seeds.

For growers, avoiding the pesticide issue by implementing alternative pest-control methods increasingly may become the option of choice and most sustainable solution. Gaudino agreed, saying, “This means embracing alternate methods of protection, like integrated pest management.”

CGA’s Allen is pro-predatory-bugs for pest control and supports sustainable, healthy agricultural practices and business models. He goes farther, to recommend smallness of scale for California’s cannabis farms, which also would limit industrialization.

“Maintaining a limitation of a maximum one-acre of cultivation per farm would probably be the best way to help the most possible growers succeed,” he said.



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When Does a Cannabis Company Need a Credit and Collections Manager?

BY SAM FENSTERSTOCK

BUSINESSES OPERATING in the cannabis market soon will be able to access traditional bank credit. When this happens, every aspect of the market—grower, manufacturer, wholesaler, distributor, dispensary, and retailer—will have access to credit, provided they meet creditworthiness norms. From that point forward, the cannabis industry will change forever. In the one to two years following access to banking, exponential growth will occur and small enterprises will lose their first-move advantage to larger corporations if they do not adapt and change quickly.

Why will growth happen? Consider your current customer with \$2,000 in cash on hand. They are now only a \$2,000 customer, nothing more. But, if they can get bank credit—say, a \$5,000 credit line—they become a \$7,000 customer. Multiply that figure by the number of customers you serve, and your business will expand accordingly. At that point, the question becomes whether you sell companies the additional merchandise on credit terms or continue to require them to pay cash at time of delivery.

Customers no longer will want to pay cash on delivery, because they are creditworthy; a bank says so. After the bank approves credit, customers will want credit from you, too, so they can pay you “sometime down the road.” To get their business, you will need to extend credit, which means you will have to carry “paper” in the form of accounts receivable.

How much credit should you extend? What kind of terms should you offer: seven days, fourteen days, thirty days, or something else? You will need to make a credit decision you may not be fully equipped to make. Furthermore, as your business expands, your company will need to make credit decisions daily. Plus, you now will have accounts receivable, and with that will come delinquencies, defaults, and collections. If you want take advantage of growth, but also want to minimize your risk and reduce potential losses, you need a professional to manage the credit process. You need a credit and collections manager.

THE CREDIT AND COLLECTIONS MANAGER'S JOB

This article assumes a cannabis related business with a one-person credit department managed by the credit and collections manager. If the business grows to the extent that multiple credit personnel are needed to manage the customer portfolio, then the credit and collections manager's job expands accordingly, and supervisory and training skills come into play. We will cover these requirements in a later article; for now, let's look at the basics of establishing an initial operation on a solid foundation, so it can grow easily when necessary.

At the onset, the credit and collections manager will be responsible for the entire credit-granting process, including developing and consistently applying the company's credit policy, as well as managing and collecting the accounts receivable and the dispute-resolution process. Periodically, the credit and collections manager also will review the credit status of existing customers and be responsible for evaluating the creditworthiness of potential customers. The net result: increased sales, fewer bad debts, and a better bottom line.

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MANAGERIAL RESPONSIBILITIES

DEVELOPING A CREDIT POLICY

As credit and collections experts, it's our opinion that for the most part the management teams of most cannabis-related business are not extremely trade-credit savvy. They have never had to be. Therefore, the credit and collections manager's first job will be to develop a policy defining how the company will manage its credit and collections process and evaluate credit risk in the cannabis market. It is management's job to understand, review, and accept the new credit policy. The policy will seriously affect the way the company does business, and it is important management understand the consequences of moving from an unstructured environment to a professionally run business. (For a detailed discussion of credit policy objectives, see "Trade Credit in the Cannabis Market" in mg's May 2017 edition or online at mgRetailer.com/trade-credit-in-the-cannabis-market.) Once the new credit policy is in place, the credit and collections manager's next job will be to develop a credit application.

CREATING A CREDIT APPLICATION

The credit application provides basic information about your customer's business and is one of the primary tools available for protecting your company and controlling credit risk. Even customers who pay COD should fill out a credit application. (For a detailed discussion of the importance of a credit application, see "The Credit Application" in mg's August 2017 edition or online at mgRetailer.com/the-credit-application.)

COLLECTING ACCOUNTS RECEIVABLE

Once you begin extending credit, you will have accounts receivable that need to be managed. In corporate America, accounts receivable usually compose the largest asset on a company's balance sheet. Therefore, someone needs to pay close attention to them. One of a credit and collections manager's major roles is making sure all of the customers on credit pay within their terms. If not, the manager should be aggressive in contacting them convincing them to pay the overdue amount.

MANAGING RELATIONSHIPS WITH COLLECTION AGENCIES

No matter how proficient the credit and collections manager, he or she is not going to collect all monies due when they are due. Some accounts will become seriously past-due, and you'll need to employ a collection agency. Evaluating and employing the right agency for your business is both an art and a science, and the credit and collections manager's knowledge of the collection agency universe will be an important factor in selecting the right agency for your company. Once an agency is employed, the credit and collections manager will be responsible for evaluating performance and making sure your company is receiving as many as possible of the dollars turned over to the agency.

OPERATIONAL RESPONSIBILITIES

MAINTAINING THE CORPORATE CREDIT POLICY

The corporate credit policy should not be a static document. Business and the economy are dynamic processes, and the corporate credit policy must keep up with the sales environment. This is the credit and collections manager's responsibility. The article mentioned above, "Trade Credit in the Cannabis Market," discusses this topic at length.

MAINTAINING CUSTOMER CREDIT FILES

Each customer's credit file should contain all the information about your company's interaction with that customer, including comments about any personal, email, or telephone communication. Additionally, the file should contain information about the customer's credit status—for example, whether they are on credit hold or in collection. Many software applications are available to help with record-keeping. As most of the products are cloud-based, the information will be readily available to every employee who needs the information. The credit and collections manager is responsible for evaluating the various system alternatives and making sure once a system is installed it is properly used and maintained.

REVIEWING AND UPDATING CREDIT LIMITS

The credit and collections manager is the company's risk manager. Customers' ability to pay may vary over time. To maximize the bottom line, credit extended to low-risk customers should be increased periodically and credit extended to higher-risk customers should be reduced. Credit risk evaluation is an ongoing process. Only by routine reviews of customers' account activity can the credit and collections manager advise the sales force and take remedial action before accounts become seriously delinquent.

MONITORING CUSTOMERS' DEDUCTIONS AND DISPUTES

A deduction is a credit your customer applies to an outstanding invoice without your approval. Disputes are amounts not paid because a customer disagrees with all or part of a bill. Some deductions and disputes are justified; some are not. It is the credit and collections manager's responsibility to ensure deductions and disputes are justified. Given there are third-party companies whose entire business is settling deductions and disputes, you can be sure unresolved issues may seriously affect a company's bottom line.

COMMUNICATING WITH MANAGEMENT

In a small company, communication is vital. Credit and collections managers must make sure management is aware of the company's financial health. Developing management reports to convey the information is important, but providing information management doesn't want or need is a waste of resources. The credit and collections manager should sit down with management and discuss what

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needs to be reported and then deliver the appropriate reports on a regular basis. Only in this way can both the company and the credit and collections manager's performance can properly be evaluated.

CREDIT AND COLLECTIONS MANAGER'S PREVIOUS EXPERIENCE

A credit and collections manager needs a specific skill-set. Aside from previous experience in common-to-the-position tasks, personal chemistry is important. No matter how qualified an applicant, if management does not feel comfortable things will not go well. Make sure the individual you hire is somebody with whom both you and your customers can work.

Aside from that, basic qualifications for the position include:


- ▶ Strong computer skills, not only with basic programs like Microsoft Word and Excel, but also with installing and integrating credit and accounting applications.
- ▶ A degree in accounting, finance, or a related field.
- ▶ At least five years' experience in credit-related functions.
- ▶ Experience dealing with credit reporting agencies.
- ▶ Experience with personal guarantees.
- ▶ An ability to communicate effectively both in writing and in person.

- ▶ Good management skills.
- ▶ Good interpersonal skills.

CONCLUSION

When credit becomes available to the cannabis industry, mom-and-pop shops, small business, and large companies will be seriously affected. Risk-management will be imperative, so the credit-granting function should be turned over to a professional. In a small business like most cannabis companies, the credit and collections manager performs a vital function. How well they perform may mean the difference between a successful business and a failed operation.

The responsibilities outlined above are the basics. As the business grows, the credit and collections manager's duties will increase accordingly. Management, supervisory, and training skills will come into play when more than one credit and collections person is required, and eventually an accounts receivable manager will be necessary.

In a future article, we will discuss the accounts receivable manager position in addition to the basics of setting up an accounting department and selecting an accounting system. 



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SF-BASED CROWDFUNDER YOUCARING PULLS THE PLUG ON CALIFORNIA GROWERS ASSOCIATION FUND FOR FIRE VICTIMS.

TRYING NOT TO BE ANGRY. Was just informed by the payment processor for the wildfire relief fund that they have reversed the payments because they can't process 'cannabis transactions.' I didn't realize contributions to wildfire recovery were considered 'cannabis transactions.'"

That's what Hezekiah Allen, executive director for the California Growers Association, posted on Facebook after San Francisco-based crowdfunding platform YouCaring shut down CGA's donation page for victims of major wildfires blazing in Northern California.

With the more than 100,000-acre wildfires still not fully contained and ashes smoldering in burned-out areas, nonprofit industry payment processor WePay said it axed the campaign for violating its terms of service, which do not allow cannabis-related transactions.

Obstacles will not stop cannabis industry fundraisers, benefits, and relief efforts to help those affected by what may be the biggest fire disaster in California history. Initial loss estimates are in the billions, and cannabis business owners are without federal emergency relief funds or business insurance due to federal prohibitions on cannabis.

Adding to the burden for affected growers in fire-decimated Sonoma, Mendocino, Napa, and other counties, the fires occurred mid-harvest, less than three months before recreational sales were to start.

Andrew Lopes's Santa Rosa-based Mystic Springs Farms burned down to two crumbling chimneystacks. He lost his entire operation, including 2,500 pounds of harvested cannabis, 900 plants, \$10,000 in cash (that was not secure in a bank—again, due to federal prohibition and restrictions on cannabis transactions), vehicles, equipment, and an eighteenth-century farmhouse. He said he plans to rebuild.

After YouCaring and WePay shut down the fundraiser, CGA created a donation page on its website to accept contributions. The goal: \$25,000 to aid industry fire victims.

CGA partnered for the fundraising effort with California Growers Association-Sonoma County, Cannabis Alliance-Mendocino County, Growers Association-Humboldt County, Growers Alliance-Nevada County, and the Cannabis Alliance; more fundraising partners are expected to join the cause. "One hundred of donations will go to those in need."


Two weeks after the fires started, Allen told media outlets thirty-four cannabis farms had been extensively damaged. No specific number of cannabis industry members affected by loss of housing, property, or resources had been determined by late October. Media outlets reported a lack of temporary housing in the burn areas as evacuation orders were suspended, shelters closed, and residents returned to burned-out homes and businesses.

In Sonoma County alone, twenty-five farms were destroyed, according to Allen, as well as three cannabis manufacturing businesses. Cannacraft, one of the larger manufacturers in Sonoma County, said fifteen of its greenhouses were destroyed. An estimated 5,000 cannabis farms call Sonoma home.

Allen also pointed out that while larger farms and manufacturers might be able to recover from extensive losses, many smaller cannabis farms and businesses already had been stretched financially by acquiring licenses before the launch of recreational sales in January. They might not weather the firestorm, he said.

News of YouCaring and WePay's refusal to host the crowdfunder garnered national attention.

"We can process payments for campaigns to support victims of the Northern California fires, but not to support victims' cannabis crops," WePay head of marketing Jeremy Milk told CNN.

No explanation for the fires or their ferocity had been determined by late October, though theories ranged from downed power lines to climate change to overgrown brush. CalFire confirmed forty fatalities and said more than 5,700 structures were destroyed. Full containment of the wildfires was not expected until November 1. 

—Joanne Cachapero

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Smoke and Ash Adulteration of Cannabis and How to Remediate

BY DR. DONALD LAND AND KYMRON DECESARE, STEEP HILL LABS

In response to last month's devastating fires in Northern California and other parts of the state, Steep Hill prepared the following report to respond to questions on how to better understand best practices in handling smoke/ash-tainted product.

SMOKE IS COMPOSED of many substances, varying in structure and concentration dependent on smoke source. Smoke vapor comprises inorganic gases and volatile/semi-volatile organic compounds. Particulate matter detrimental to human health also is present in smoke. These compounds travel through the atmosphere at short and long distances and accumulate on crops.

The presence of these compounds in wildfire smoke is highly variable due to the variety and composition of available fuel sources. As plant species differ, the chemical composition of tissue/wood cannot be explicitly defined. Forest wood is predominantly lignin, cellulose, and hemicellulose; minor compound classes found in forest wood are volatile oils, terpenes, aliphatic fatty acids, proteins, and phenolic compounds. However, wood is a minor fuel in typical forest fires; bark, twigs, and leaves burn away, but most of the wood remains. Shrubs, grasses, and organic matter burn as major fuel sources in forest fires.

The absorption of all these particulates results in "smoke taint" of outdoor crops. Polluted crops are described as smoky, dirty, burnt, and impart aromas of smoked meat. The level of smoke taint in grapes and wine is measured via the identification and quantification of primary markers guaiacol and 4-methylguaiacol. Guaiacol accumulates

within the plant, causing levels to increase within fruiting grape plants after fire events occur. The presence of guaiacols in wines produces unpalatable aromas and taste deficiencies. These markers have not been used for identification of smoke contamination of cannabis products.

SMOKE AND PARTICULATE ADULTERATION OF CANNABIS

Smoke also contains particulate matter and other chemicals, including carbon monoxide, nitrogen oxides, carbon dioxide, ozone, and sulfur oxides. These components damage plant biochemical processes: Ozone stunts plant growth, sulfur dioxide results in necrotic lesions, and nitrogen oxides affect cellular and whole-plant metabolism. Photosynthesis is reduced with heavy smoke exposure and a high concentration of particulate matter. Both acute and prolonged smoke exposure reduces photosynthetic rates and photosynthetic capacity of various plant species. Smoke exposure reduces stomatal conductance, intercellular CO₂ concentration, and CO₂ assimilation rate.

Soil particles are carried by wildfire-generated air currents, adding to the mass of contaminants in the air. Burning rates and intensities of soils vary according to ground-cover composition, moisture content, and soil porosity. Alteration of soil structure is

observable and correlates with fire severity. Loss of organic matter on the forest floor increases runoff and erosion; these effects are exacerbated if substantial changes in vegetation density occur. Loss of structural aggregate stability (ability of soil particles to bind and resist detachment) occurs after fire events, resulting in powdery, loose soil. Water conductivity, soil pH, and electrical conductance (EC) are changed by wildfires. Mineral levels and available organic matter can increase after fire events. These factors influence biodiversity and population density of soil microbes, generating short- and long-term effects on rhizospheric ecosystems.

Use of air-dropped fire retardants increases the complexity of smoke and particulate contamination. Red slurry is made primarily of phosphate and sulfate salts with iron pigments and other minor chemicals. These inorganic chemicals quickly alter water chemistry, often resulting in fish kills, and persist in the air. Although such products are toxic to aquatic organisms, their use generally is considered harmless to humans and land animals. However, no published studies assess the dangers of cannabis contaminated with these compounds.

CONCERNS AND REMEDIATION

The unfortunate news: Once contaminated in this way, clean-up is extremely difficult and very expensive. Cannabis polluted by wildfire smoke exposure results in reduced product quality and lowered price per pound. Smoke taint destroys product. Any smoke-tainted product must be remediated, to the best of your ability, before entering the market.

Conduct visual and olfactory evaluations of flower buds. How damaged are your flowers? Is there a discernable smoke smell? Are buds covered in soot or other visible particulates? Tap or shake colas over a clean sheet of paper. If visible particulate and ash fall onto the surface, flowers are heavily contaminated with particulates.

The largest issue is poor-tasting flowers due to the stickiness of smoke particles. Smoke- and ash-adulterated flowers may be converted to oils via extraction and refinement processes. Manufacturing methods

CULTIVATION BUILDINGS FOR SALE

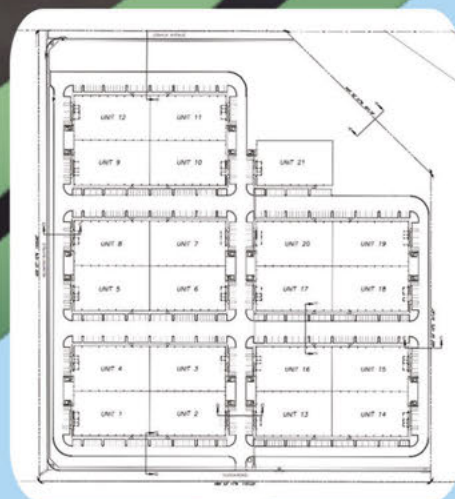
These 29,925 sqft Industrial condos are all in a 24/7/365 day guard gated complex and all come with approved conditional use permits for cultivation, extraction, manufacturing, and testing. Each unit provides ample space to accommodate the 22,000 sqft max allotted canopy space permitted by law, along with 2500AMP - 3 phase - 480V power that is ready NOW! Dont miss out on this opportunity to be one of the 1st to get your business up and running!

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are key, as some extractions will amplify smoky flavors.

Those with smoke allergies may experience hypersensitive responses when consuming smoke-contaminated cannabis, especially via inhalation. Smoke particulates on flowers can promote growth of unwanted and dangerous yeasts and molds. We strongly caution cultivators and manufacturers against further adulterating product with solvents and cleaners in an attempt to strip particulates. Application of chemicals to flower to remove ash and/or odor is a risky endeavor; little to no research is available on smoke-tainted cannabis flower remediation via chemical washes. If compelled to follow this route, test before applying to the entire crop. Record the trials and submit your final product to a lab to determine success of treatment, consumer safety, etc.

Use of fire retardants near or on cultivation sites or water sources can be risky for consumers and patients. Monitor ammonia and nitrate concentrations in wells and waterways for several months after a fire event.


MANAGEMENT OPTIONS AND TECHNICAL EXPLANATIONS

1. Exclude leaf material; defoliate. Leaf material might contribute smoke-related characteristics.
2. Filter and refine. Multiple methods may be necessary to generate the desired effect. Remove particles during extraction processes.

3. Use in “smoky” or “spicy” edibles. Leverage smoke-tainted character via manufacture of suitable products.
4. Market for quick sale. Avoid sale to susceptible populations and patients. Smoke-related characteristics can evolve in storage.
5. Activate crop insurance. The California Department of Insurance tracks insurance availability for the cannabis industry:

[Insurance.ca.gov](https://insurance.ca.gov)
(800) 927-4357

info.cannabis@insurance.ca.gov

DR. DONALD LAND is the chief scientific consultant for Steep Hill Labs and a professor of chemistry at the University of California, Davis. REV. DR. KYMRON DECESARE is chief scientific research and patient advocate for Steep Hill. Steep Hill is one of the world's leading cannabis science and technology companies with significant footprints in lab testing, research and development, licensing, genetics, and remote testing. 

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Marketplace Intelligence

CALIFORNIA

In 2017, BDS Analytics began tracking retail sales activity at dispensaries and delivery services in California. The data captured by BDS Analytics comes from Point of Sale systems at hundreds of dispensaries, and uses statistical modeling to extrapolate sales for all dispensaries in the market.

DID YOU KNOW?

Dispensaries and delivery services in California generated a combined \$1.37 billion in sales while Colorado's established market of both medical and recreational dispensaries achieved \$1.36 billion in sales in the 12 months ending in July of 2017.

FLOWER

Like in other states, flower is the largest category of sales contributing 55 percent of total revenue between March and August. Despite significant cultivation in California, dispensaries in the state charge more for flower/bud than in Colorado, Oregon, or Washington. In the six months ending August, the average retail price for a gram of flower was \$9.27 (pre-tax).



CONCENTRATES

Whereas concentrates grew into a major category in Colorado, California dispensaries already derive 25 percent of sales from concentrates. Where Californians differ from Coloradans is in their love of vaping. Vape products command two-thirds of all concentrate sales in California, dabbable concentrates like shatter and wax are far less significant.



EDIBLES

With 12 percent of revenues coming from edibles, California is similar to Colorado and Oregon. Like the other states, candy is the largest sub-category within edibles, but chocolates enjoy a greater slice of the edibles pie than in the other states.

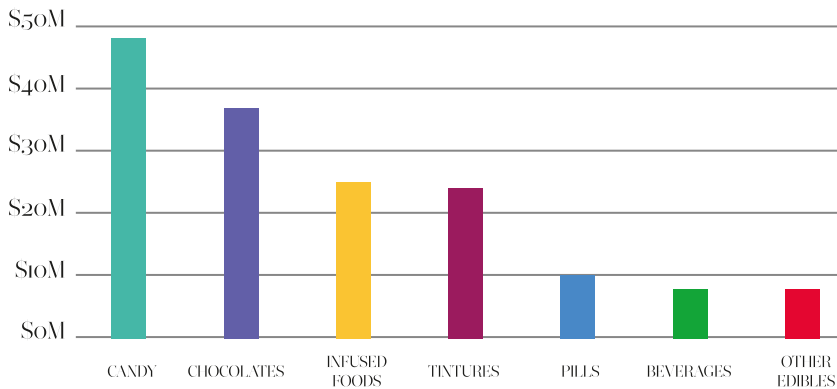
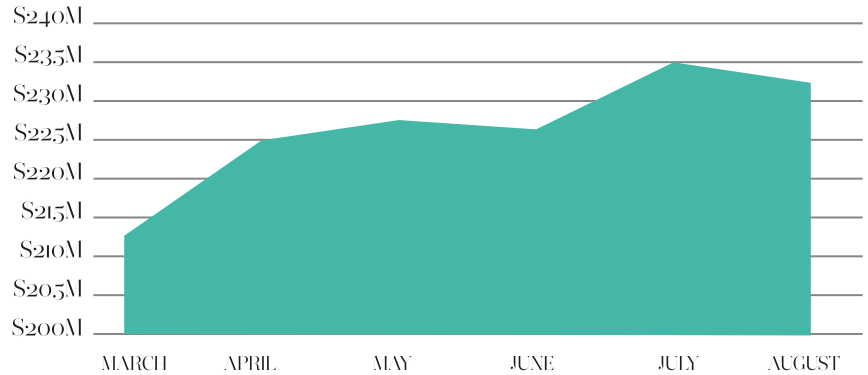


CONCLUSION

California is the big prize in the cannabis market and the competition is primed to explode in 2018. As recreational sales become legal and competition increases, prices will inevitably fall, which will entice more people to purchase cannabis through dispensaries. One thing is for sure; we are in for an exciting ride.

CALIFORNIA SALES (MARCH-AUGUST 2017)

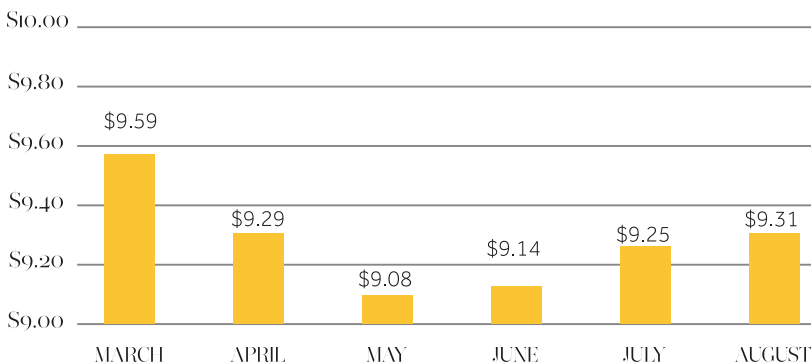
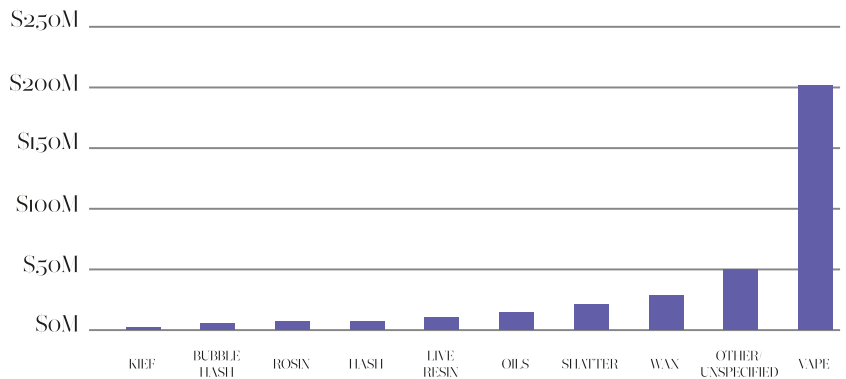
TOTAL SALES:
\$1.37 BILLION



EDIBLES SALES (MARCH-AUGUST 2017)



CONCENTRATES SALES (MARCH-AUGUST 2017)



FLOWER SALES AVERAGE PRICE PER GRAM (PRE-TAX)



SOURCE: BDS Analytics bdsanalytics.com

BDS Analytics aims to drive the cannabis sector to thrive with well-informed decisions based on factual data. By capturing millions of transactions from dispensary point-of-sale systems they provide actionable insights based on accurate information enabling dispensaries, brands, and growers to sustain their success.



Michelle Farina

FLORAMEDEX GENERAL MANAGER MICHELLE FARINA ON MANAGING STAFF, FINDING THE RIGHT PATIENT CARE SPECIALISTS, AND WHAT DRIVES PURCHASING DECISIONS.

OFTEN DUBBED “ILLINOIS’S PREMIER DISPENSARY,” FloraMedex is located in the tiny Chicago suburb of Elmwood Park, in a historic Industrial Revolution-era building boasting exposed-brick, industrial architecture. When Michelle Farina first saw the loft-style mixed-use facility populated by a top-notch group of doctors, nurses, pharmacists, hospice care, and medical billing specialists, she knew managing the cannabis dispensary was the job for her.

Farina arrives at the office by 9:45 a.m. and stocks products before opening the store. Keeping track of inventory can be a tedious process, but it’s made easier by Biotrack. “We also conduct a complete inventory of all the products in the store, which is cross referenced with the state monitoring system,” she said. “We then open the doors and commence servicing our patients. At the end of the day, we reconcile our sales and close the registers.”

Farina said sales are brisk, up 8 percent since launch and growing month-on-month. FloraMedex’s patient-care specialists are expertly trained, and with an astute staff, Farina’s management philosophy is simple: provide full support to her peers and excellent service to her patients. “I like to ensure that all employees are trained to the highest level of standards, which I also hold myself accountable, to effectively operate the dispensary.”

On most days, Farina can be found educating, informing, and helping women between the ages of 40 and 60 who are afflicted by fibromyalgia, rheumatoid arthritis, and various forms of cancer. She typically serves 10-15

The Ups and Downs of Being a GM in Illinois

STIGMA

Overcoming the stigma related to cannabis is a big challenge when dealing with government regulators and banking institutions hesitant to finance businesses in the industry.

SLOW GROWTH

Medical marijuana patients in Illinois were slow to embrace the statewide medical marijuana pilot program in early 2016, thus creating financial challenges as dispensaries worked to develop a base of customers.

PATIENTS

At the end of 2016, about 14,770 patients in Illinois qualified for the medical program and spent about \$36.27 million at dispensaries, according to state figures. To begin 2016, about 4,000 patients were approved for the pilot program. Patients bought about \$8 million worth of cannabis in August, the most recent month reported by the state.

THE COURTS

Courts have ordered the state to add or consider adding seven

new qualifying medical conditions—including common ailments like migraine headaches, osteoarthritis, and intractable pain—to the list of forty-one already approved.

RECREATIONAL AROUND THE CORNER?

On March 22, state lawmakers introduced SB 316, which would end marijuana prohibition in Illinois and establish a system under which marijuana is regulated and taxed for recreational use.



“

I LIKE TO ENSURE THAT ALL EMPLOYEES ARE TRAINED TO THE HIGHEST LEVEL OF STANDARDS, WHICH I HOLD MYSELF ACCOUNTABLE, TO EFFECTIVELY OPERATE THE DISPENSARY.

—Michelle Farina

”

patients a day. Illinois is a new medical market, with many older, uneducated patients, so Farina and her crew have their work cut out for them as they educate patients for the first time about the benefits of cannabis medicine. For instance, while some patients think a high THC total is best medicine for them, many lower THC options that are high in CBD are more effective treatments.

To cover all the ground thoroughly, Farina's patient-care specialists go through sixteen hours of training prior to serving any patients. This is unheard of in Illinois, she said. “Plus, they have eight hours of continuing education every quarter,” she added. She's especially proud of the shop's reputation. Reviews on WeedMaps or Leafly begin with “the place was spotless and the employees very helpful” or “the staff are incredible. I was greeted like an old friend and whisked away into a beautifully decorated, warm loft. I felt like I was immediately at home.”

As well as managing a staff of eight, Farina must stay up to date about all the regulatory and compliance laws and state trends. For example, cultivators in Illinois now partner with product producers



to create new delivery methods. She also spends a good deal of time meeting with vendors, looking for the next hot product. The shop's sales breakdown is 55-percent flower to 45-percent vapes and edibles. Some of the most popular brands include Progressive Treatment Solutions, GoldLeaf, and Cresco. Right now, she can't keep the Brownie Pops in stock. “I believe the price point, coupled with the potency, make it a very attractive product,” she said with a wide smile.

Farina likes to remind her employees the key to doing their job well is passion. Her thinking: It's easy to excel in any workplace if you're doing something you truly love to do. She said she sometimes works a full shift and watches a two-hour cannabis summit after hours. “What can I say? I love what I do,” she said with a chuckle.

The love shines through. Farina has a reputation for discovering cultivators who go the extra mile and attach terpene profiles to the laboratory results. Although she knows the importance of terpene profiles in medicine, a lot of her customers don't even know what a terpene is. “One of my favorite parts of the plant are the different terpenes,” she said. —Rob Hill

Hard Goods

1. SMOKUS FOCUS MAGNIFYING LED CONTAINERS

Show off flower with a unique presentation. Smokus Focus jars' patented technology combines magnifying lenses and super-bright LED light. The pocket-sized stash keeps you mobile. The deluxe Escojar model is perfect for dispensary shelves: premium glass body, dual magnification, and twelve white LED lights. Discounts for purchases of ten or more. **SMOKUSFOCUS.COM**



2. MJ'S ARSENAL ORIGINAL DUBBLER JOINT AND BLUNT BUBBLER

The special-edition Dubble takes the original Martian™ Joint, Blunt, and Cone Bubbler™ concept to another galaxy. Enjoy all the same benefits of The Martian™ with double the rip and twice the pull. Fits perfectly with most cones and rolled products.

MJSARSENAL.COM



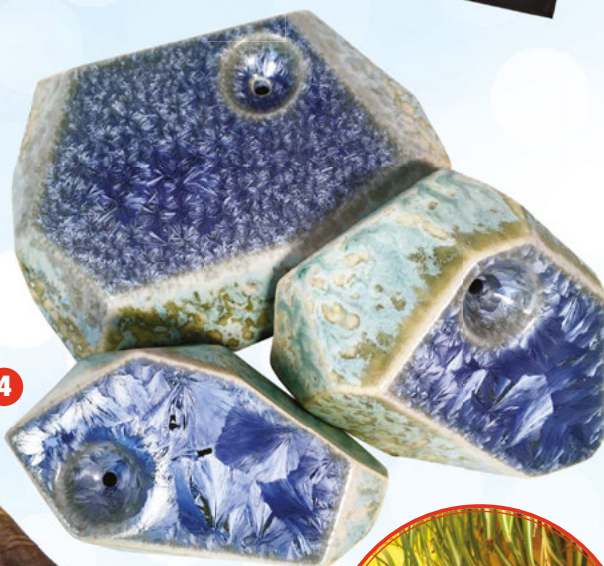
3. THE BUDTENDER SOCIETY CANNABIS CAREERS T-SHIRT

Celebrate the cannabis economy and community. With recreational cannabis on the rise, people everywhere are able to turn their passion for cannabis into a full-on career. Not to mention the electricians, plumbers, engineers, and more, now booked up due to the surge in the ever-growing cannabis industry. Be proud.

BUDTENDERSOCIETY.COM

4. STONEDWARE COMPANY GEOMETRIC PIPES

Artist Ariel Zimman combines geometric forms and function in her line of GeoPipes. Created in natural crystals and porcelain with food-grade ceramic glazes and 22-karat gold finishes, these functional pipes also are meant to be a showpiece for your home. Individually crafted; custom orders available. **STONEDWARECOMPANY.COM**



5. KAVATZKA POUCHES

Everything you need for the perfect rolling experience, when you're on the roll. Kavatzka pouches were made for king-size rolls—any time, any place. With a snap, the pouch unfurls and everything you need is right at hand. Organized storage has space for papers, flower, lighter, and rolling accessories. **ORIGINALKAVATZKA.COM**



Horticulture & Growing



1



2

1. AI -20°C TO 99°C 7L-CAPACITY COMPACT RECIRCULATING CHILLER 110V

This compressor-based recirculating chiller is quiet and easy to use. A powerful force/suction pump provides constant flow rates, while a microprocessor PID maintains precise temperature.

ACROSSINTERNATIONAL.COM

2. PRIMORDIAL SOLUTIONS SEA GREEN

The Sea Green line increases nutrient uptake, soil conditioning, and plant vigor in all stages from rooting to fruiting. Available in sizes from two ounces to five gallons. The natural plant nutrient products offered by Primordial Solutions improve plant purity and increase volume and quality while cutting the cost of production.

PRIMORDIALSOLUTIONS.COM



3

3. AIRNUGZ

Airganics offers AIRNUGZ filtration units for greenhouse odor control. The full line features proprietary DUAC filter technology, designed to eliminate organic odors from plants, fertilizers, mold, scents, and food. Larger units come in wheeled and hand-truck styles for easy moving. Airganics will create custom configurations. **AIRGANICSUSA.COM**



4

4. PROKURE1 DISINFECTION AND DEODORIZING SYSTEM

The ProKure1 System is an evolution in professional-grade odor and pathogen control. No need for bleach or harsh chemicals. The company claims the system is an ecological solution that saves time and eliminates the need for other products. **PROKURE1.COM**



5

5. ELEVATION ORGANICS

Elevation Organics nutrients are formulated to enhance natural flavors and aromas while increasing bud sites and yields. Liquid and dry nutrients encourage healthy plants without disrupting the delicate balance required for healthy, productive plants. Other organic products include soil amendments and growing medium.

ELEVATIONORGANICS.COM



6

6. DOSATRON SOLUTIONS CHEMICAL INJECTORS

Dosatron Inc.'s eponymous chemical injectors are water-powered, so no electricity is necessary. Simple to use and easy to maintain, the Dosatron provides infinitely adjustable dosage rates, pulling up solution like a syringe and displacing it into the body of the machine, where it mixes with the incoming water. **DOSATRONUSA.COM**

Psychoactive

1. CANNADIPS

Humboldt-based Cannadips provides THC and CBD in patent-pending blends that patients can enjoy via sublingual absorption. A pouch between the cheek and jaw gives the efficacy of smoking (less than ten minutes) without the smoke. Discreet, odorless, and spit-less; all ingredients are lab-tested. THC and CBD blends come in 150mg dosage and in American, mint, and citrus flavors. An impressive line of logo baseball caps makes Cannadips not just a product, but also a lifestyle. #DipIntoLife. CANNADIPS.COM



1

2. ACCUVAPE V.STICK

The AccuVape V.Stick personal oil vaporizer offers customers the ability to enjoy organic herbal supplement oil or even a private blend. Users control the contents and quality with each interchangeable, refillable cartridge. Automatic; shuts off in eight seconds for a “perfect puff.” Super-sleek design has no buttons, dials, or movable parts. Lifetime warranty on battery. ACCUVAPE.NET



2

3. INCREDIBLE WELLNESS A BETTER VAPE

incredibles describes its natural-flavored ePen as “as clean as they come.” Formulated using THC distillate to provide the smoothest taste that pampers users’ minds while delivering relief in a convenient, discreet pen. In medical and recreational blended formulations, featuring various ratios of THC to CBD. Packaged for dispensary and retail sale in an attractive, clean, logo-branded box. Dosage is approximately 2mg per draw. The ePen is one of several items in the incredible Wellness products line. Ingredients are gluten-free and sustainably sourced. ILOVEINCREDIBLES.COM



3

4. BUENA VISTA PRE-ROLLS

Buena Vista offers strain-specific, whole flower premium rolls with flower sourced from an exclusive network of artisan cultivators in Northern California. Wrapped in unbleached Dutch cones, premium rolls are sealed with Boveda™ two-way humidity control technology to retain exceptional potency, flavor & aroma. A box of Buena Vista contains five half-gram premium rolls. BUENAVISTAPREROLL.COM



4

5. MINDY'S KEY LIME HARD SWEETS

Mindy's Edibles Key Lime Hard Sweets bring tangy, tart lime flavor, and a hint of tropical passion fruit to sublingual absorption. Created by James Beard award-winning pastry chef and Mistress of Deliciousness, Mindy Segal. Each candy has 10mg THC dosage, and come in handy tins containing ten pieces. MINDYSEDIBLES.COM



5

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TINS



PRE ROLLS



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www.HUXTONUSA.com

Non-Psychoactive

1. LEAF OF LIFE MANGO KUSH TERPENE LOZENGES

These tasty lozenges deliver a complex terpene blend for enjoyment and wellbeing. Myrcene and other terpenes are said to be effective for treating inflammation as well as pain; it also serves as an antibiotic and anti-mutagenic, and provides a mild sedative effect. The lozenges mimic the effects of Mango Kush strain. Presented in a convenient carrying tin. LEAFOFLIFEWELLNESS.ORG



2. FIDDLER'S GREENS RAW TINCTURE

Instead of using harsh chemicals to extract cannabinoids, Fiddler's Greens uses a centuries-old, no-heat infusion process to produce its tinctures. This allows cannabinoids to remain in their raw, or acidic, form and preserves the terpene profiles. Four unique cannabis strains with unique cannabinoid and terpene profiles provide a variety of treatment options for better sleep, less pain, or a calming effect. Each strain is available in organic extra virgin olive oil or organic cane alcohol. FIDDLERS-GREENS.COM



3. GIGGLE THERAPEUTICS

Fun THCA-isolate "frosting" in a 90-percent pure formulation can be eaten or smoked, offering patients variety in treating inflammation and muscle spasms. Chewable THCA-infused vitamin C tablets—organic, vegan, and gluten-free—come in a 10mg dose. Rosehips contribute to boost Vitamin C, and cordyceps helps promote a healthy immune system. GIGGLETHERAPEUTICS.COM

4. NANNAJUANAS SKIN AND HAIR CARE PRODUCTS

Nannajuanas skin and hair care products contain the company's own "hempmollient," a trademarked blend of organic hemp oil and other high quality emollients, blended exclusively to create their natural skin and hair care line. Egyptian Beauty Body Butter, Ginseng Derma Rescue, and Wrinkle Fighting Reformer are a few of their hemp-infused skincare products. Nannajuanas also offers lip balms, as well as hair detoxifier and revitalizer products. No GMOs, gluten-free, Vegan-friendly, fragrance-free, and PETA-certified with no animal testing. AJUANAS.COM





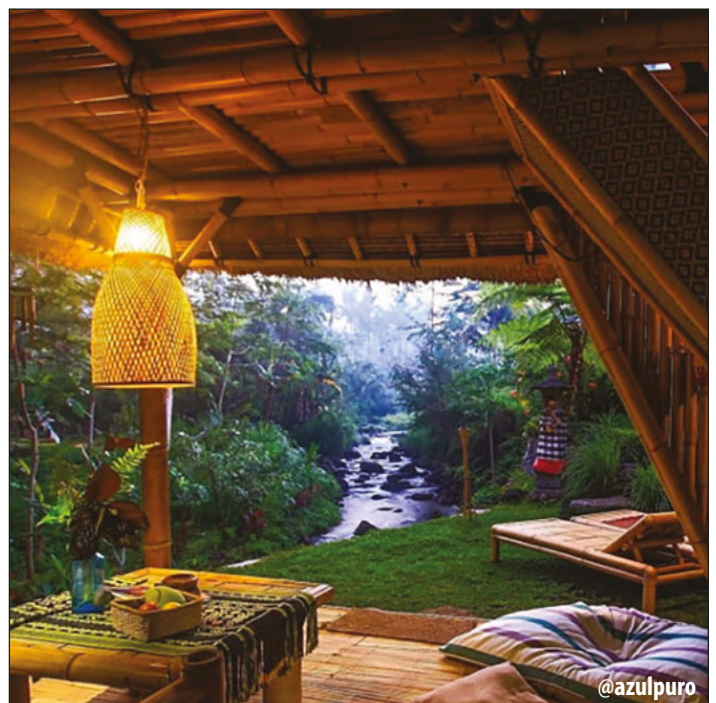
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**STEVE KIRSH, FOUNDER
AND MANAGING PARTNER
OF KINDKHAMELEON,
RECOMMENDS...**

EDIBLE

Flour Child (FlourChild.org) is retro but with a clever and modern twist. I enjoy their seasonal jams and granola. Small batch, organically sourced fruit made with sustainable growing practices. I also like **Treat Yourself** (TreatYourselfInc.com). They combine two of my favorite treats, cannabis and pop tarts, that are organic and gluten free.

VAPE

The EVO from **VapeXhale** (vapexhale.com) is smooth, aromatic, and efficient, with a beautiful design. The **V2Pro Series3x** from **V2** (v2.com) is pricey, but I love the colors, design, performance, and that it's a three-in-one vape pen with interchangeable atomizer options.

CBD

The **CBD Peppermint Tincture** from **Essential Cannabidiol Solutions** (CbdOilBuy.com) is effective, pure, and delicious. The **Releaf Patch** from **Papa & Barkley** (PapaAndBarkley.com) is an ideal on-the-go remedy that has really helped my chronic neck pain.

FLOWER

Kosher Tangie is a 60/40 indica dominant hybrid that keeps me balanced, calm, and content. **Grapefruit** is potent with a rich aroma and flavor that takes the edge off while keeping me going.

BRAND

Mellows (GetMellows.com) is a delight in every bite. Beautifully packaged and sensibly priced, these 5mg marshmallows are my go-to dinner party or hostess gift. Each box contains twelve decorated marshmallows.

DISPENSARY

Harvest in San Francisco (HarvestShop.com) is well curated and beautifully designed; this is where adult-use retail is heading. I love their hidden lounge space for hosting parties and events. **Medithrive Mission** (MediThrive.com) has an inviting environment with wicked-cool visual displays, located in one of my favorite Bay Area neighborhoods.

KindKhameleon is a full-service branding and design agency guiding cannabis entrepreneurs looking to develop a memorable, inspiring, and differentiated brand with a higher purpose. KindKhameleon.com

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