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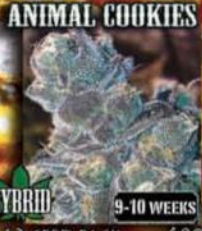
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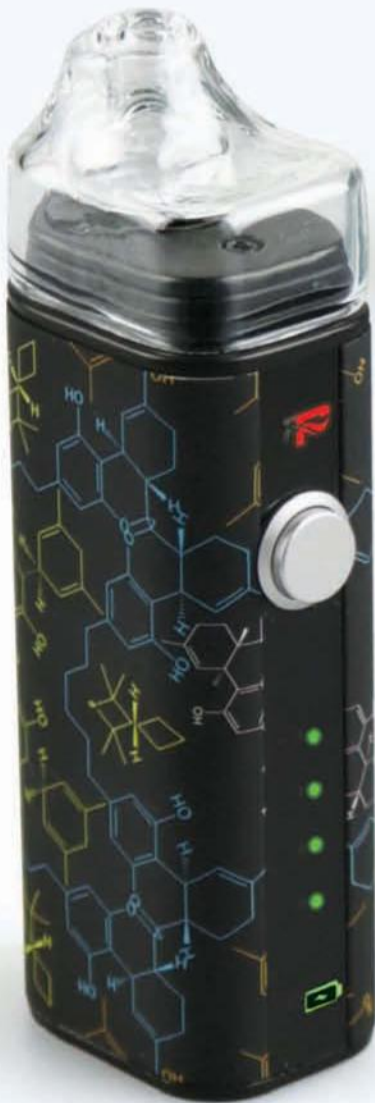
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44 ALL ABOUT TERPS

What is really behind terms like "terpenes" and "entourage effect" and what do they mean for the everyday smoker? Join us for an in-depth look at terpenes, as we examine their effects, and their interactions with cannabinoids such as THC and CBD, to determine how these omnipresent and all-important molecules make our favorite strains what they are. *By Nico Escondido*

55 O CANADA

As Canada prepares to legalize recreational cannabis nationwide, we ask business owners and consumers: how will legal weed affect the Canadian economy and culture? Learn how the Great White North is readying itself for a cannabis industry on par with California's. *By Mary Jane Gibson*

62 INSIDE THC DESIGN LOS ANGELES

Learn how an outlaw weed farmer from Oklahoma became a medical marijuana grower in California, producing hundreds of pounds of premium-quality, safe, estate-grown cannabis in a sustainable and environmentally conscious facility. *By Danny Danko*

80 THE HIGH TIMES 100

This month we're highlighting the movers and shakers of the marijuana world with our list of the 100 most influential people in cannabis. This list features the activists, politicians, cultivators, product makers, dispensary owners, sports figures, media members and celebs who are shaping the current cannabis scene.



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▶ EVERYTHING YOU EVER WANTED TO KNOW ABOUT THC

As research continues to reveal the mysteries of our favorite plant, we're gaining a better understanding of the chemical compounds present in cannabis and how they interact to produce certain effects. (This month, we're taking a closer look at terpenes in "The Truth About Terps," page 44.) Of course, the star of the show is THC (tetrahydrocannabinol), thanks to its potent psychoactive properties. But what exactly is THC? How does it affect the body and the brain? And how does it interact with other cannabis compounds to create the feeling of being high?

Whether you're a seasoned cannabis smoker or just discovering the sacred herb, you'll want to read all about this fascinating chemical compound.

The *High Times* THC primer has everything you need to know about tetrahydrocannabinol, from what it is to how it works in the endocannabinoid system. Learn more about THC's many medical benefits, and even which plants have the highest concentration of THC! **Visit hightimes.com for more!**



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@realmedicineMI: @HIGH_TIMES_Mag I'm not dead because of cannabis. Literally. I feel like part of why is to help people with this

@BrianLb6336: @HIGH_TIMES_Mag One step @ a time let's get it legal first 21 & over than work down don't need Sessions & his warped ways to interfere

@TrippyHendrix42: @HIGH_TIMES_Mag Rather have the mother treat her kids anxiety with THC rather than treating it with pills full of chemicals and unknown substances

@tommysmusicpage: @HIGH_TIMES_Mag Cannabis smokers are the only ones to embrace the metric system in the US.. It's 28.34 grams to the ounce.. Most likely, we're all losing out on the 0.34, LOL!!

@profcookwood: @HIGH_TIMES_Mag I am proud to say that I no longer drink alcohol thanks to #marijuana. #marijuana saves lives. Period.

@gmg720: @HIGH_TIMES_Mag Please don't associate trump with cannabis. He's incredibly toxic & cannabis is not.

@EmeraldZoo: @HIGH_TIMES_Mag I remember when everyone had a Frisbee under the couch full of seeds and a pack of Zig Zags

@wowimweird: @HIGH_TIMES_Mag Cmon Florida. Y'all have the craziest news out of any of the 50 states & y'all clearly need to #chill and #420blazeit

@Orivill420: @HIGH_TIMES_Mag Cannabis gardens are like rock gardens they just bring out the ZEN in us all.

@mmatyree: @HIGH_TIMES_Mag I smoke sativa during the day. Keeps me focused and alert at work. I smoke indica at night. Helps me eat and sleep.



▶ ON INSTAGRAM

What a room! Bursting with color and high-quality bud, this grow by Arizona cultivator @chron_don_grows contains "Sweet Afghani Delicious, Girl Scout Cookies, Durban Poison and Green Crack." We heartily approve. If you're in the Flagstaff area (and a registered medical patient), look for these flowers at @high_mountain_health. Oh, and by the way, we hear the Girl Scout Cookies tested at a whopping 25.83 percent THC. Beautiful and potent! Follow @chron_don_grows for more insane pot shots.



▶ SMOKING POLL

While this space is usually reserved for spotlighting *High Times* polls, this month we're focusing on a *Wall Street Journal/NBC News* survey that really captures the American public's stance on pot—which is sharply at odds with US Attorney General Jeff Sessions's outdated and nonsensical war on weed.

The survey asked, "Which substance would you say is the most harmful?" and listed tobacco, alcohol, sugar and marijuana as options.

Only 9 percent of respondents thought pot was the most dangerous substance, while a whopping 21 percent identified sugar as the most harmful. Unsurprisingly, a plurality of respondents considered tobacco to be the most harmful, with 41 percent of the vote. Alcohol finished second (and just slightly above sugar), with 24 percent.

Perhaps America is coming to terms with its serious sweets problem. When the same question was asked in 2014, only 15 percent of respondents felt sugar was the most harmful substance.

The survey also revealed that 60 percent of Americans now favor legalizing cannabis—up 5 percent from 2014.

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UNDER THE INFLUENCE

WHEN I WAS FIRST HIRED by *High Times* in 2006, the cannabis space was quite a bit different than it is today. For one thing, no one called it “the cannabis space.” Yes, a number of states had forged medical-pot programs, but without the Cole Memo directing prosecutorial attention away from state-legal grows and shops, it was an uncertain time. Okay, actually, that’s pretty much the same situation we’re in now. But, of course, now we’re through the looking glass. Over the last decade, despite the efforts of prohibitionists, the country has embraced cannabis. Twenty-nine states and the District of Columbia have approved pot for medical use. Nine states have legalized recreational marijuana. The legal cannabis industry is worth billions and has created hundreds of thousands of jobs.

So how did we get here? In a perfect world, the virtues of a safe and beneficial substance like cannabis would speak for itself. In this world, it takes leadership, vision and passion to create and shape an industry around an unjustly vilified plant. Thanks to the efforts of the passionate people shaping the marijuana landscape, we enjoy more freedoms and successes than ever before. So we felt it was high time to honor the men and women fighting the good fight and creating a cannabis industry we can all be proud of.

In this issue, we’re honoring the 100 most influential people in the cannabis scene. The list includes dispensary owners, product makers, celebrities, activists, cultivators, extract artists, politicians, sports figures and more—all of whom are actively contributing to the cannabis world today. We’re excited to bring you the first-ever *High Times* 100 and hope to do so annually moving forward.

Also in this issue, Danny Danko gets the scoop on the sustainable and eco-friendly craft cannabis at THC Design, plus we investigate the upcoming national legalization effort in Canada and explore the power of terpenes in “The Truth About Terps.”

Enjoy the 508th issue of *High Times* magazine.

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STOP SESSIONS

Jeff Sessions is simply wrong, on every level. And at this point, he is committing a crime.

He had all the time in the world to research the facts but instead he decided to profit from people in prison and he needs to up his numbers by keeping cannabis illegal. Even if that means people die because of it.

Lucas K.

BUCKET LIST BUZZ

My bucket list number sixteen was smoking marijuana. I missed the era by a few years and I decided it was high time, at this point, what could it hurt? But, where would a suburban grandma score some pot?

I had too many, sure to be shocked at my weed hunt, square friends and not one hip one who would be helpful in my mission. I was bummed.

I then had an inspired idea. I came up with a casual, seemingly offhand quip that might spark some interest if I dropped it in the right spot. I thought cool stoners would say, "Boy, what a rough day, what I wouldn't give for a couple of hits of some good weed." I threw that line at the supermarket checker, the UPS guy, the Home Depot fellow who loaded the mulch in my car and others. I got a lot of agreement but no bites until I finally lucked out with the liquor store clerk. As it happens, I know him quite well and he wasn't hesitant to get me half an ounce for \$250 cash. Ouch, I thought. I figured I was being ripped off but didn't care, bucket lists are worth sacrifices. I raided my ATM then paid for and picked up my very own baggie of what he said were awesome BC buds; which meant they came from British Columbia.

Siri found me a head shop, and I bought a little one-hit pipe and some rolling papers, but didn't know enough to get a shredder so when I followed the YouTube how to, it was a shred by hand task.

At 2:30 on Friday, done with the prep, I couldn't wait, I had to try it right away. I packed as much of my chopped by hand weed into the little hole on the end of the pipe as I could stuff in, and lit up. At first I just inhaled a bit, nothing happened, so I inhaled some more, still nothing, I took a couple more big drags, then I gagged and retched from the smelly smoke, and figured I was immune or the pot was no good, so I put



"EVEN THE CO-FOUNDER OF ALCOHOLICS ANONYMOUS USED LSD TO HELP IN HIS RECOVERY. IT SEEMS THAT THIS HAS BEEN LOST THROUGHOUT THE FUTILE WAR ON DRUGS."

everything away and walked into the living room and flopped onto the sofa and, oh my God yes, it was working. I was so high. I fell asleep for days and when I jerked awake on the sofa it was five minutes later.

I went to sleep again and woke to a lovely buzz, the world was such a nice sunny place, I loved everyone, but I was ravenous.

*Bett W.
Florida*

REEFER RECOVERY

I've thought about writing down my thoughts for the past 21 months that I have stayed clear from opiates, benzos and amphetamines as a whole. I've had time to reflect and grow as a person for almost two years.

When I was young, I gravitated towards altering my state of mind. I remember tearing my MCL when I was 13. This was the first time I was introduced to hydrocodone. I remember, most vividly, the first time I actually felt the high through the pain and saying to myself "this is how life should feel." I spent the next eight years always looking

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to buy pills or stealing them from the medicine cabinet.

I gravitated towards downers to help self-medicate. I would do anything to put a brief pause on the chaos that is my reality. I ended up trying heroin after being very experienced with opiates. I would rationalize the decisions I was making. I lost everything very gradually. I left my university, was ostracized from all of my social and extra-curricular endeavors, I was kicked out of my house, I lost a relationship with a girl that I loved, and I lost all of my possessions. The worst things I lost were my sanity, dignity, self-respect and sense of identity.

The hardest thing to deal with was not the pain I endured, but the pain I caused. By the grace of my family I was fortunate enough to go to a treatment center in Palm Springs, CA.

As soon as I started the program I was dedicated to leaving drugs, except cannabis. I said from the start that the research in cannabis seemed promising and I believed

Mary Jane could redeem me. Only one person believed in me, the resident MD.

After leaving, I immediately obtained my medical cannabis card in the state of New Mexico where I live. I started growing my own medicine and overall I have grown [as a person] immensely.

Cannabis gave me my life back. It brought the passion back in my life. I have returned to school and will be graduating in December of this year. I am happy, healthy and clean from all of these heinous substances. I have found solace and success in daily cannabis use, and the very occasional use of LSD.

Even the co-founder of Alcoholics Anonymous [Bill Wilson] used LSD to help in his recovery. It seems that this has been lost throughout the futile War on Drugs. AA became a lifestyle preaching pure abstinence, not only from the drugs but the lifestyle that comes with the drug use. Twelve-step programs have adapted a D.A.R.E.-esque approach to recovery.

I have decided to write this as a message to all the addicts in the same position I have been in. They are not alone and you can be clean with cannabis.

*Anonymous Cannabis User in Recovery
New Mexico*

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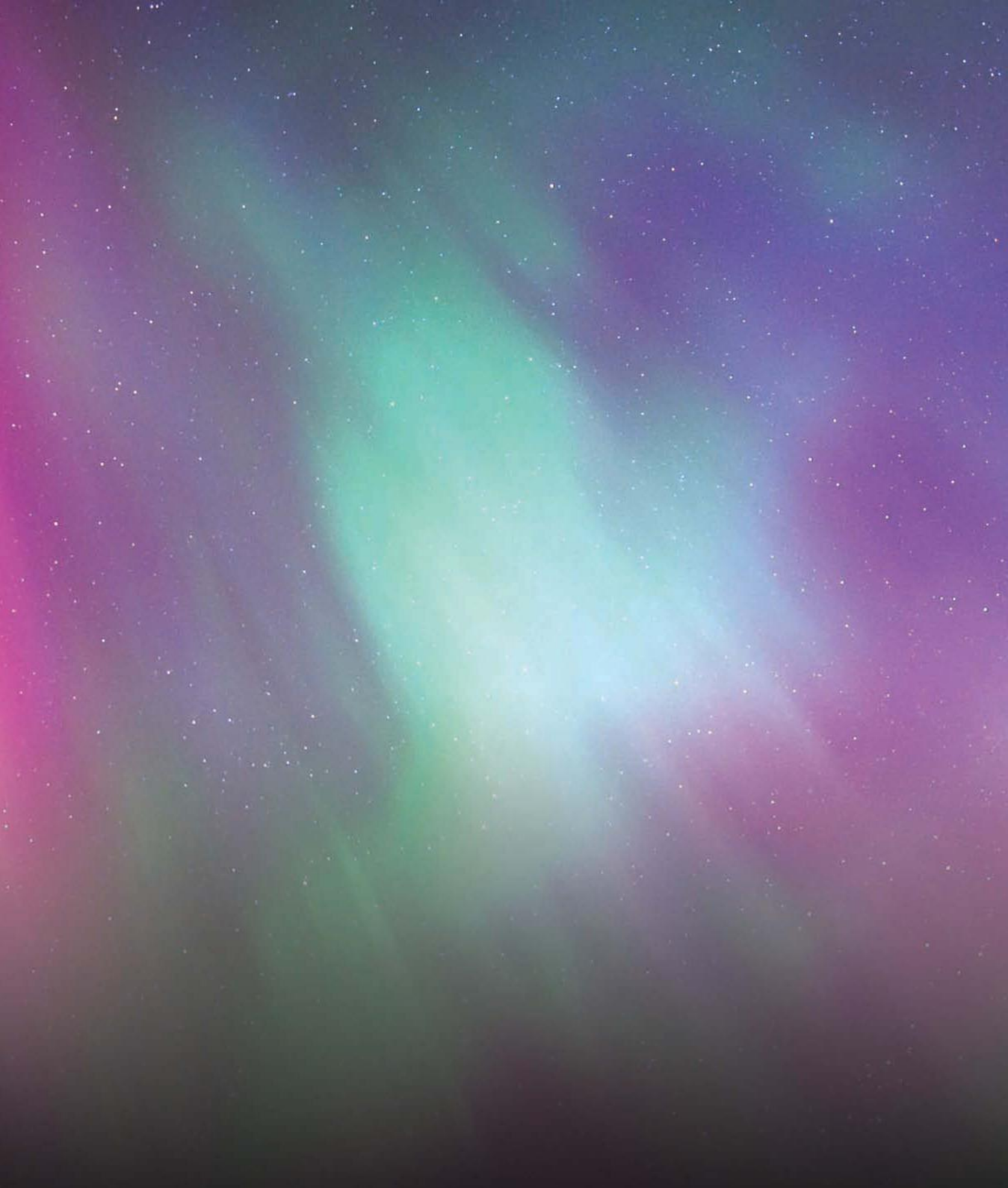
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And to everything we can accomplish, together.

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THE TRUTH ABOUT TERPS What makes your favorite strain taste the way it does? How does it produce a heavy stone or an electric buzz? Terpenoids, which interact with cannabinoids like THC and CBD, play an integral role in how cannabis smells and tastes, as well as how it makes you feel. Learn more about these all-important, organic compounds on page 44. *Photo: Nameless Genetics's Watermelon Megarita, by Justin Cannabis.*

CONTACT
HIGH







May 2018 **High Times**

THC DESIGN These beautiful Platinum Scout colas are approaching ripeness and will soon be harvested at THC Design in Los Angeles. Find out how they grow premium quality cannabis in large quantities on page 62. *Photo courtesy of THC Design*

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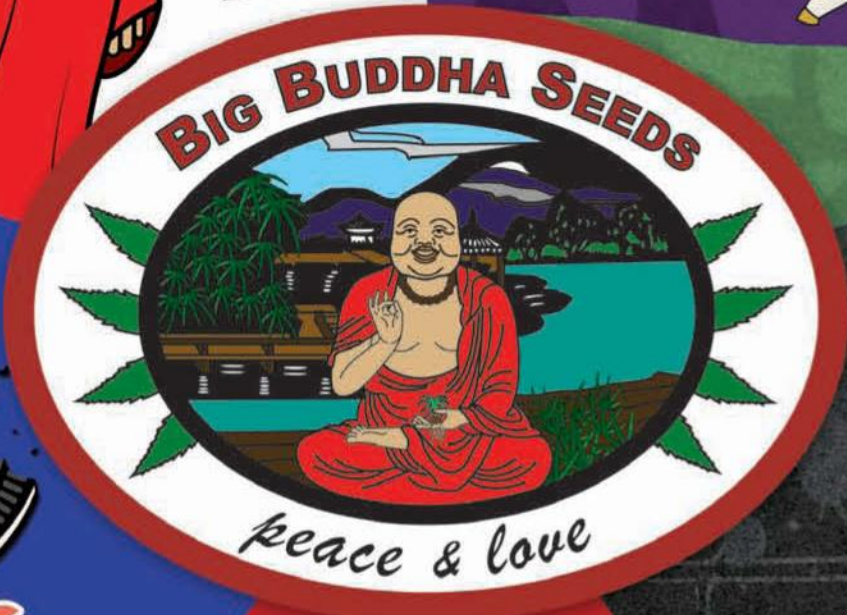
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HIGHWITNESS NEWS

MIKE TYSON'S GOT A POT FARM!



STYLE

GET ELEVATED

Check out Elevate Jane's collection of smoking accessories curated by Angela Mou. p.30



ENTERTAINMENT

TOM SEGURA

Comedian Tom Segura sits down with HT to talk comedy, edibles and his love of vape pens. p.34



Ready for the War on Marijuana redux?

cannabis laws, even in states where weed is legal. That would be most of the country, where 29 states plus the District of Columbia have some degree of legalization, with more poised to join the club.

The Sessions memo inspired immediate backlash: Governors, attorneys general, Congress members and many others expressed dismay at the fed's implicit threat and an appreciation for the sanctity of states' rights. Senator Lisa Murkowski (R-AK) issued a pointed statement that typified

much of the reaction: "Over the past year I repeatedly discouraged Attorney General Sessions from taking this action and asked that he work with the states and Congress if he feels changes are necessary. Today's announcement is disruptive to state regulatory regimes and regrettable."

Fellow Republican and Colorado Senator Cory Gardner was not as polite. "This reported action directly contradicts what Attorney General Sessions told me prior to his confirmation," Gardner tweeted. "With no prior notice to Congress, the Justice Department has trampled on the will of the voters in CO and other states." The US Attorney in his state, Bob Troyer, said his office would continue to prosecute "those who create the greatest safety threats to our communities around the state"—that is, *illegal* dealers. Put another way, Sessions's memo was unnecessary and can be effectively

FEDERAL CRACKDOWN

THE HEAD OF THE US DEPARTMENT OF JUSTICE HAS QUASHED OBAMA-ERA TOLERANCE FOR STATES WITH LEGAL CANNABIS. PRO-WEED POLICY-MAKERS ARE NERVOUS—AND DEFIANT. BY MIKE DIPAOLA

THE ATTORNEY GENERAL of the United States has said crudely uninformed things about cannabis, even before he became the nation's highest law-enforcement official. Jeff Sessions has declared that "good people don't smoke pot," that he thought a pair of murderous Ku Klux Klansmen were "okay, until I found out they smoked pot" and that weed is as bad as heroin. While these lunacies made everybody nervous, it was not until Sessions put the kibosh on Obama-era rules—which basically said the feds would not interfere in states where

cannabis is legal—that the AG caused real alarm in the pot-positive community.

While California was celebrating the first days of its legal weed market for adults, Sessions dropped a memorandum on the nation that wafted over the land like a stink bomb. "In deciding which marijuana activities to prosecute under these laws with the Department's finite resources, prosecutors should follow the well-established principles that govern all federal prosecutions," Sessions wrote. In other words, federal prosecutors might start enforcing their dinosaur

« ignored.

While “crackdown” was on everybody’s mind in the days following the Sessions memo, the cannabis-data-analytics firm New Frontier Data released an exquisitely timed study that put in stark terms what was at stake: \$132 billion in tax revenue and over a million new jobs across the United States. That’s what’s predicted for the next decade if cannabis is legalized nationwide, put in language that even the staunchest conservative reactionary can appreciate: jobs and money.

Paradoxically, Sessions’s decree may end up accelerating the pace of legalization rather than subverting it as he’d intended. His tyrannical stupidity has alarmed many, but it has also mobilized policy-makers gearing up to terminate the US War on Drugs once and for all. “Not only are we fighting back, but we’re moving forward,” declared Representative Barbara Lee (D-CA) in announcing a proposed bill to legalize it at the federal level. Lee, along with co-sponsor Ro Khanna (D-CA), recently unveiled the House version of the Marijuana Justice Act, the Senate bill introduced by New Jersey Senator Cory Booker last summer.

[SESSIONS’S] TYRANNICAL STUPIDITY HAS ALARMED MANY, BUT IT HAS ALSO MOBILIZED POLICY-MAKERS GEARING UP TO TERMINATE THE US WAR ON DRUGS ONCE AND FOR ALL.

The bill would end federal cannabis prohibition, with a particular emphasis on addressing the profound injustices inflicted on minorities in the failed Drug War (see NORMLizer, p. 126).

Sessions may have harshed our buzz, but he hasn’t killed it. The ink on his ill-advised memo was barely dry when the Vermont Legislature went ahead and made the Green Mountain State a little greener, passing a bill that will allow adults to grow and possess modest amounts of cannabis, effective July 1.

Likewise, a changing of the guard in New Jersey augurs well for the cause. The deposed outlaw Jersey whale, ex-Governor Chris Christie, has been replaced by weed-friendly Phil Murphy, who made legalization a goal for his new administration in its first 100 days. This *nj.com* headline from Christie’s very last day in office reveals a giddiness at the prospect: “New N.J. weed bill: You might be able to buy sooner AND grow pot at home” (emphasis theirs).

Even New York, birthplace of the loathsome Rockefeller drug laws that destroyed so many lives, is making the right noises about cannabis. Governor Andrew Cuomo is calling for a feasibility study to at least look at legalization, in particular how legal regimes play out in neighboring states. In announcing the plan, Cuomo acknowledged the curious moment of conflicting forces in the country. “New Jersey may legalize marijuana. Massachusetts already has. On the other hand, Attorney General Sessions says he’s going to end marijuana in every state,” Cuomo said.

As odious and unnerving as it is to have someone like Sessions at the helm of federal law enforcement, Americans should take heart that the backlash to his words has been both bipartisan and vociferous. We do need to be vigilant, and we should be encouraged that the government still staggers along, somewhat like a democracy. Let’s not let the troglodytes win. ✨

HIGH FIVE

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CREATING THE CANNABIS WORLD OF TOMORROW, TODAY. BY FRANK GREGORY



TASTING TOURS

Cannabis-tasting tours are proliferating, especially in Colorado and California. Geared to cannabis connoisseurs, pot-tourism activities have increased due to high demand. One company seizing this opportunity is Cultivating Spirits in Colorado. Its offerings include farm-to-table-style gourmet dinners prepared by an award-winning chef, limo rides and a host who vividly explains the different strains encountered and their benefits. The company’s goal is to change perceptions of cannabis and to glamorize weed’s image.



CANNABIS CURRICULUM

What started with pot-based specialty schools like Oaksterdam University has carried over to institutions of higher learning, as schools respond to the booming cannabis industry. The University of Denver now offers three cannabis-related courses. And Northern Michigan University students can now major in marijuana (technically medicinal-plant chemistry), the first-ever four-year undergraduate degree of its kind offered anywhere. Niagara College also offers a one-year postgraduate program on the production of pot—the first Canadian college to do so.



DIGITAL HEADSHOPS

For better or worse, the days of brick-and-mortar headshops are on the wane. As cannabis continues its assimilation into the mainstream, online marketplaces are cropping up to meet all of your smoke-related needs. Often, these online shops promote a classier boutique image, catering to the cannabis curious. Products include smoking accoutrements like bong, rigs, pens and pipes, as well as vintage art pieces, ceramic stoneware, aromatherapy products and much more. Subscriptions are available with delivery to your home.



DIVERSITY

Compared with other sectors, the cannabis industry has a high level of gender diversity. Women fill executive positions in 36 percent of US companies focused on cultivation and 63 percent of testing labs and processing companies. A good start but there’s certainly room for improvement. By comparison, women hold senior management positions in only 22 percent of midsize US companies and a paltry 5.4 percent of CEO jobs at Fortune 1,000 companies, according to a 2015 Pew Research study.



JOURNALISM

Pot journalism is thriving and covers every nook and cranny of an industry on the rise, thanks to the proliferation of adult-use and medical-cannabis laws across the country. For years, the mainstream-media coverage of cannabis was laden with misinformation, highlighting the need for strong and independent marijuana journalism. Resources are now being dedicated to activist-centered publications that have an interest in the plant and the people affected by the War on Drugs.

THERE GROWS THE NEIGHBORHOOD

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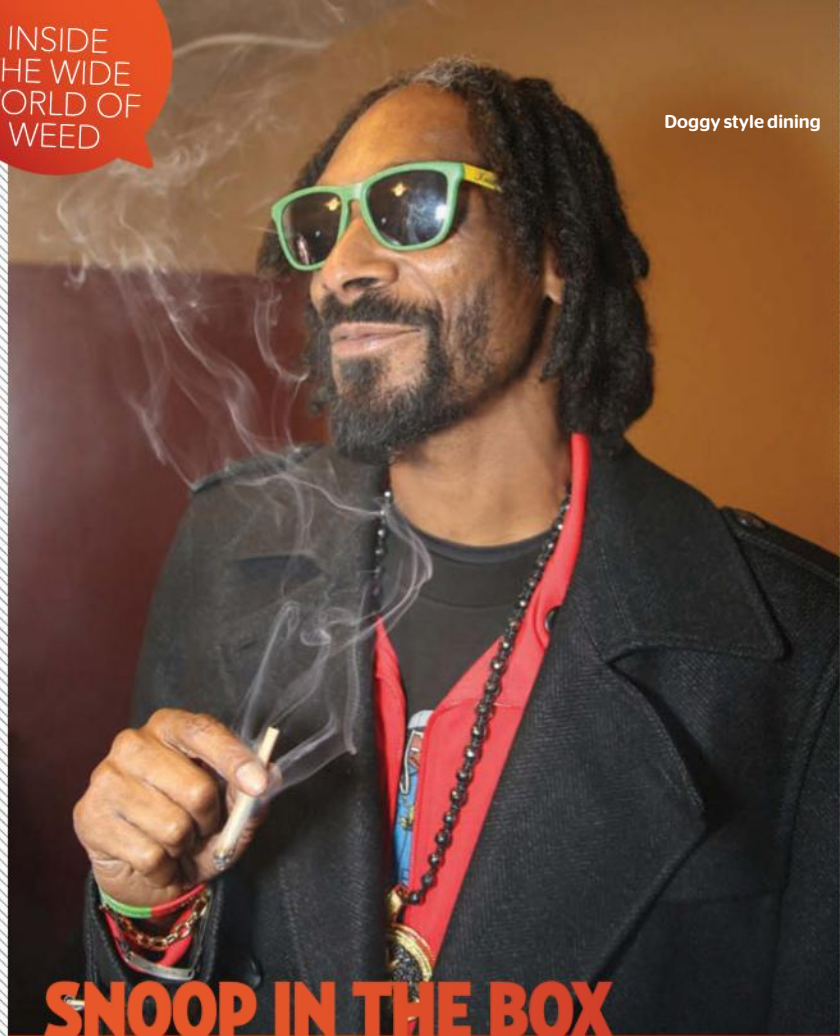
While the current administration in Washington, DC, is signaling a possible crackdown on legal-weed states, soon-to-be-legal Massachusetts says it won't lend a hand if the feds try to shut down law-abiding weed businesses in the Bay State. Boston Police Department spokesman Detective Lt. Michael McCarthy told the *Herald* that the men and women in blue would respect state rights over federal meddling. "Similar to our position on immigration, the BPD will not actively enforce federal marijuana laws at the local level," McCarthy stated. "We will continue to enforce local drug laws to keep our neighborhoods safe." Public safety secretary Daniel Bennett, who oversees the state police, seconded that motion: "We have a state law that we're intending to enforce, and the state law was voted on by the people of Massachusetts. We have no intention of raiding a pot shop that is legal under state law."

KANSAS REP'S RACIST RANT

When we hear dinguses try to argue against weed legalization, what we usually hear is antiquated and anti-scientific posturing based on nothing. But sometimes a dingus will bring extra stupid to the table, as when Kansas State Representative Steve Alford was musing extemporaneously and idiotically at a public meeting about why cannabis was prohibited in the United States in the first place. "One of the reasons, I hate to say it, the African Americans they were users and they responded the worst to all those drugs—it was because of their character makeup, their genetics and that." After his remarks were posted on YouTube, and following the well-deserved tsunami of ridicule heaped upon him, Alford abjectly apologized: "I was wrong, I regret my comments, and I sincerely apologize to anyone whom I have hurt." He was also stripped of his committee posts, though he keeps, for now, his seat in the State Legislature.

INSIDE
THE WIDE
WORLD OF
WEED

Doggy style dining



SNOOP IN THE BOX

Snoop Dogg has many irons in the fire at the moment. His cannabis-lifestyle media company Merry Jane recently teamed up with fast-food purveyor Jack in the Box to create a meal fit for a stoner—the Merry Munchie Meal. Intended to celebrate the opening of California's adult-use market, the limited-edition food box was part of the restaurant chain's late-night menu, priced at an easy-to-remember \$4.20. The grub included curly fries, onion rings, tacos, mini churros, chicken strips and a soft drink. "Launching the Merry Munchie Meal is the perfect way for both companies to celebrate legalization in our shared home state of California," said Scott Chung, chief operations officer of Merry Jane. Although the meal was available for a limited time at just a few Jack in the Box locations in Southern California, its popularity will likely inspire others to cash in on a universal truth: Stoners gotta eat.



CHRONIC PAINKILLER

A very tall man in the United Kingdom was busted for growing 20 plants in his Burnley, Lancashire, home. Six-foot-eight Omar Anwar copped to the crime, telling a magistrate that he suffered from gout and chronic back pain that he attributed to his height, and that he preferred homegrown meds to buying it off the street. The 29-year-old was sentenced to a year's probation, 150 hours of community service and some modest court fines. Even the prosecutor was sympathetic, according to the *Burnley Express*: "He feels quite strongly for the decriminalization of cannabis for medicinal purposes, because that is the only reason he was intending to use this drug. He's an intelligent and articulate gentleman who is deeply ashamed to find himself before the court for this matter." For his part, Anwar was contrite, perhaps excessively so. "I am the worst Muslim ever," he said to his probation officer. No sir, we can assure you that you are not.



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"Irie" Mike Tyson

ROPE-A-DOPE RANCH

Former heavyweight champ and pigeon enthusiast Mike Tyson is getting in on California's weed market, as he recently broke ground on a 40-acre cannabis ranch in the Mojave Desert. The Tyson Ranch will include an extraction facility, an edibles factory and a hydro-feed supply store, as reported in the *Blast*. Iron Mike made no secret of his fondness for cheeba during his boxing career, which sometimes cost him dearly. In 2000, his knockout win over Andrew Golota was rescinded when Tyson tested positive for cannabis. Today, Tyson is positive that his ranch is going to be a knockout. "We're going to have the best marijuana around, so I'm not worried about the competition," he said. When asked if he planned to bring in other celebrities to lend their names to the operation—such as Snoop Dogg, for example—Tyson replied: "There's always the possibility; Snoop and me are good smoking buddies."



Spoof goof: Left, Angelo DeStevens, Right, Steve DeAngelo

MISJOINTED

At first, marijuana-advocate icon Steve DeAngelo was happy to be parodied on the Netflix stoner series *Disjointed*—a comedy that revolves around the shenanigans attendant to working at a California weed shop. DeAngelo, co-founder of Oakland's legendary dispensary Harborside, is spoofed by a *Disjointed* character known as "Angelo DeStevens," who, unlike the real-life activist and medical-pot champion, is kind of a dick—a sexist, greedy sellout. "I was entertained by the first episode the DeStevens character was in, but my feelings were hurt by the mean-spirited episodes that followed," DeAngelo tweeted, moments later adding, "I don't feel I deserved the treatment they gave me in later episodes—so many more worthy villains in the world." *Disjointed* has been popular with viewers but largely shunned by critics, who collectively give the comedy a 23 percent rating at *rottentomatoes.com*. There's no word yet on whether the show will re-up for a second season.



Guns for Higher

COLD DANK FINGERS

As Pennsylvania's medical-cannabis era begins, citizens have state agencies in their corner. The state's Department of Health announced it would not share the names of medical-pot patients with law enforcement, in part to protect their Second Amendment rights. (With weed still illegal at the federal level, stoners and patients have difficulty purchasing firearms.) Pennsylvania's first dispensary opened in Bethlehem in January, and the owners gave props to their state overlords: "Pennsylvania and the Department of Health has been doing it right," Victor Guadagnino Jr., co-founder of family-owned Keystone Canna Remedies, told *NBC10*. "The state is setting the standard for how other states should implement medical-marijuana programs." It helps that the Keystone State has an advocate in its attorney general, Josh Shapiro. "It's my job to uphold the law here in Pennsylvania; and on a bipartisan basis, the Legislature passed and the governor signed a medicinal-marijuana law that is very popular," Shapiro told *KDKA-TV*.



GREENER MOUNTAIN STATE

Nine. That's how many US states have freed the weed. The most recent to join the party is Vermont, which just enacted a limited form of legalization, allowing adults 21 and older to possess up to an ounce of weed and grow a couple of plants at home. Buying and selling in a free and open market might not happen anytime soon, however. Governor Phil Scott, who signed off on the bill, is not exactly pro-weed. He has been insisting that any broader pot legislation will have to address education, prevention and highway safety. "To be very direct: There must be comprehensive and convincing plans completed in these areas before I will begin to consider the wisdom of implementing a commercial 'tax and regulate' system for an adult marijuana market," Scott said following the signing. "Until we have a workable plan to address each of these concerns—I will veto any additional effort along these lines."





Smokin' singles mingled at LA's Hitman Coffeeshop.

MARIJUANA MIX'N'MATCH

Catherine Goldberg loves weed. She also loves meeting new people, especially those who love marijuana as much as she does. Goldberg just happens to be a top-notch event planner—her Elevated Shabbat dinners are a hot ticket in Los Angeles, and she produces customized cannabis experiences through her company WeedBar LA. Sensing an opportunity to combine her affinities and skills, Goldberg created Connect, a mixer for marijuana-loving singles.

Goldberg told *High Times*, "I created Connect because I figured it was a lot more efficient than Tinder. I start every day with a coffee and a joint, and I smoke every few hours. I'm looking for a girlfriend who loves weed as much as I do!"

At the end of the evening, elevated by good company and having shared a smoke with new friends, folks left the party happy and high. Check out weedbarla.com for information on upcoming Connect events.



SPOTLIGHT

PUFFINGTONS PITCH-N-PUFF

Is canna-golf a thing? The answer is a resounding yes, if you're in possession of this nifty little tool for the greens (we mean that in both ways). The Pitch-n-Puff combo pack contains a golf tee that doubles as a one-hitter and a faux golf ball to stash your nuggets in. When you're playing through the ninth hole, pop open your Pitch-n-Puff kit to get your head all the way in the game. A great gift for any golf lover, this stealthy smoking accessory blends in perfectly with your Titleists and Callaways. \$15, puffingtonsgolf.com



Angela Mou seeks out pleasingly minimalist pipes for her collection.

SMOKING STYLE

Elevate Jane, a line of smoking accessories curated by company founder Angela Mou, aims to do just that—elevate the experience of consuming everyone's favorite plant with an elegant collection of pipes, bongs, rigs, storage containers and more.

You can check out the inventory at Mou's retail space in Venice, LA, or peep the collection online. Elevate Jane launched in the summer of 2017, after Mou discovered two California-based artists making unique pipes she immediately fell in love with. Starting with pieces from the Summerland and Miwak Junior collections, Mou rapidly added to her line of accessories, seeking out minimalist creations with a feminine vibe. In addition to the usual assortment of dry pipes, water pipes and rolling accessories, Mou showcases sculptural ceramic pieces, elegant wood-and-glass one-hitters, mermaid seashell pipes and jewelry you can smoke with, like a secret roach-clip pendant. The line also includes natural healing tools like crystal pipes, sage smudge wands and terpene-infused aromatherapy candles.

HuffPost recently named Mou one of the "27 women who will shape the future of the plant," so keep an eye out for impactful projects to come from this cannabis trendsetter. elevatejane.com

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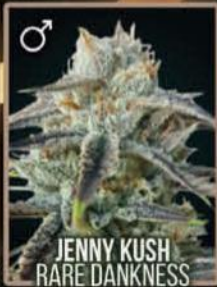
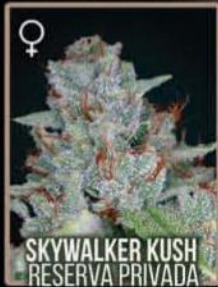
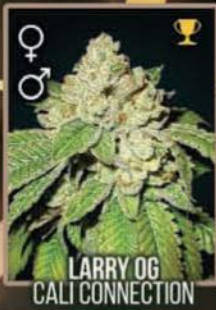
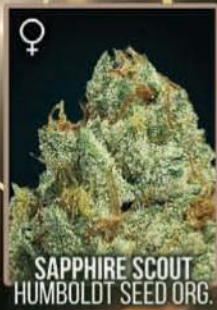
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A lull in
life on the
road

GIRLS TO THE BLUNT

SCREAMING FEMALES CONFRONT DEATH, WEED AND BORDER CHECKPOINTS. BY POLLY WATSON

"IT COULD BE their sister or something."

"No, when we found your grandparents they were in way bigger boxes than that."

Mike Abbate ("King Mike") and Marissa Paternoster, respectively the bassist and guitarist/vocalist of Screaming Females, are discussing a tiny labeled box they have discovered in a studio in New York's Chinatown, where the band has congregated to spend a snowy afternoon chatting with *High Times*. Closer inspection reveals the cube to contain the ashes of the studio owner's cat. The pair are unperturbed. Abbate smiles as he remembers finding the shoebox-size coffers that held the remains of his ancestors "in the back of a closet."

"We went and got screwdrivers," Paternoster recalls, "and I was like, 'Mike! It's cat litter!'" She was elbow-deep before Abbate read the label on

that box; a quick trip to the sink followed.

Quirky and wild, like the New Jersey band's music, the story illustrates both the easy camaraderie among the trio—Paternoster, Abbate and drummer Jarrett Dougherty have been friends since their teens—and their unfettered interest in exploration. That interest is evidenced by their musical progression over the past 13 years, culminating in *All at Once*, their seventh album, which dropped in February.

"We were trying to incorporate different sounds or use different instruments than we would in the past," explains Paternoster. Some of those sounds include that of keys being dropped on a paint bucket and pots being banged together, a noise that producer Matt Bayles decided to strip directly from the demo, to stop Paternoster

from driving Abbate insane by "testing" pots in the kitchen while he was trying to cook.

The band recorded the album in a Seattle suburb where, Abbate explains, "there was literally nothing to do but get high." Though today Abbate is the heaviest, and often the only, smoker in Screaming Females, he and Paternoster smoked weed together for the first time in high school. "We didn't get high, but Marissa acted really high," recalls the bassist.

"I thought I was!" Paternoster defends herself.

"She was driving us home

ALTHOUGH THEY'LL OCCASIONALLY PLACE A SIGN ON THEIR MERCH TABLE ASKING FANS FOR WEED ("IT ONLY WORKS ON THE WEST COAST," SIGHS ABBATE), THE BAND NEVER CARRIES IT IN THE VAN.

and she was like, 'This is so much better than, like, you know, dealing with life, maaaaaaan.' I was like, 'Really? I feel the same [as before I smoked].'" Abbate laughs.

Though they'll occasionally place a sign on their merch table asking fans for weed ("It only works on the West Coast," sighs Abbate), the band never carries it in the van. Still, they look like they carry it, and that has led to some holdups on the road. Dougherty recalls a night spent at a fan's house in Arizona before Prop. 203 passed. "He busted out this bong, and just smoked it for hours," while the band was trying to snuggle down for the night in their sleeping bags.

"The next day, we hit one of those border checkpoints," Dougherty says. A dog was brought to the van and, to the band's alarm, seized Paternoster's sleeping bag and began "shaking it to pieces on the highway." The band was eventually released, but not before being asked if they "could've been somewhere where someone had drugs." Dougherty shakes his head. "We're a rock band—we've been sleeping on people's floors for three weeks playing shows!" He laughs. "Not a chance we've been anywhere that anyone's been using drugs." ✨

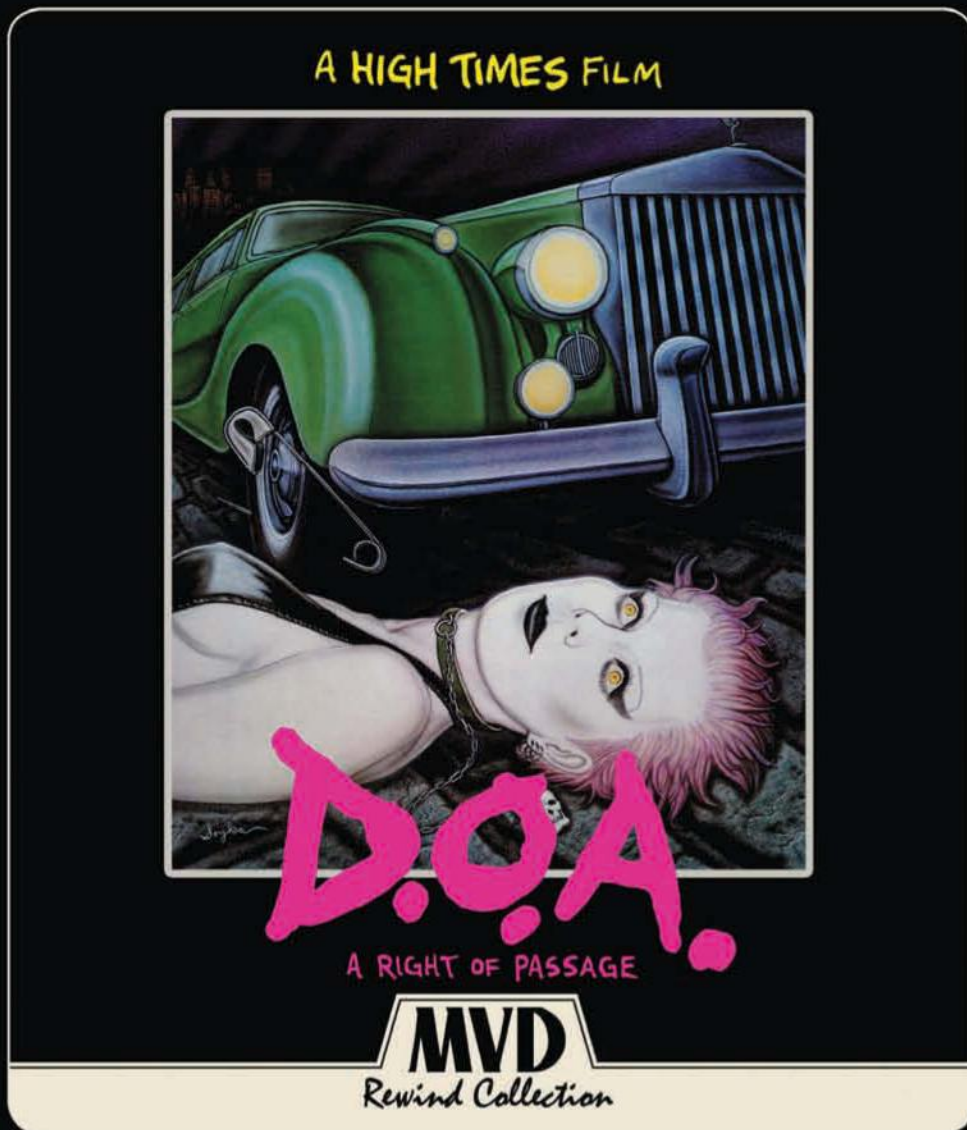


TOOTH HURTY? TRY 420!

"I like *sativa*—daytime weed," says Abbate. "And I like repetitive tasks." So when Paternoster got him an electric toothbrush, he was thrilled. "I really love brushing my teeth when I'm high."

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A STAND-UP STONER

COMIC TOM SEGURA LOVES HITTING VAPE PENS AFTER DESTROYING AUDIENCES AROUND THE WORLD. BY MIKE GLAZER

THE FIRST THING you notice when Tom Segura walks into the room is how present he is. He's letting it all sink in. Assessing the vibe, seeing who's around and checking in with himself. It's quick, but it's there. He's keenly aware of the moment.

This natural awareness and ability to be present is why Segura is such a killer storyteller onstage. His masterful ability to absorb and recall exactly how a wild moment in his life went down, and share it with us in crisp, vivid, side-splittingly funny detail, is the hallmark of his three Netflix specials (*Completely Normal*, *Mostly Stories* and his latest, *Disgraceful*).

(Side note: Storytelling is fucking hard. You've probably had to listen to someone talk about a "wild" party they were at, and in your head you're thinking, "Hey, shut up. This is boring and bad, and I wasn't there so I don't care.")

Telling a great story takes craft, and the ability to make

almost 2,000 paying audience members erupt in laughter as a single voice took Tom almost 14 years to master. He leads us into his past so that we relive moments with him: the good ones, the bad ones, even the ones you would never tell a room full of strangers—check out his bits on *Disgraceful* about seeing a racist fight break out in Philadelphia. Or when he bought porn for his entire dorm, and found himself in a cement building with a glory hole. Or the time he was buying weed from someone in a trailer and wound up with a shotgun and direct orders to shoot anyone except for the dealer's mom (luckily, he doesn't buy weed from people inside trailers anymore).

As we sit down to chat, Segura immediately starts talking about his love for getting high using pens.

"I travel with pens. People go, 'Is that legal?' I don't fucking know, but no one bothers me," he says. "Pens are my favorite.

I'm cool with having nothing but pens for the rest of my life. I perform 100 percent sober, but after a show I like a quick hit to chill. I actually prefer it to a post-show drink."

Again, for Segura it seems to be all about staying in the moment. Smoking something low-key enough that it smooths the edges and travels underneath the mind. Nothing out of control. Nothing over the top—instead, something that brings him to a centered state of being. Something that adds to the experience instead of dramatically altering it.

While we talk, Segura is soft-spoken and kind, but there's a powerful, almost mischievous glint in his eyes. It's as if a child

"DON'T TAKE AN EDIBLE ON A FLIGHT TO AUSTRALIA. I WEPT. THIS IS A 16-HOUR FLIGHT, AND I'M LIKE, 'I'M GONNA DIE, DUDE.'"

is peeking past his pupils, wanting to play and take over the conversation. It's the same look he has onstage when he's revealing the things he does in real life and that we secretly love to do ourselves: "Is there anything more satisfying than letting an elevator door close on somebody?"

Segura muses: "[We're] living in such an unequal world right now. The power is not in most people's hands. And that's one of those fleeting moments you have control over. Like someone crossing the street slowly, and they know they're doing it slowly. You're being an asshole, but if you don't have any power then you're gonna take the moment you have. It's not gonna hurt anybody, you're not actively destroying—you're taking a moment to say, 'I have control in the moment.'"

It's that type of acute awareness that makes it easy to listen to Segura talk forever, but he has to go sign posters from his sold-out Netflix taping in Denver. Before we wrap up, though, he offers one last piece of advice: "Don't take an edible on a flight to Australia. I wept. This is a 16-hour flight, and I'm like, 'I'm gonna die, dude.' It was way too strong. That's why I stick to pens!"

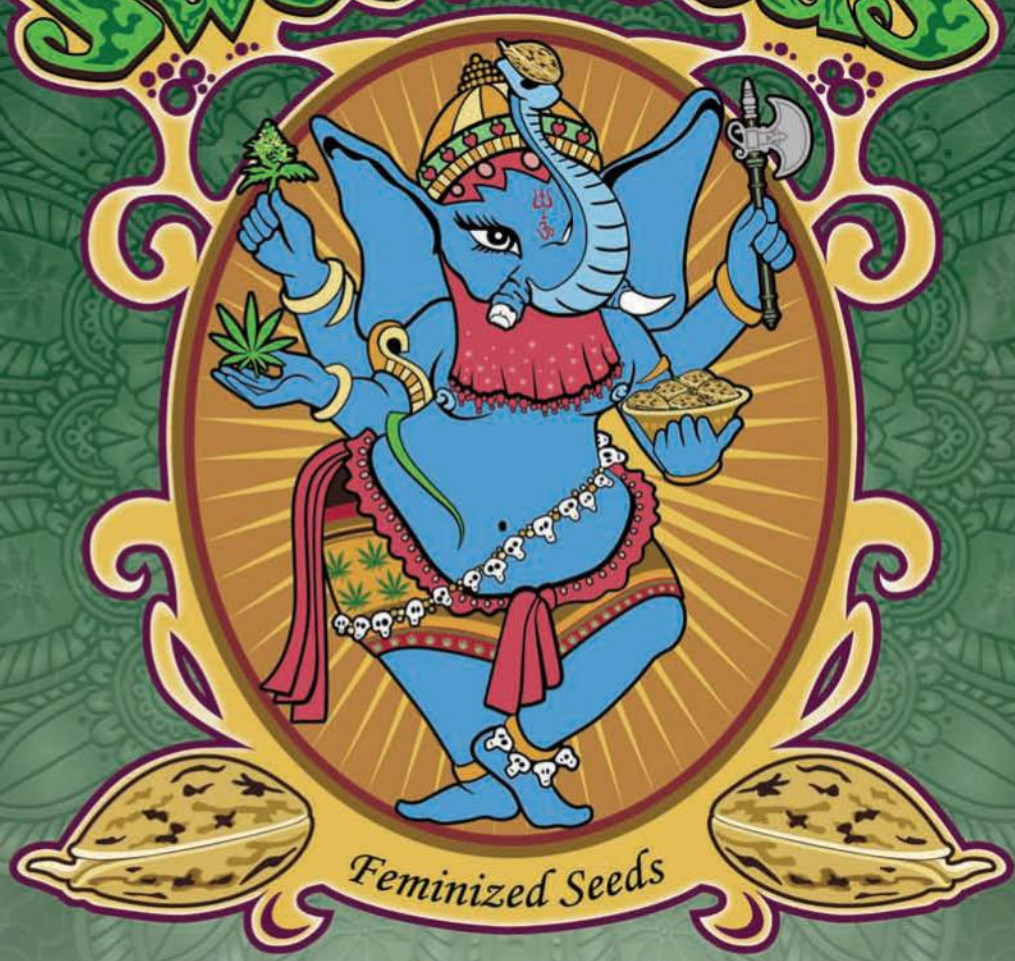
We laugh and shake hands. It's a perfect callback to our shared joy of using pens. It's also a testament to Tom Segura's stand-up abilities, and it shows how keenly aware he is of when one moment (our conversation) is over, and it's time for a new one to begin. ✨



YOUR MOM'S HOUSE

In one hilarious episode of Tom and his wife Christina's insanely popular podcast, *Your Mom's House*, Dr. Drew medically diagnoses people in viral vids and tells Tom and Christina, "Just so you know, you guys are way more fucked-up than anyone in these videos."

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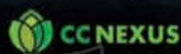
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Adler is dedicated to battling misinformation about CBD.

A COMPENDIUM ON CANNABIDIOL MOTHER, ACTIVIST AND AUTHOR SHIRA ADLER LAYS BARE THE FACTS ABOUT THE "OTHER INGREDIENT" IN CANNABIS.

Extensive research has shown that CBD can benefit users in myriad ways, treating depression, anxiety, epilepsy, pain and a wide array of other conditions and disorders. However, federal law—and the stigma surrounding marijuana—often restricts patients' access to the life-changing substance. Shira Adler's book, *The ABC's of CBD*, cuts through the misinformation, answering questions about CBD with simple facts and a cheery tone. What is it? Where does it come from? How, exactly, does it work?

Adler emphasizes right off the bat that she knows the subject well, writing, "I live, breathe, sleep, research, and, yes, ingest CBD every single day." A proud parent of two, she addresses giving CBD to children in a chapter titled "Is It Safe for My Kids?" She explores the history of cannabis and hemp with a timeline stretching from 8000 BC to November 2017. She illustrates what, exactly, the human endocannabinoid system does with a whimsical metaphor about Oompa Loompas. Much of Adler's conversational writing is in an ask-and-answer format. Chapters like "CBD: What, Exactly, IS It?", "What, How, and How Much?" and "Isn't All CBD the Same?" piece

together a clear picture of cannabidiol and its growing impact on health care in patients young and old alike.

Adler includes interviews with industry professionals and medical-cannabis patients, including Jocelan Carmichel, a nurse who credits CBD with helping her treat (and beat) breast and bone cancer. A guide to news and resources, with a list of books, websites and fact sheets, closes out this helpful little primer.

If you're curious about cannabidiol, *The ABC's of CBD* is a great starting point to learn about its many wonders. Adler pays homage to the ancient wisdom of the herb, with plenty of facts and statistics to back up its healing power. *Mary Jane Gibson*



THE ABC'S OF CBD: THE ESSENTIAL GUIDE FOR PARENTS (AND REGULAR FOLKS TOO)

Shira Adler
(ValPoSa Books)

MUSIC RECOMMENDATIONS



DEERHOOF
Mountain Moves
(Joyful Noise)

To nick from D.H. Lawrence, "If you make a revolution, make it for fun." That might be the guiding principle behind Brooklyn's Deerhoof, a non-genre-bound "rock" band whose untethered frictioning of incongruent musical modes makes for banging sonic rainbows. With the further disrupting

aid of guest singers, *Mountain Moves* mix-matches the lyrical and noisy in "Slow Motion Detonation," "Con Sordino" and "I Will Spite Survive," whose power-poppy guitars chop in modern-jazzy interludes and kitschy electronics, birthing a spine-tingly reharmonized world in the process. *John Payne*



WILLIE NELSON & THE BOYS
Willie's Stash Vol. 2
(Legacy Recordings)

In the country-music tradition of the family band, the voices of Willie Nelson and sons Lukas and Micah blend perfectly. The Nelson men simply went into the studio with a bunch of unfamiliar pickers (save for harmonica player Mickey Raphael) and let 'er rip in harmony on a heap of

honky-tonk classics. (The one recent composition is Alyssa Miller's gorgeous "My Tears Fall.") Half are Hank Williams songs, while the others come from three other Hanks: Snow, Cochran and Locklin. There must be something magical for hillbilly legends to be named Hank—or Nelson, as proven here. *Michael Simmons*

BOOK RECOMMENDATIONS



NO WAY HOME: A MEMOIR OF LIFE ON THE RUN
Tyler Wetherall
(St. Martin's Press)

Halfway through finishing this memoir about living life with a pot-smuggling father, Wetherall nearly has a nervous breakdown. Toward the comedown, she's on the phone with her dad, being reassured about statutes of limitations. She writes, "Rationally I know there's nothing to fear, but

a child's voice somewhere inside still warns of terrible things in a whisper. I shush it away, and put one word after the other, writing my past back into place." And so goes the book: Family-centric, yet full of resentment, Wetherall's dramatic account of her struggles is haunting. *Mary Schumacher*

VIDEO GAME RECOMMENDATIONS



SOUTH PARK: THE FRACTURED BUT WHOLE
(PlayStation 4, Xbox One, Microsoft Windows)

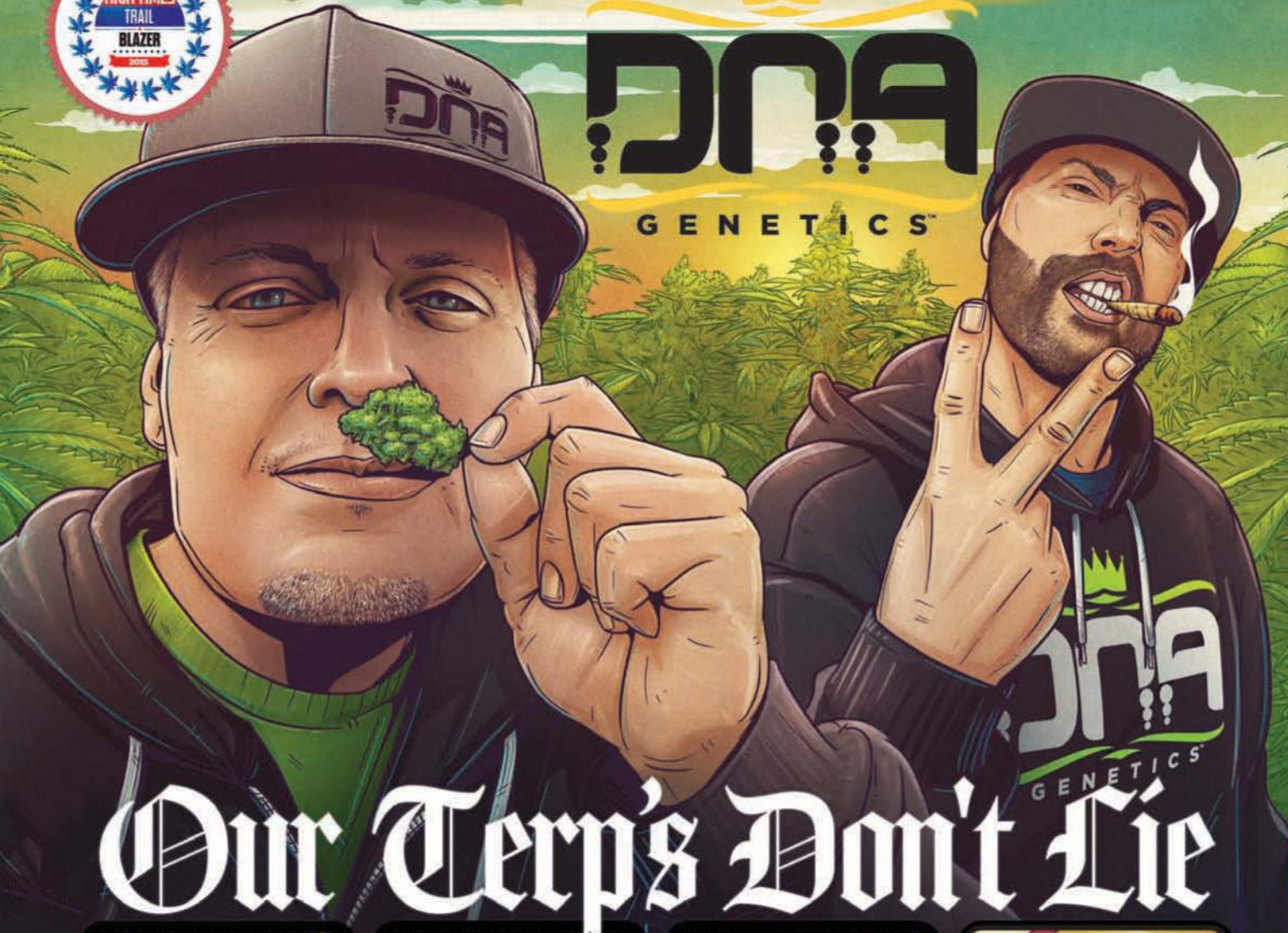
When *South Park: The Stick of Truth* was released in 2014, it capped off five years of troubled development before the game was rescued by Ubisoft. The game found massive success thanks to Matt Stone and Trey Parker's heavy involvement and lauded RPG developer Obsidian's experience in the genre. Three years later, we now have a sequel—but does it still feel as fresh as it once was? Almost.

Fractured but Whole follows its predecessor's outline: You create a character, choose an archetype (this time based around superheroes) and explore South Park while interacting with

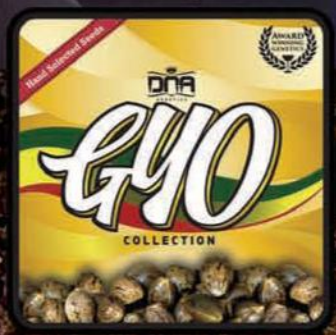
all of the known faces. The graphics are exactly what you'd expect and make you think you're watching the show. The humor is on point and a lot of love was put into designing the world. The battle system, however, feels like it took a step back: The *Final Fantasy*-style system was replaced with an open grid around which the characters move. While it's nice to mix it up, it ends up feeling more like a puzzle ("Am I using the right characters in this battle?") than assembling a dream team. Nonetheless, *Fractured but Whole* is still an excellent entry in the franchise's short list of great video games. *Casey Holliday*



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CANADA ON THE BRINK

THE GREAT WHITE NORTH PREPARES TO JUMP OUT AHEAD OF US LEGALIZATION.



J.J. McCoy is Senior Managing Editor for New Frontier Data

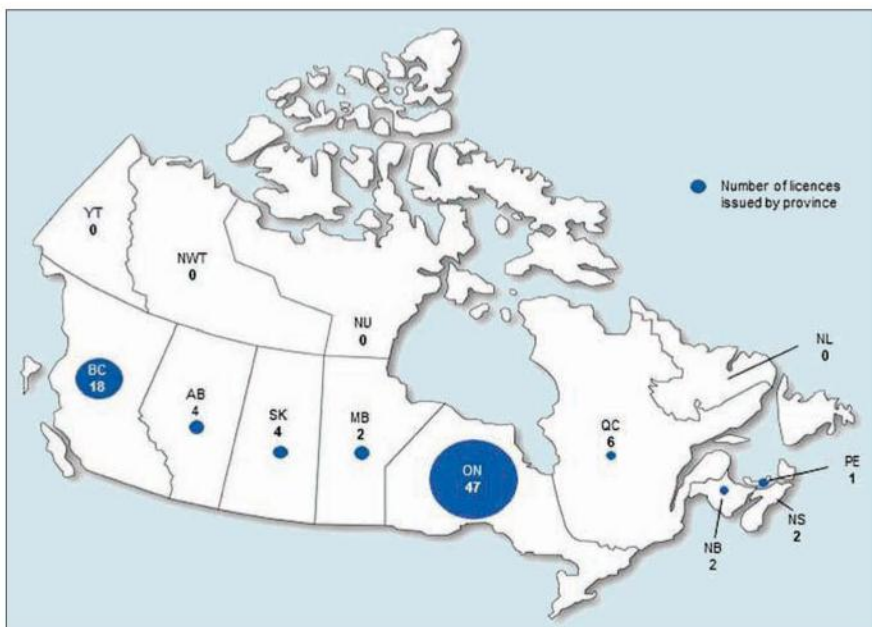
WHILE THE FIRST months of 2018 have seen the opening of California's adult-use market and wide-ranging speculation about what US Attorney General Jeff Sessions's rescission of the Cole Memo would mean to the cannabis industry nationwide, July 1 will soon draw attention to our neighbors in the north.

Some of the finishing details are yet to be worked out (most of the rules affecting consumers have been left to each of Canada's 10 provinces and three territories to determine), and most Canadians are not expecting a finished product on day one. Law- and policy-makers are still trying to define regulatory models, so it will take some time for the environment to fully take shape. New Frontier Data has provided input to Canadian regulators regarding some effective regulatory structures.

Most observers are expecting it to take one or two years for the dust to settle. But that's okay for those welcoming a legal market that is projected to eventually yield billions in profits and revenues, even if 2018 will be more of a historic landmark with less of the earning milestones that are sure to be seen down the road as the program and markets mature.

Early signs are encouraging. As of January 1, 2018, there were 84 licensed producers in Canada, up from 59 in 2017 (a 42.4 percent increase). The country's total market forecast (from both legal and illicit sales) falls somewhere between C\$9.5 billion to C\$10.5 billion (US \$7.6 billion to US \$8.4 billion), making Canada's market comparable to California's. Meanwhile, the start of 2018 also saw an estimated 58 cannabis-related stocks listed on the Canadian Securities Exchange.

Such profit potential has drawn the attention of plenty of investors. In October 2016, Constellation Brands raised eyebrows and enthusiasm as the major US wine and beer distributor invested \$245 million in Canopy Growth, owner of several licensed medical-marijuana growers in Canada.



THE COUNTRY'S TOTAL MARKET FORECAST (FROM BOTH LEGAL AND ILLICIT SALES) FALLS SOMEWHERE BETWEEN C\$9.5 BILLION TO C\$10.5 BILLION (US \$7.6 BILLION TO US \$8.4 BILLION), MAKING CANADA'S MARKET COMPARABLE TO CALIFORNIA'S.

Though the country first legalized medical cannabis in 2001, Health Canada reported how eligible medical enrollees were increasing by 10 percent a month as of May 2017. By September, there were 235,621 medical patients being supported by licensed producers (who provide roughly half of Canada's medical cannabis, with home producers supplying the rest).

That noted, it is on the export side where most analysts expect the market to thrive. Among notable countries where Canada is exporting medical cannabis are Germany, Brazil, Australia, New Zealand, Chile and South Africa.

Were Brazil to legalize medical cannabis (South America's largest nation allows CBD, but not cannabis), the number of patients in the first three years could reach 959,000 even with a relatively restrictive list of qualifying conditions (i.e., not including chronic

pain). The 2016 Global Health Disease Study found that one in five adult Brazilians suffer from lower-back or neck pain. Should chronic pain be included as a qualifying condition, as many as 3.4 million patients would translate to a projected R4.4 billion (US \$1.4 billion) in annual revenue.

As announced in January, a Canadian medical-cannabis exporter signed for an undisclosed amount to supply Germany's CC Pharma GmbH with products to distribute through more than 13,000 German pharmacies. Toronto-based producer Nuuvera (a strategic partner with Aphria) designed a one-million-square-foot greenhouse to supply 1,200 kilograms of medical cannabis to CC Pharma.

Overall, Canadian medical cannabis will be available for sale in most of Germany's 20,200 pharmacies due to deals inked in 2017. 🌿

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FEATURED IN 2018 **HIGH TIMES** VAPE PEN REVIEW



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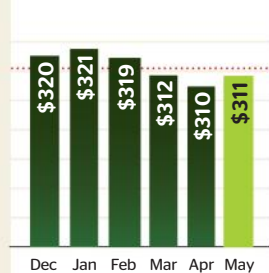
(Big Buddha Cheese)
"Flowers give off a nice mix of skunk/cheesy and sweet/tropical flavors."
-Seattle, WA

MARKET ANALYSIS

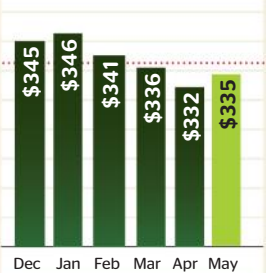
Prices by the ounce

All indices, with the exception of the Southern Index, finished May above their previous month's average. The Southern Index closed out the month \$10 below its year-to-date average and finished \$1 below the Eastern Index. The Western Index experienced a \$5 increase from its April average due in part to newly legal retail weed driving up prices in California.

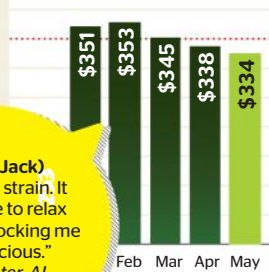
US Price Index
YTD Average: \$315



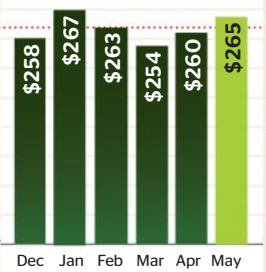
Eastern Index
YTD Average: \$338



Southern Index
YTD Average: \$344



Western Index
YTD Average: \$262



(Black Jack)
"Love this strain. It allows me to relax without knocking me unconscious."
-Alabaster, AL

TRANS HIGH MARKET QUOTATIONS

STATE	CITY	STRAIN	PRICE
ALABAMA	Alabaster	Black Jack	\$300
	Mobile	Bubba Kush	420
ALASKA	Fairbanks	Sensi Star	350
ARIZONA	Phoenix	Tangie	300
CALIFORNIA	Oakland	Holy Grail	295
	West Hollywood	OG Kush	360
COLORADO	Aurora	Queen Mother Goji	150
	Denver	Golden Goat	230
CONNECTICUT	Hartford	Headband	400
DELAWARE	Newark	Pineapple	300
FLORIDA	Fort Lauderdale	XXX OG	400
	Orlando	Gorilla Glue #4	280
GEORGIA	Atlanta	Strawberry	300
HAWAII	Honolulu	Holy Grail	450
ILLINOIS	Collinsville	Blue Dream	360
	Crystal Lake	White Rhino	420
INDIANA	Fort Wayne	Lemon Diesel	320
KENTUCKY	Berea	Granddaddy Purp	240
LOUISIANA	Monroe	Blueberry	400
MAINE	Bangor	OG Kush	280
MARYLAND	Baltimore	Gorilla Glue #4	320
	Salisbury	Sour Diesel	280
MASSACHUSETTS	Brookline	Gorilla Glue #4	300
MICHIGAN	Detroit	Gas	350
MINNESOTA	Minneapolis	Skywalker OG	420
MISSISSIPPI	Tupelo	Purple Trainwreck	420
MONTANA	Bozeman	Dr. Who	200
NEBRASKA	Lincoln	Sour Diesel	240
NEVADA	Las Vegas	WIFI OG	295
	Reno	Cookies	300
NEW MEXICO	Bernalillo	Thunderstruck	335
NEW JERSEY	Vineland	Sour Diesel	240
NEW YORK	Buffalo	OG Kush	420
	New York	Strawberry Cough	400
NORTH CAROLINA	Charlotte	Gorilla Glue #4	320
OHIO	Bellefontaine	Gas	280
OKLAHOMA	Enid	Super Sour Kush	300
OREGON	Portland	Gorilla Glue #4	215
PENNSYLVANIA	Pittsburgh	Birthday Cake	450
SOUTH CAROLINA	Myrtle Beach	Gorilla Glue #4	430
TENNESSEE	Memphis	Blueberry	320
TEXAS	Houston	Sour Diesel	280
	Plano	Gorilla Glue #4	480
VERMONT	Burlington	Headband	375
VIRGINIA	Herndon	Sour Diesel	230
WASHINGTON	Seattle	Big Buddha Cheese	255
	Spokane	Tangie	180
WISCONSIN	La Crosse	Vanilla Kush	240
INTERNATIONAL			
AUSTRALIA	Sydney	Northern Lights	A\$500
CANADA	Montreal	Holy Grail	C\$280
	Winnipeg	Diesel	300

High Times wants to know what you're smoking. Submit your strain information including location and price by the ounce to thmq@hightimes.com, or tweet us (#THMQ).

(Queen Mother Goji)
"Heavy handed indica-dominant, grade A bud!"
-Aurora, CO

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THE TRUTH ABOUT

TERPS

AN IN-DEPTH LOOK AT CANNABIS BEYOND JUST THC AND CBD. BY NICO ESCONDIDO

IN THE BEGINNING

In 1964, two young scientists, Dr. Raphael Mechoulam and Dr. Yechiel Gaoni, were the first to isolate and map the molecular structure of THC. This cannabinoid is, of course, the primary and only psychoactive chemical compound found in cannabis.

Late in 2010, this author had the pleasure and privilege to interview Dr. Mechoulam at his laboratory at the Hebrew University in Jerusalem. During that interview, I asked him a simple question: Why cannabis? And his answer was simple as well. In short, Dr. Mechoulam was interested in “natural products” that could elicit a therapeutic response within the human body. And while other

plants, such as coca and poppy, had already been refined for medical purposes—cocaine in 1860 and morphine in 1803, the latter being believed to be the first isolation and extraction of an active compound from a plant—there was not an overabundance of options left. So “Why not cannabis?” Dr. Mechoulam asked in response.

Less than a year after my interview with Dr. Mechoulam, another prominent scientist, Dr. Ethan Russo, published an equally important piece of research in the *British Journal of Pharmacology*, “Taming THC: Potential cannabis synergy and phytocannabinoid-terpenoid entourage effects.” Dr. Russo is a board-certified neurologist, former senior

medical advisor to GW Pharmaceuticals and a widely published author in many scientific journals, books and periodicals (including our very own *High Times*).

Building off of the previous work and ideology of Mechoulam and Gaoni, Dr. Russo introduced the next steps in our collective understanding of the effects and benefits of marijuana, this time focusing not just on cannabinoids, but also on the terpenoid content present in the plant. Both the isolated effects of other cannabinoids (such as CBD, CBG, THCV, etc.) and terpenoids as well as the sum of all parts when taken together, he argued, represented “another echelon of phytotherapeutic agents.”



Lemon Skunk: high in the terpene limonene and more than meets the eye.



Granddaddy Purps: high in linalool and caryophyllene.

WHAT (EXACTLY) ARE TERPS?

Before we get back to Dr. Russo’s work and attempt to more fully understand the interactions between terpenes and cannabinoids (i.e., the entourage effect), we first need to know just what exactly “terps” are. Technically speaking, terpenes are a large and very diverse class of organic compounds (hydrocarbons, to be exact) that are produced by a wide variety of plants, including cannabis.

Some authors use the term “terpene” as a broader, catchall phrase that includes the subgroup known as “terpenoids.” Terpenoids can be thought of as modified terpenes, although they are very similar in most aspects aside from molecular structure. Terpenoids

are terpenes that have been chemically altered, usually in the form of a moved or lost methyl group (one carbon plus three hydrogen atoms, or CH_3). More important, terpenoids are also terpenes that have become denatured by oxidation, such as during the drying and curing of buds, making “terpenoid” a more accurate term when discussing strains that are ready for smoking, whereas “terpene” is more accurately used when discussing live plants (or fresh frozen plants, for extraction purposes).

A much simpler way to look at terps is that they are a plant’s “essential oils,” or the primary building blocks of any plant resin, and they are largely responsible for the scents, flavors and colors of plants. There are over 200 known terpenes in cannabis and, by comparison, just over half as many known plant cannabinoids (113), which are 21-carbon-atom molecules found only in cannabis and are completely odorless. And while Dr. Russo’s research strongly suggests that terpenes can contribute to the overall effects of cannabis, either singularly or via the total compounded effects of all cannabinoids and terpenes, there are no known psychoactive effects from individual terpenes.

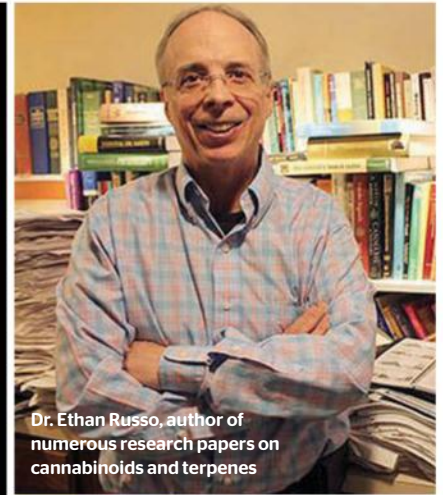
It is also worth noting that terpenes are created through the biosynthesis of isoprene units, which are carbon and hydrogen building blocks (C_5H_8) for terpenes. This is important because it leads to that long and diverse list of organic compounds that encompass what a terpene can be. Adding a prefix to the name indicates the number of isoprene

units needed to make that type of terpene, because for each single terpene involved there are two isoprene units needed.

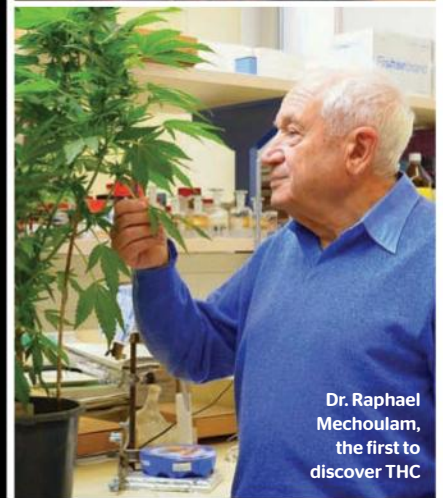
For example, when you see the term monoterpene (“mono” meaning one), you know there are two isoprene units involved. Similarly, sesquiterpenes (“sesqui” meaning one and a half) indicates there are three isoprene units, and diterpenes (“di” meaning two) indicates there are four isoprene units, and so on. The list continues up to tetraterpenes, meaning eight isoprene units. After that, the terminology is generic, with polyterpenes indicating many isoprene units (i.e., more than eight). Just like terpenes, terpenoids can also be classified according to the number of isoprene units used. This is important because this is how scientists are able to identify and elucidate individual terpenes or terpenoids within a plant sample.

Lastly, terpenes, like cannabinoids, are synthesized in cannabis inside secretory cells that exist within the plant trichomes, which cover buds and leaves. Trichomes are most concentrated on unfertilized female flowers during peak flowering—usually around the six- or seven-week mark, just as trichomes begin to turn amber in color. Being created within the same physiological structure is important because it shows us that both cannabinoids and terpenes share a common denominator, or precursor, in their production: geranyl pyrophosphate. This could suggest common receptor potential within the human body for both cannabinoids and terpenes, a basis for the research of Dr. Russo.

Concentrated trichomes (hash) was used by Mechoulam to first isolate THC.



Dr. Ethan Russo, author of numerous research papers on cannabinoids and terpenes



Dr. Raphael Mechoulam, the first to discover THC

THE RUSSO PAPER

By the time Dr. Russo took up his cause to explore the potential synergetic effects of cannabis terpenes alongside cannabinoids, most of the prominent cannabinoids had already been elucidated, most of which by Dr. Mechoulam beginning with cannabidiol (CBD) in 1963 and then the seminal discovery of THC in 1964.

But in 2011, Dr. Russo set out to investigate the effects, if any, of the various terpene profiles found in cannabis. Either alone, or in conjunction with one another, or in totality along with the cannabinoid profiles found in strains, Dr. Russo hypothesized that terpenes and flavonoids could elicit therapeutic responses within the human body and contribute to the effects of the cannabis plant. At the time, only one previously manufactured pharmaceutical, Sativex, had been synthetically derived from the plant's chemical structures (THC and CBD in a 1:1 ratio), and since then, only one other, Marinol (synthetic THC), has come to market. While Sativex has seen moderate success and gained approval for use in over 30 countries, including the United States (where it is called Nabiximols), Marinol has not enjoyed as much success, though it was approved by the Food and Drug

Administration (FDA) in the US. Still, neither Sativex or Marinol was able to reproduce the same medical and therapeutic effects that one receives when smoking the actual plant. The "full bouquet," so to speak, of a particular strain offered something to patients that a single—or even a pair—of cannabinoids could not. Clearly, more research was needed, and Dr. Russo had an idea where to look.

In the past, various researchers had attempted to uncover the mysteries surrounding terpenes, emphasizing their pharmacological importance. Aromatherapy, a form of holistic healing, has been a popular method for healing for centuries. And in 1998, Dr. Mechoulam even co-authored a paper with Dr. Shimon Ben-Shabat that suggested biological compounds created by the human body, known as endocannabinoids, might act in concert with other compounds to exert what they coined an "entourage effect." Dr. Russo looked at this term and applied the same concept to his own research, except in his studies he substituted the endocannabinoids of the human body with the actual phytocannabinoids produced by the plant itself, leading to theories about the synergistic effects that terpenes and cannabinoids might have when combined with each other.

RELATED SCIENCE: THE ENTOURAGE EFFECT

Around the same time that Russo was doing his research on possible entourage effects of the combination of terpenes and cannabinoids, a Swiss scientist, Dr. Jürg Gertsch, was researching similar theories. In 2008, three years prior to Dr. Russo's paper, Dr. Gertsch documented that beta-caryophyllene, a primary terpene found in a majority of cannabis strains, had a certain affinity for binding to CB2 receptors in the human body. This discovery is of extreme importance as beta-caryophyllene is the only known terpenoid to directly activate a cannabinoid receptor, thereby proving that, at least on some level, terpenes do, in fact, play a role in the overall therapeutic effects of marijuana.

Dr. Gertsch's findings illustrated perfectly the theory of the entourage effect: Beta-caryophyllene, a terpene found in oregano, black pepper and other green, leafy vegetables that has been known to be good for treating certain ulcers, acting as a gastro-protector in herbal remedies, binds to CB receptors previously thought to be reserved strictly for cannabinoids and, subsequently, the body's own endocannabinoids, providing new evidence that terpenes also play a direct

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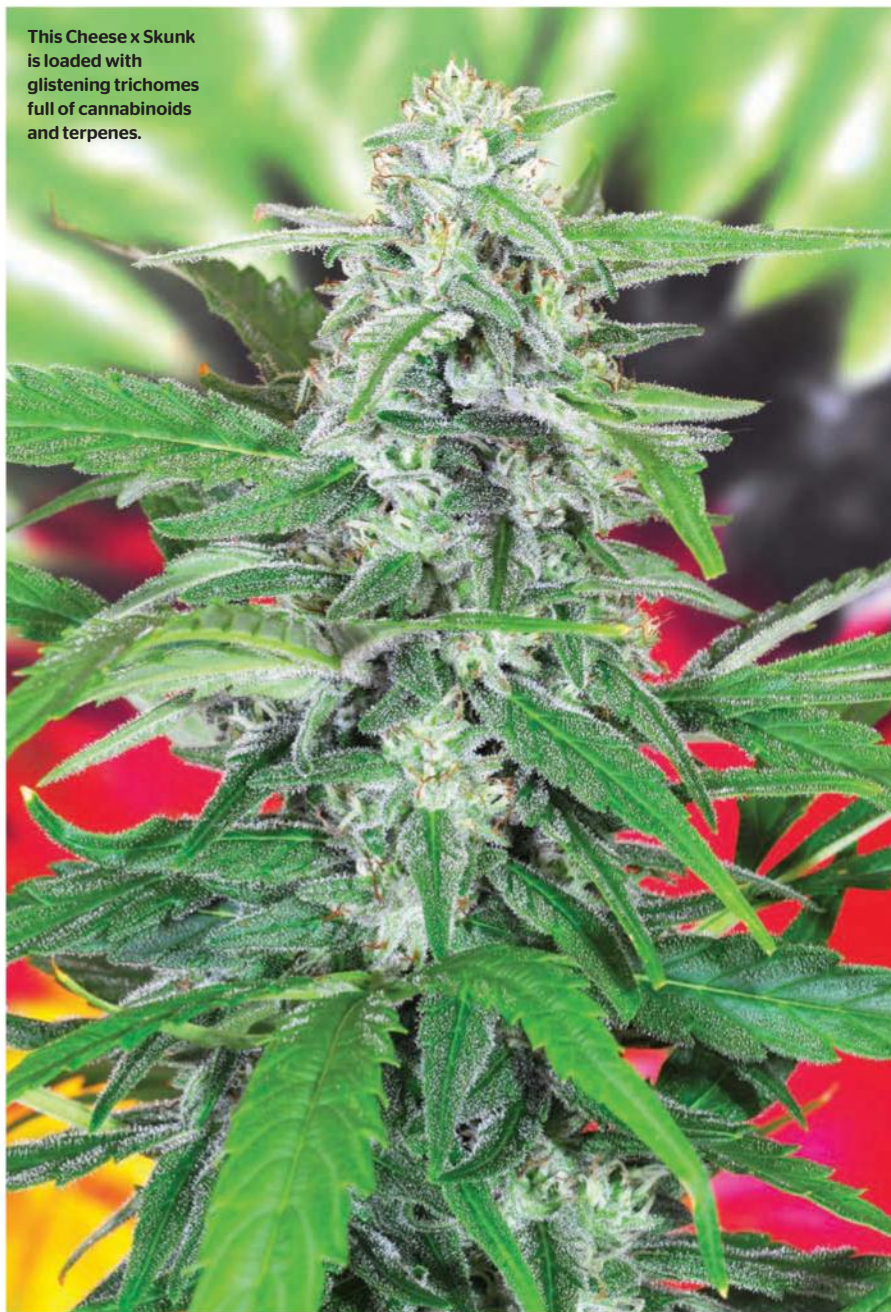


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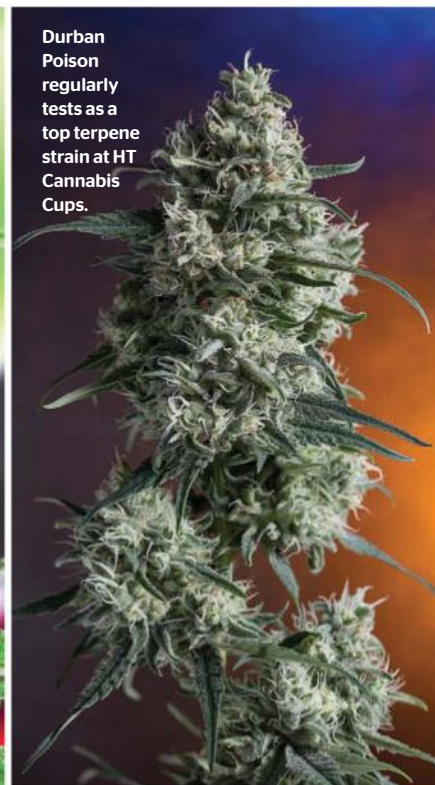


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This Cheese x Skunk is loaded with glistening trichomes full of cannabinoids and terpenes.



Durban Poison regularly tests as a top terpene strain at HT Cannabis Cups.



role. So while this shows that the aromatherapy and herbal therapies of ancient cultures were certainly onto something, it also shows that when humans use cannabis there is a lot more going on than just reactions to THC and CBD. But what does this mean in terms of how cannabinoids such as these interact and work in concert with terpenes?

The 1998 paper by Dr. Ben-Shabat and Dr. Mechoulam put this very question to test when researchers used lab mice in a study to determine if terpenes acted alone or in tandem with cannabinoids to elicit a stronger or overall different effect. In short, they found that the naturally occurring endocannabinoid known as 2-AG (2-arachidonoylglycerol), when administered with two related compounds (i.e., esters derived from carbox-

ylic acids, which are molecularly similar to cannabinoids), would bind more readily at the cannabinoid receptors and exert a more pronounced behavioral effect on mice.

This was, to a certain extent, proof that endocannabinoids working at the CB-receptor level could have altered effectiveness when used in conjunction with other compounds. A few years later in 2001, Dr. Russo and Dr. John McPartland would publish a paper in the *Journal of Cannabis Therapeutics*, stating, "Good evidence shows that secondary compounds in cannabis may enhance the beneficial effects of THC and reduce THC-induced anxiety, cholinergic deficits, and immunosuppression."

Dr. Mechoulam himself would later address these findings, saying, "Very seldom is

the biological activity of the active constituent [analyzed] together with inactive 'entourage' compounds. Investigations of the effect of the active component in the presence of its 'entourage' [non-psychoactive] compounds may lead to results that differ from those observed with the active component only." Essentially, Dr. Mechoulam was stating that while scientists previously were focused only on the active components of such natural products as cannabis, had they taken a broader approach and looked more holistically at the product, they might have found different outcomes when it comes to the effects elicited from said products.

These findings and statements by some of the most prominent and respected scientists in these fields were only the beginning in a wave of theory and research that is still ongoing. Of course, the biggest hindrance to much of this work is the fact that cannabis is still federally prohibited in the United States, which has slowed progress and is why nearly all of this referenced research was conducted overseas. Still, the work that has been done to this point gives us a better understanding of why and how different strains of marijuana elicit different effects in the user. When you think about what makes a *sativa* a *sativa* or what makes an *indica* an *indica*, there clearly has to be more involved than just the THC or CBD levels. Sure, there are other cannabinoids in varying amounts as well, but this research shows us that terpenes, and even many flavonoids, have a significant role to play as well.

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Thank you, High Times. Congratulations on your 500th issue!



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THE PURITY & SAFETY OF TERPENES

Much has been made lately over the purity, quality and safety of terpenes and terpene-extraction processes. We already know that many vape-pen cartridges are adulterated with synthetic terpenes and artificial flavors. But are these terpenes safe to ingest and, more specifically, smoke? We know that terpenes share a chemical precursor with plant cannabinoids and that they are all flavor and fragrance components common to human diets. Thus, these terpenes and flavonoids have, for the most part, been designated as “generally recognized as safe” by the US FDA and other regulatory agencies.

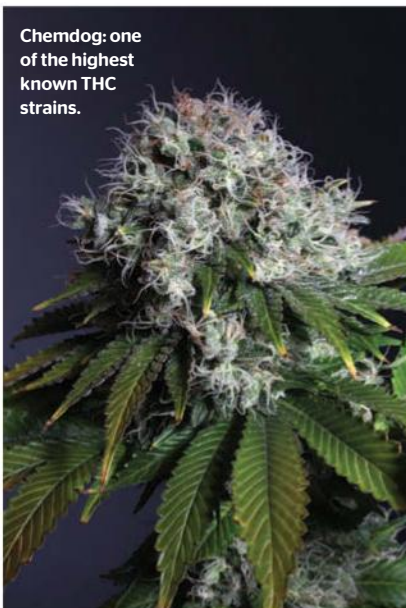
Still, some folks out there also like to argue against the purity of terpene products currently on the market, claiming that some extraction methods—primarily through distillation—create hydrosols which, simply put, are terpenes that have been diluted by the addition of water from the distillation process. With similar therapeutic properties to essential oils, these “aromatic waters” are much less concentrated, which might not be the worst thing. Far worse than those creating hydrosols are the extract artists who knowingly and purposefully pollute dab products with non-cannabis-derived terpenes, synthetic terpenes and artificial flavors (the latter two being nonorganic). Call us purists over here at *HT* if you like, but we only allow cannabis-derived terps in our Cannabis Cup competitions when it comes to concentrates. If those cannabis terpenes are derived from an organic, nonchemical solvent process like steam distillation, a little H₂O in the terps is really no big deal.

As Dr. Russo put it, “Terpenoids are quite potent and affect animal and human behavior when inhaled from ambient air at serum levels in the single digits ng·mL⁻¹ [Editor’s note: That’s nanograms per milliliter, where there are one million nanograms per mL]... and display unique therapeutic effects that may contribute meaningfully to the entourage effects of cannabis-based medicinal extracts.” Basically, Dr. Russo is telling us what we already know: that terps are extremely potent, even in the absolute tiniest of amounts. So, then, what’s the big gripe against hydrosols, you might ask?

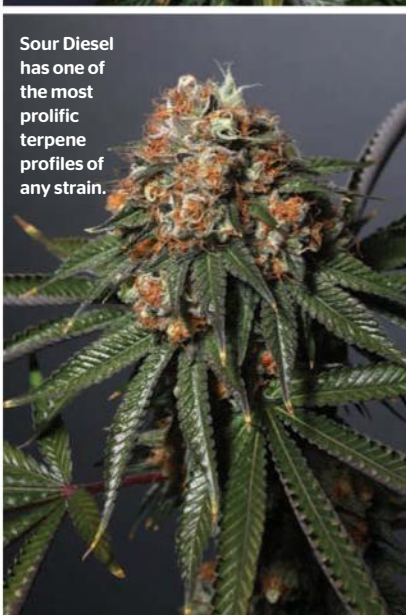
Well, in this new age of legal marijuana industries—which are netting billions in revenues—there are dollars at stake and people have gone through painstaking efforts to develop (and protect) various techniques and methodologies for everything from cultivation to genetics, to recipes, to extraction methods. And when these modalities are challenged or threatened, people tend to defend their claims.

So when it comes to terpenes—whether synthetic or organic, derived from cannabis or from other sources, or are just a bit watered-down—you can decide for yourself where your preferences lie. But at the end of the day, as long as these products are organic and derived solely from cannabis, they are relatively safe and bring the user immense amounts of fragrance and flavor.

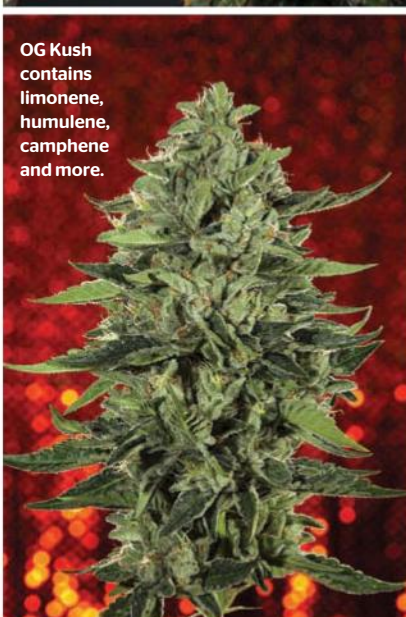
Chemdog: one of the highest known THC strains.



Sour Diesel has one of the most prolific terpene profiles of any strain.



OG Kush contains limonene, humulene, camphene and more.



TERPS 101

Below is a list of the most predominant terpenes found in cannabis strains that have been lab-tested at our Cannabis Cups over the past five years. These terpenes are not only the most prevalent, but also the most active in terms of both isolated effects and overall entourage effects when combined with cannabinoids such as THC.

BETA-CARYOPHYLLENE

Perhaps the most common terpene, beta-caryophyllene (or just caryophyllene, as it is commonly known) is present in eight out of 10 strains and has a woody, sweet, dry clove aroma. It has a spicy, almost peppery taste with hints of camphor and citrus in the background. It is a major terpene found in black pepper, clove, cotton and, in smaller amounts, green, leafy vegetables. Caryophyllene oil is an essential oil used to enhance tobacco flavor.

As previously mentioned, caryophyllene played a major role in Dr. Russo’s 2011 *British Journal of Pharmacology* paper on the entourage effect due to its ability to bind directly to the peripheral cannabinoid receptor CB2. That, in and of itself, is endlessly intriguing. And because of that fact, caryophyllene shows promise in salves or lotions as a therapeutic compound for inflammatory conditions and autoimmune disorders. It does not, however, seem to be involved in mood change or have other psychoactive aspects. Lastly, and sadly, caryophyllene oxide has the distinction of being the component responsible for cannabis identification by drug-sniffing dogs.

BETA-MYRCENE

Another very prominent terpene found in most cannabis strains, beta-myrcene (or myrcene) was once thought of as a predominantly *indica* terpene due to the types of effects it elicits. However, with the recent wave of research in terpenes and strain chemotypes, it was found that myrcene is equally common in both *sativa* and *indica* varieties, casting further doubt on our taxonomical classification system of cannabis’s three species.

When it comes to the interactions with cannabinoids, myrcene can be described as a “synergist” of THC, meaning that when the two molecules combine in the body a stronger experience is created than with just THC alone. Because myrcene affects the permeability of the cell membranes, it allows more THC to reach brain cells as well as increases the absorption of other terpenes. High doses of myrcene were shown to induce sleep in mice during lab trials, and this sedative activity is likely why hops and lemongrass have been used as therapeutic sedatives in herbal healing for centuries. This is also why hoppy beers as well as myrcene-dominant *indicas* are famously known for their “body buzz” and “couchlock” effects.



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D-LIMONENE

Limonene is one of the most popular cannabis terpenes, mostly due to its intense citrus aroma and sweet but potent lemon-lime flavor. In certain lab experiments, it has been shown to combat and destroy breast cancer cells as well as pathogenic bacteria. Limonene's molecular structure helps it to facilitate its effects by quickly permeating the blood-brain barrier. When present with THC, this effect can aid in the cannabinoid more readily binding to CB1 receptors in the brain. Limonene has also been reported to increase alertness and restlessness in lab tests involving mice. Limonene is found in larger quantities in Chem, OG and Sour Diesel strains.

ALPHA-PINENE & BETA-PINENE

These are the two chemical structures of pinene found in nature. Pinene is used medically in expectorants and topical antiseptics. Like limonene, pinene also easily crosses the blood-brain barrier, where it helps block chemical activity that normally destroys information-transfer molecules, thus facilitating better memory and leading to suggestions that pinene might have an application in the clinical treatment of Alzheimer's disease. Pinene is also a known bronchodilator, allowing for larger inhalations, which can help those with asthma.

LINALOOL

Linalool is a component of several sedating essential oils, including lavender oil, which is believed to possess anti-anxiety and sedative properties. In clinical tests on humans who inhaled linalool, the terpene caused severe sedation. In similar tests on lab rats, it reduced the rodents' motility by nearly 75 percent.

While linalool's synergistic effects alongside cannabinoids are still being investigated, the hope is that linalool might help in the treatment of several types of cancer due to its effective medicinal properties. It is also a well-known antidepressant, as it amplifies serotonin-receptor transmission. In addition to being a compound that can mediate stress, linalool is also a strong anticonvulsant and may be particularly beneficial for topical applications, specifically healing acne and skin burns without scarring.

IN THE END

We now know that there are many chemical compounds in marijuana, including cannabinoids, terpenes and flavonoids. Most of these compounds carry with them specific medicinal attributes, often combining with each other to create a holistic "entourage effect" such that the medicinal impact of

the entire plant is actually greater than the sum of its parts.

Dr. Russo's research indicates that cannabinoid-terpenoid interactions "could produce synergy with respect to treatment of pain, inflammation, depression, anxiety, addiction, epilepsy, cancer, fungal, and bacterial infections." Additionally, we know that terpenes, just like cannabinoids such as CBD, can buffer THC's psychoactive effects. Conversely, we also know that certain terpenes can aid or strengthen the effects of THC. The questions now are: What exactly are the combined effects that we want to create and elicit from this plant? How do we want to create and administer these medicinal compounds? And, most importantly, when will our federal government wake up to this news and end cannabis prohibition so that research like Dr. Russo's and Dr. Mechoulam's can be conducted at universities and research institutes within our own country's borders?

The science is there and much has been proven. We have won many battles, but the war will not end until the ignorance and stubbornness abates. It appears we still have a long way to go. It's time to raise the stakes once again, and science is our biggest ally. ✨

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AS CANADA PREPARES TO LEGALIZE RECREATIONAL CANNABIS THIS SUMMER, WE CHECK IN WITH TOP POT SPOTS ACROSS THE COUNTRY TO ASK MARIJUANA BUSINESS OWNERS, WORKERS AND CONSUMERS: HOW WILL LEGAL WEED AFFECT THE CANADIAN ECONOMY AND CULTURE?

—BY MARY JANE GIBSON—

UNDER PRIME MINISTER Justin Trudeau's Liberal Party leadership, Canada is set to legalize cannabis nationwide in July of this year, making it the largest country in the world to have a federally sanctioned marijuana marketplace. The True North, strong and free? That remains to be seen, say industry experts and activists across the nation.

According to a Statistics Canada report, Canadians spend almost as much on the green as they do on the grape, consuming C\$6.2 billion worth of marijuana in 2015—a relatively conservative estimate, the agency admitted, stating that actual consumption could “reasonably” be as low as half that amount, or as much as double. By comparison, Canadians spent C\$7 billion on wine in 2015.

The emerging Canadian cannabis industry has seen dizzying growth in the past year. Shares in Canopy Growth Corp. (formerly Tweed Marijuana Inc.), trading on the Toronto Stock Exchange as WEED, have more than tripled. *Bloomberg.com*

reported that the company's market value of C\$7.2 billion now exceeds that of Bombardier Inc.—the world's leading manufacturer of both planes and trains.

No matter how you slice it, the legal weed industry is guaranteed to be a huge payday for the Canadian government, with an estimated \$400 million generated annually in taxes from retail sales, according to *Bloomberg*. And cannabis businesses across the country are clamoring for their share of the pot pie.

SHOULD LEGAL WEED LOOK FUN?

Government regulations and restrictions on legal cannabis sales may limit the retail weed market to some degree. Cannabis-product packaging may be required to display health warnings akin to the graphic images of smoking-related diseases that are printed on packs of Canadian cigarettes. Consumer testimonials may be banned. Ditto for celebrity endorsements. Packaging could be mandated to look as plain and unglamorous as possible if

officials have their way: no bright colors, fun fonts or trippy designs.

In a 2016 report titled “A Framework for the Legalization and Regulation of Cannabis in Canada” from the Task Force on Cannabis Legalization and Regulation, public-health officials issued 112 pages of proposed rules for Canada's cannabis industry, stating, “We recognize that there will be much discussion around the implications of our recommendations. However, like scraping ice from the car windows on a cold winter morning, we believe that we can now see enough to move forward.”

Cannabusiness owners are awaiting the final regulations, due to be issued sometime in February, before the recreational marketing rollout. Some wonder: Will the Canadian government take the fun out of legal marijuana?

Speaking to *Bloomberg*, Bill Blair, former chief of the Toronto Police Service turned marijuana “point person” for the Ontario government, said that the goal of strict

official regulations is to “do a better job of protecting our kids.” But that way of thinking is behind the times. Many nonmedical consumers are middle-aged or older. The cannabis industry’s concern is that, if proposed restrictions limit traditional advertising methods, it may be difficult to market pot products to adult consumers.

To many cannabis consumers, the new laws may not make much of a difference. They’ll buy and smoke weed no matter how it’s packaged. In fact, true cannabis users may not even *want* to buy legal weed. In many cases, provincial govern-

BLACK, GRAY AND GREEN MARKETS

Under Canada’s federal pot laws, citizens ages 18 and older will be able to grow four plants of any size at home. However, most cannabis consumers want to buy their bud—it’s much easier to leave growing great weed to the professionals. It remains to be seen whether marijuana aficionados embrace legal pot shops, or continue to buy from the guy who delivers the finest kind to their front door.

Steve is a marijuana delivery man operating in the hip Plateau-Mont-Royal neighborhood of Montreal. He feels

to that, along the lines of “Fuck, I’m not buying my weed from a cop!”

Steve continued, “Also, mass production like that is the Walmartizing of weed. It’s McDonald’s weed. It’s not artisanally crafted, well-grown varieties. It’s going to end up being the most commercially cost-effective varieties. Because of that, I think we’ll be able to outcompete the big producers, both in terms of quality and in terms of service. From a customer standpoint, they take out their phone, they send a text, and somebody knowledgeable and polite shows up—that’s going to trump going to a store and buying some pre-packaged whatever.”

So trouble may be brewing. Licensed medical-cannabis growers and regulators could be pitted against the black-market weed industry, as everyone figures out how to pivot toward the recreational-marijuana market.

While ganjapreneurs scramble to get ready for government oversight, one event is attempting to bridge the gap between illicit weed and legal cannabis. Green Market, a women-led pop-up farmers’ market, occurs regularly in Toronto, and has expanded to other cities across Canada. The market hosts vendors selling all types of pot products—edibles, concentrates, drinks, topicals, flowers and more—to anyone 18 or older. With no medical recommendations needed, before legalization has taken effect, the event runs a risk in openly offering pot products for sale.

Cannabis activist Lisa Campbell, co-founder of Green Market, says that it’s in business to address the supply gap between the current medical- and future recreational-cannabis markets. Campbell told *HT*, “Green Market started a year and a half ago, and we have another year to go after legalization until edibles and craft producers are included in legalization in 2019. Until then, Green Market has inspired a whole generation of craft-cannabis makers and pop-ups across Canada!”

REC ON THE ROCK

Newfoundland and Labrador, the most easterly Canadian province, is in hard economic shape. After the collapse of the Atlantic cod fishery in the ‘90s, thousands of Newfoundland families struggled to make ends meet. There was a mass exodus from the outport fishing towns dotted around the island, and many young folks moved to mainland Canada to find their fortunes. Today,



Cannabis activists Lisa Campbell and Sarah Gillies co-founded the Green Market.

“THE GOVERNMENT IS EFFECTIVELY GRANTING A QUASI-MONOPOLY TO A FEW CORPORATIONS—AND SOME OF THOSE CORPORATIONS ARE RUN BY FORMER POLICE OFFICERS WHO HAVE BEEN DIRECTLY INVOLVED IN THE PERSECUTION OF THOSE WHO LOVE THE HERB.”

ments are choosing to contract with large-scale growers to fulfill their legal cannabis quota, leaving little to no room for smaller operations growing high-quality bud. It may be difficult to find top-shelf nugs in retail pot shops if the supply is primarily from huge industrial grows.

Judging from the track record of US states that have legalized recreational marijuana, like Colorado, Washington and Oregon, the cannabis market in Canada will likely take years to develop. There will be unexpected setbacks. Officials will need to work closely with businesses and communities to fine-tune regulations and finances as obstacles—and opportunities—crop up.

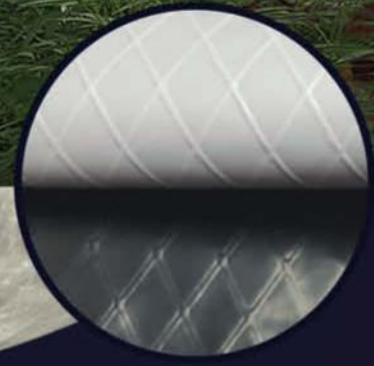
certain that weed going legal in Quebec won’t affect his job or company in the least. Steve works for an outfit that provides top-shelf nugs, pre-rolls, edibles and concentrates. Clients order via SMS text. An eighth of the best weed around goes for C\$30, delivered right to your home, Steve says. Why would any of his clients want to go to a giant government-run pot shop and pay more? Steve told *HT*, “[The government is] effectively granting a quasi-monopoly to a few corporations—and some of those corporations are run by former police officers who have been directly involved in the persecution of those who love the herb. A lot of people have a negative reaction

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despite a thriving tourism industry and offshore oil drilling, the province is still hard up. Will cannabis prove to be a cash cow on “the Rock,” as it is in so many other places?

One man fired up about the possibilities that legal pot may afford him is Thomas H. Clarke (note the initials). Clarke grew up in Newfoundland’s capital, St. John’s, and started selling pot in junior high. He was arrested at 18 for trafficking hashish, though he wasn’t actually caught with it—his buddy turned on him. Clarke was convicted on the basis of that statement and served 30 days in jail. “As a 19-year-old kid, that was pretty eye-opening. I didn’t want to go back there, that was for sure,” Clarke told *HT*. “But I made connections because I didn’t turn on anyone.” From there, he started selling quarter pounds and ounces, mostly to relatives and trusted friends. But he wasn’t in it for the money, he said. “I was in it for the cheaper grass.”

Clarke’s grandparents were both activists—his grandmother received the Order of Canada—and his mother is an educator, so his path to becoming an advocate for legalization in Newfoundland and Labrador made sense. He told *HT*, “I began speaking up about it because I knew I had to, in order for the province to go in the direction that I felt it should: localizing the industry, letting small businesses open and hiring as many Newfoundlanders as we could.” At 43, he has become the face of the marijuana movement in St. John’s, appearing on TV and radio shows, working tirelessly to destigmatize weed. And much to his satisfaction, the province recently ruled that private retail shops will be able to carry cannabis products.

Now living in Portugal Cove, just eight minutes from the St. John’s airport, Clarke is preparing to open up a retail pot shop on his property this summer as soon as he can get a license from the province. He has big plans for branding, planning an entire line of locally themed Blueberry strains repackaged to reflect Newfoundland culture. “I already have 13 strains picked out,” Clarke confided.

Another St. John’s businessman, Jon Whalen, told *High Times* that he believes there will be plenty of room for people like him to operate. Whalen, through his company Grass Hut Organics, plans to act as a broker between small operations growing top-shelf cannabis and retail shops. He’s heartened by the fact that the provincial government is talking in



Thomas H. Clarke plans to open up a retail pot shop in his hometown, St. John’s.

“THERE’S A LOT OF WEED SMOKE IN NEWFOUNDLAND. THERE’S STILL A LOT OF ROOM TO SUPPLY. OTHERWISE, THE BLACK MARKET WILL CONTINUE TO FILL IN WHATEVER BLANKS EXIST ANYWAY.”

inclusive terms about bringing people into the fold from the black and gray markets, “making tax-paying citizens out of those who are already in the marijuana business one way or another.” Whalen anticipates that it will be relatively easy for Newfoundlanders to get licenses for retail shops.

Though the Newfoundland government struck a deal last December with Canopy Growth Corp. to supply 8,000 kilograms of cannabis annually in the first two years of legalization, Whalen said that’s only about a quarter of what Newfoundlanders actually consume. “There’s a lot of weed smoke in Newfoundland,” he says, laughing. “There’s still a lot of room to supply. Otherwise, the black market will continue to fill in whatever blanks exist anyway. It’s not really going to go over to the legal market until the people buying grass want to go to legal shops. I think it’s going to be a while.”

PEACE, ROOTS & CORPORATE CANNABIS

The Cronos Group investment firm owns and operates several licensed producers in Canada, including Peace Naturals in Ontario, where the company is in the process of building what chief operating officer David Hsu told *HT* will be “the largest purpose-built indoor

facility in the world.”

The Cronos Group is poised to take a major share of the legal cannabis market with several companies across Canada operating under its aegis. When the group bought Peace Naturals, which was established in 2013, it also acquired a seed bank containing over 150 unique strains. Eric Klein, head of marketing for the Cronos Group, said, “New LPs [licensed producers] generally have to procure genetics from existing LPs, so with Peace Naturals we have an advantage.”

Cronos COO Hsu added, “We have over 19,000 seeds. Our ultimate goal is to find cultivars that are targeted for therapeutic relief. The main advantage of having such a large facility isn’t just for production. I think a lot of people in Canada are narrow-sighted for the recreational market. The rec market is exciting, but we’re very focused on the medicinal market and creating further intellectual property [in strains], better bioavailability, and then to get our genetics into clinical trials.” Ultimately, Hsu said, the company wants its product labeled with a drug identification number (DIN). An eight-digit DIN, used on prescription and over-the-counter drugs in Canada, indicates that the product has undergone testing and passed a review of its formulation, labeling and instructions for use.

The Cronos Group also has a joint venture with the cannabis company Indigenous Roots, led by Phil Fontaine, former chief of the National Assembly of First Nations. Indigenous Roots will specialize in providing legal medical marijuana and jobs in the cannabis industry to First Nations communities. Speaking to reporters last year, Fontaine said that the new business venture is about helping Canada’s indigenous peoples gain access to high-quality cannabis products. “We know this is an underserved population,” Fontaine said. “Indian people deserve to have access to quality products.”

THE TRUE NORTH, STRONG & FREE

As the federal government’s legalization deadline approaches, it’s still unclear what the new marijuana landscape will look like. Canadians will experience the impact and benefits of legal cannabis under various types of regulations coast to coast, from Newfoundland all the way to British Columbia. The rest of the world will be watching, and taking notes in anticipation of marijuana prohibition coming to an end in other countries all around the globe. Hopefully, that bright green future isn’t too far off. ✨

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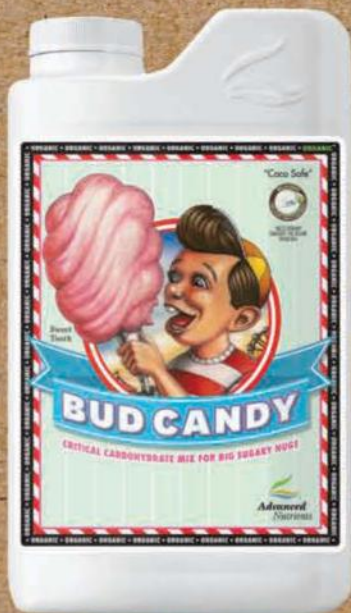
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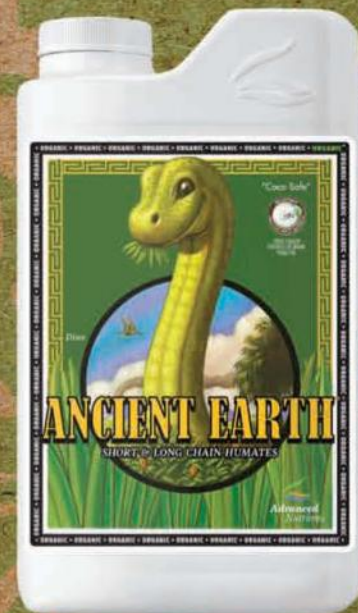


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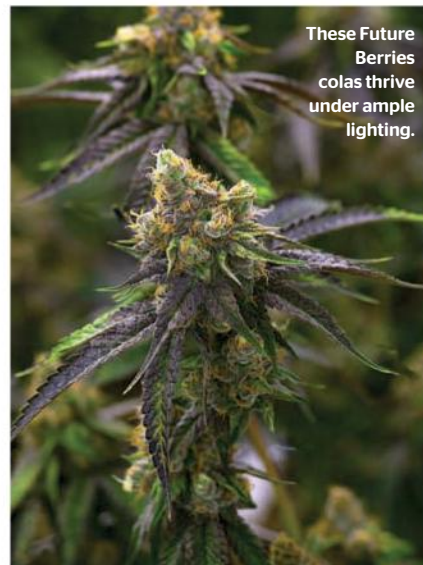
BY DANNY DANKO

Workers
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into the
trellising.





Ryan Jennemann directs the THC Design crew.



These Future Berries colas thrive under ample lighting.

GROW WEST, YOUNG MAN

Ryan Jennemann fled from Tulsa, OK, to Los Angeles with a dream to grow pot in relative freedom. He had seen how medical cannabis helped his ailing father with debilitating headaches and how the lack of it contributed to his dad's demise at only 47 years old. The ongoing harassment, persecution and prosecution of his family by Oklahoma law enforcement led him to seek greener pastures out West. Now he's a co-founder and the chief cultivator for THC Design, overseeing all of the company's growing facilities and ensuring that the medicine it produces is as clean and as effective as possible.

From the moment I meet Jennemann and his crew, I realize there's a palpable emphasis on family. Jennemann's brother Seth is THC Design's president and CFO, and much of the company's staff are trusted friends from Oklahoma who

migrated out to California to be a part of the team. Seemingly every worker I encounter on my tour looks happy to be there and shares with me a pride in being a part of the company and community.

The facilities at THC Design capture, reclaim and reuse between 1,500 and 2,000 gallons of water per day from dehumidifiers and central air conditioning. The growers follow strict Oregon Tilth organic standards, which are much more stringent than federal OMRI certifications. THC Design's focus on renewable resources is driven by a constant desire to reduce its carbon footprint, and the company has increased its energy efficiency by 40 percent over the last four years.

THC Design also provides a unique veterans-outreach program, hosting a 12-week paid internship for retired military members to learn the various aspects of the cannabis-growing

business. I asked Jennemann why the company has gone out of its way to hire vets. "Well, first off, I think they're good people and hard workers, and I have a tremendous amount of respect for their achievements," he says. "I've hired people in the past and then watched them come in at least a half hour late every day, complaining about the traffic, acting entitled. Veterans are not that way at all. They are here on time and to work. Their training and experience make them dependable, trustworthy and able to meet obligations and accomplish demanding tasks. There's always something to do here, and the vets we've brought in inherently understand that."

It certainly helps the company's public relations to reach out to ex-military people, but it also sounds like it helps the bottom line. "Veterans are an amazing untapped talent pool," Jennemann says. "So in addition to giving back to those who have done so much for us, our internship program also makes great business sense."

Jennemann certainly puts his money and his effort where his mouth is. Unlike some producers, THC Design advocates full legalization of cannabis and supports the National Cannabis Industries Association, Americans for Safe Access, the California Growers Association, the Drug Policy Alliance and many other superb law-reform organizations. Jennemann meets with legislators and plays an active role in community relations, and THC Design has programs in place for outreach to seniors, the LGBTQ community and those who live on skid row. The company hosted the first cannabis booth at DragCon and the first cannabis float at the Long Beach Pride Parade.



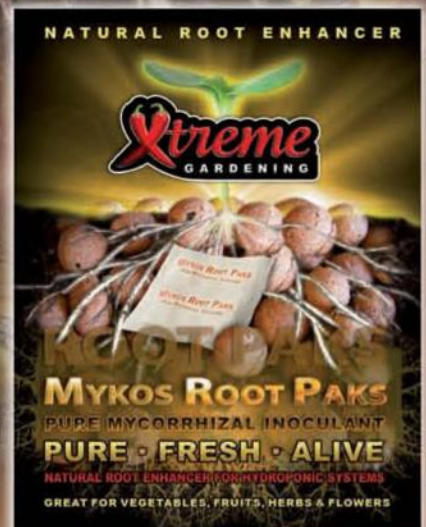
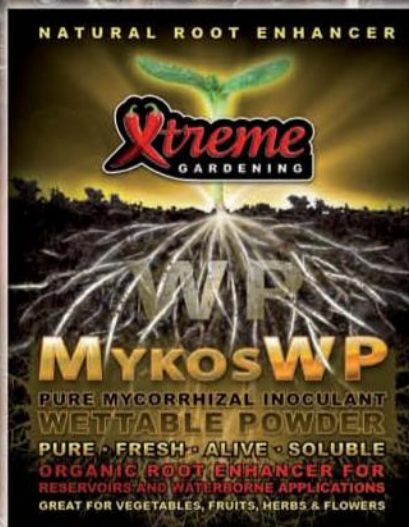
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THE GROW

The main THC Design facility I'm visiting boasts a total of 20,000 square feet. Nine flowering rooms, each 1,000 square feet, are timed so that each week a different room is ready to be harvested. Each room is lit by 27 1,000-watt Gavita lights with a footprint of 35 square feet per double-ended HPS (high-pressure sodium) bulb. Rolling trays hold the plants and can be moved easily so that workers can reach every area of the room. Moisture-monitoring sensors are installed in each zone to ensure proper humidity levels.

Mother plants grow in a soil mix and are fed aerated-compost tea. They're lit by 315-watt LEC CMH (ceramic metal halide) bulbs (with plans to switch over to new, more efficient 600-watt versions) and pampered with tender loving care by a crew of devoted workers. The company's even experimenting with

utilizing aquaculture, with an 800-gallon tank growing carp. Black soldier fly larvae feed the fish while the waste from the carp feeds the moms. The plants get nitrogen from the fish and calcium and magnesium from the flies! Using fish guano instead of bat guano also protects bat caves from overharvesting.

The nursery for clones is kept at 80-86°F with 80 percent relative humidity in order to replicate the natural spring planting season. Clones are cut from healthy mother plants, dipped in rooting hormone and then gently placed into rockwool cubes. Once rooted, they're ready for the next stage: vegetative growth.

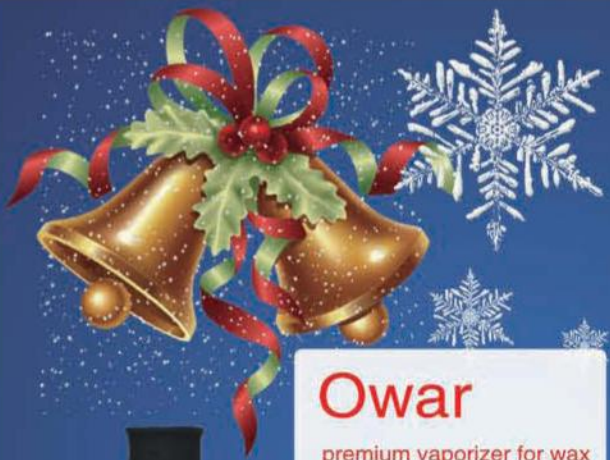
Rooted clones are transplanted into a mix of coco coir over perlite as they begin the vegetative stage. Containers are covered with FloraFlex caps and drip-fed with Mills Nutrients Basis A and B as the base. Tea brewers are employed to steep Bokashi compost teas as well.



Flowers ooze with essential oils.



1000-square-foot flowering rooms fill out with swollen branches.



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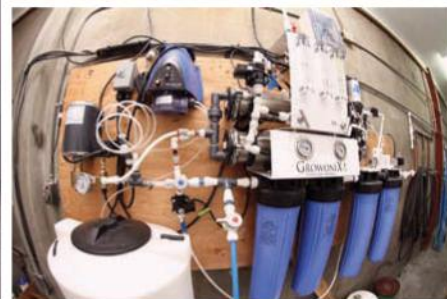
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WATERING AND FERTIGATION

Previously, THC Design discovered fungal growth in some of the reclaimed water from the HVAC systems and dehumidifiers. To eliminate it, the company uses inline UV lighting in the ducting and air handler in order to sterilize the liquids, a system similar to what's employed in hospitals. Today, more than two-thirds of the water used at THC Design is reclaimed—a significant reduction in the company's water footprint.

This unique watering system rivals any I've ever witnessed. In addition to the UV lighting in the ducting and master reservoir, a mesh filter is used on the incoming condensate line from the HVAC to the reservoir to filter out any particulates.

Each vegetative and flower room has its own reservoir that's mixed twice per week. The moisture-monitoring sensor in each zone triggers the water pump to irrigate just that zone when necessary. In the vegetative stage, watering is limited to two hours after the lights come on and no sooner than four hours before they go off. During flowering, watering starts four hours after lights come on and ends four hours before they're turned off. All excess water is recaptured and filtered for reuse.

This leaves just a four-hour window in the middle of the "day" for nutrient solution, and Jennemann has found this to be the best way to ensure the perfect moisture capacity in the

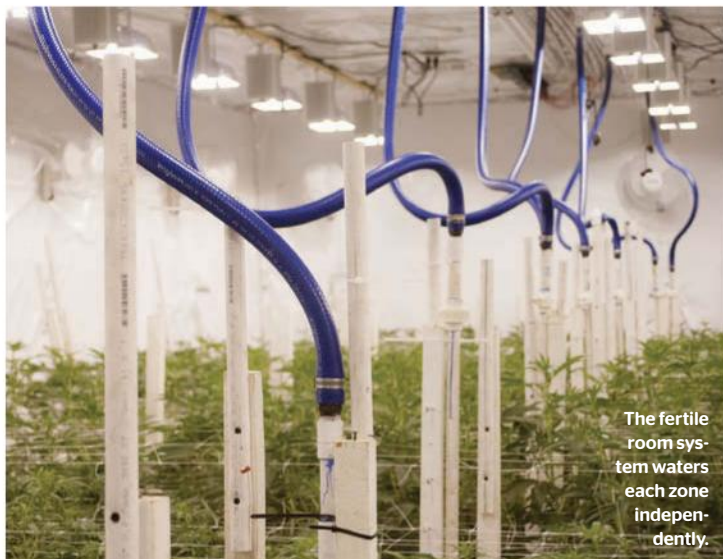
Left: Massive tanks collect and reclaim water.

Top Right: Individual droppers maintain moisture at root level.

Bottom Right: Filtration is essential to water purity.

medium for rapid root and plant growth. The wet/dry cycle encourages tremendously healthy plants that yield huge colas. The closer the plants get to flowering, the more the medium is allowed to dry out before watering again. Jennemann tells me that dialing in this "plateau in the irrigation window" for each individual strain is the key to heavy harvests of buds saturated in essential oils. The balance between what he calls the "nurturing and torturing phases" produces glandular trichomes swollen with terpenes, cannabinoids and flavinoids.

Plants go through a 22-day vegetative stage before they're induced to begin their 56-63 days of flowering. No synthetic plant-growth regulators (PGR) are used at any time. THC Design's integrated pest management (IPM) consists of foliar applications of Regalia biofungicide, Venerate bioinsecticide, activated aerated tea, Big Time Exterminator and kelp hydrolysate. Additionally, garlic, lemon and fish oil, along with natural enzymes and bacteria, are used to combat pests before they get a foothold and before extreme measures even need to be considered.



The fertile room system waters each zone independently.



Plants that receive constant attention respond accordingly.

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- ▶ Hydro or Organic, HID or LED - Your choice!
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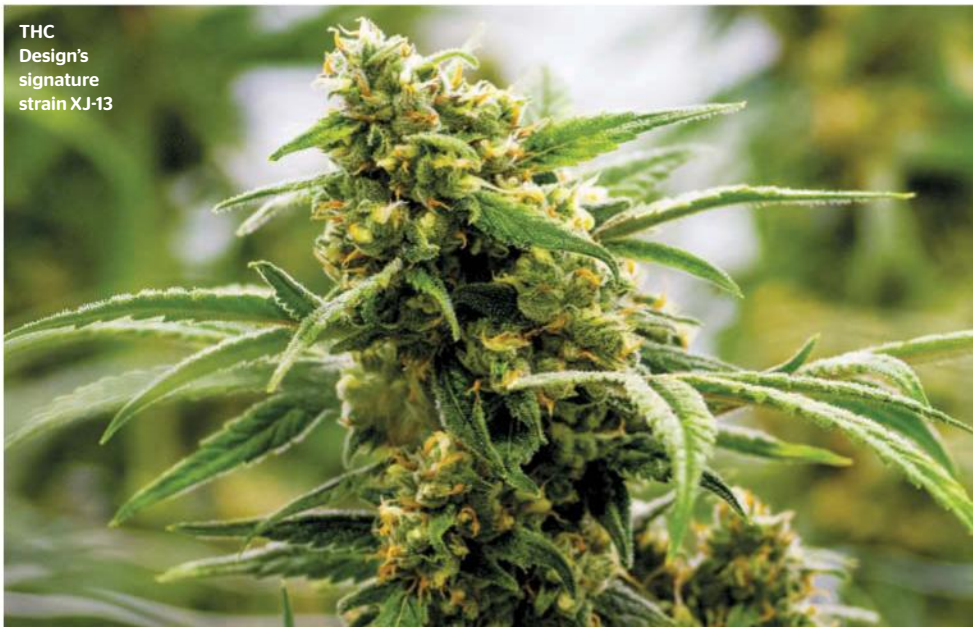
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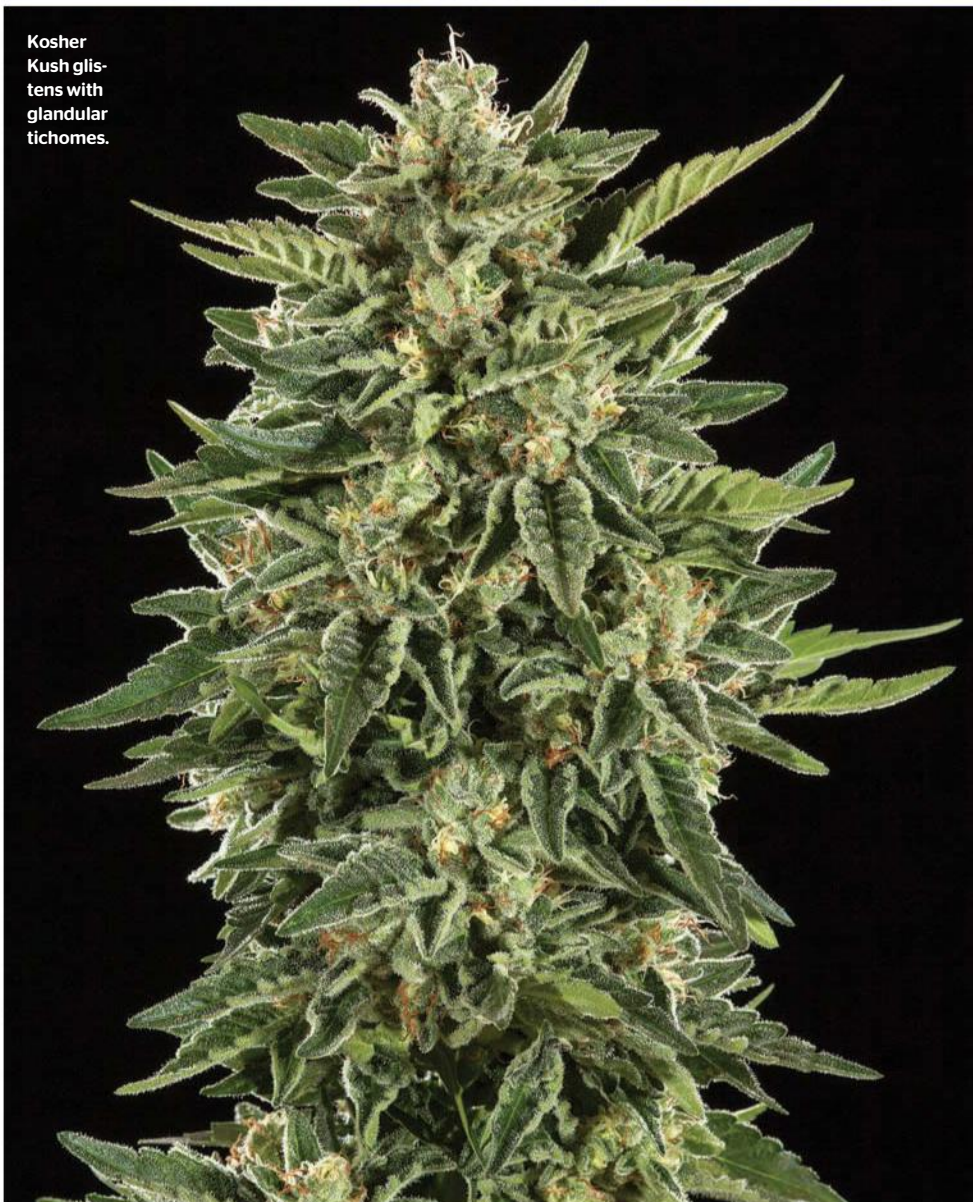
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THC Design's signature strain XJ-13



Kosher Kush glistens with glandular trichomes.



5

THC DESIGN STRAINS

XJ-13

This is the company's signature strain and the one it's most known for throughout Southern California. A *sativa*-dominant cross of Jack Herer and G-13 Haze, XJ-13 relieves pain, anxiety and depression, and it's a wonderful piney and lemony daytime smoke.

DOSIDOS

This strain has been making a ton of noise and it's no surprise as to why. Dosidos boasts a whopping high potency, testing between 28 and 30 percent in THC. It's got a sweet, minty aroma with hints of lime and pine, and it comes on strong and seemingly lasts for hours.

SPACE ODDITY

This one is a cross between Space Queen and Blue Dream for the perfect hybrid of desirable *sativa* and *indica* traits. Fruity, with just a hint of spice, Space Oddity heals the mind and body. Take a few hits, launch into the universe and try to contact ground control.

STRAWBERRY BANANA

The THC Design pheno of this Crockett Family Farms classic produces some of the best hash oil I've ever tasted. The flowers aren't too shabby either, with intoxicating and sweet fruity aromas and a euphoric buzz worthy of a trip to a museum or a walk through the park. *Indica* lovers appreciate the relaxing effects.

KOSHER KUSH

The house version of DNA Genetics's outstanding OG-related strain packs quite a punch. Testing at over 29 percent THC and exhibiting that well-known earthy fuel scent and flavor, Kosher Kush is classic "couchlock" weed. Medical patients appreciate this heavy *indica*'s numbing effects on body pains.

DOSIDOS

Girl Scout Cookies x Face Off OG

50% *sativa*/50% *indica*

FLOWERING TIME: 63-70 days

THC: 28-30%

CBD: 0.1-0.2%







HIGHTIMES
STRAWBERRY
BANANA

SPACE ODDITY

Space Queen x Blue Dream

80% *sativa*/20% *indica*

FLOWERING TIME: 56-60 days

THC: 20-24%

CBD: 0.05-0.08%





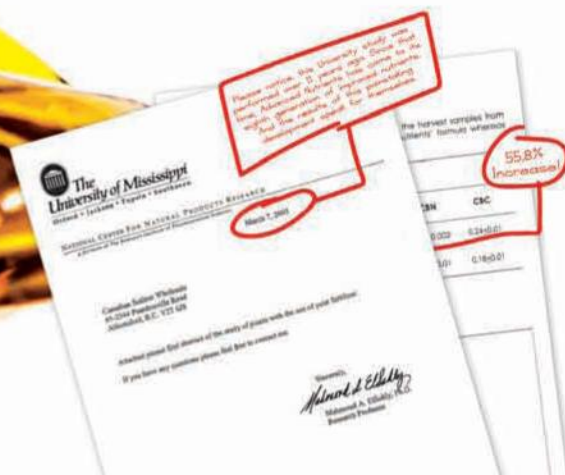
21% BIGGER YIELDS 55.8% INCREASE IN CBD 42.05% IN THC LEVELS

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LEAVING ON THE TABLE WHEN
YOU'RE NOT GROWING WITH
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Plants dry whole hanging upside down in a climate controlled chamber.

THE HARVEST

THC Design's flowering rooms are timed to be harvested one room per week. After an aggressive weeklong flushing period using only plain water on the plants, they're finally ready to crop. Every Wednesday, the THC Design harvesting team takes down an entire 1,000-square-foot room, managing to process an average of 2.7 pounds per light. That's more than 70 pounds of dry flowers per week, and yet each flower is trimmed entirely by hand. "We take our time with the harvesting process," Jennemann says. "It takes us 10-14 days to dry the whole plant with the fan leaves left on and all. A dry trim using workers with scissors is labor-intensive and costly but well worth it for the quality we achieve in the end."

THC Design's drying-room philosophy is simple. Cool air keeps the smell down and preserves volatile oils. The air conditioning is set at 70°F, a humidity fogger at 60 percent and a dehumidifier at 55-58 percent. It reminds me of that old Steven Wright joke: "For my birthday I got a humidifier and a dehumidifier... I put them in the same room and let them fight it out." Either way, drying slowly in cool conditions kept at the optimum level of humidity results in a flawless flower that perfectly captures the potential of each cultivar grown at THC Design.

Post-harvest, each flowering room

is cleaned thoroughly with hydrogen peroxide from top to bottom. Only then, with the area empty and devoid of plants, sulfur is burnt to discourage outbreaks of powdery mildew (PM). After the sulfur dissipates, the rooms are repopulated with vegged-out plants and the whole process begins again.

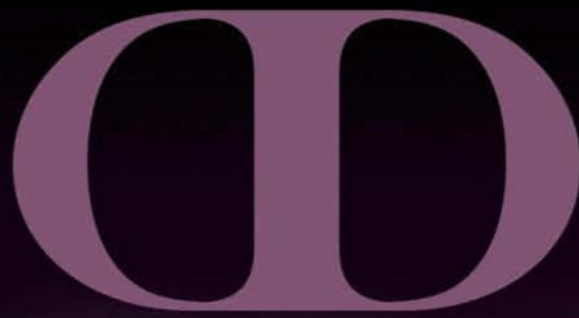
All of this hard work pays off in the creation of a product that's top-shelf, even though it's produced in large quantities. The quality also extends to the packaging, with eighths and pre-rolls provided in classic tins and containers worthy of a high-end premium product, along with Boveda packs for humidity control and

preservation. The pre-rolls come as six artisanal cones totaling 3.5 grams per box with independent test results included.

I leave THC Design impressed with the fact that at least some cannabis growers are at the forefront of creating "greener" weed. With cultivation inevitably getting bigger and more corporate, it's inspiring to see people at large facilities concerned about reducing their carbon footprint and engaging with their communities and legislatures. Besides that, it's clear that the cannabis THC Design produces in large quantities is clean, flavorful and potent. Let's hope more large-scale cultivators follow its lead. 🌿



Hand trimming takes place after drying to ensure quality.



DOSIDOS



TOTAL THC: **26-31%**
TOTAL ACTIVE CANNABINOIDS: 27-33%

THCa:	26-29%	Total CBD:	0-2%
Δ 9THC:	1-2%	Total CBG:	0-1%

TOTAL TERPENES: 1-3%

Pathogens: Pass
Fungus: Pass
Mold: Pass
Pesticides: NONE



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Dosidos is considered to be among the most powerful strains in the world with average potency usually testing around 30% THC, making it a strain recommended for experienced users. Its aroma is pungent, with sweet notes from its Cookies heritage, and earthy undertones, all accented by a slight floral funk. Dosidos eases you into a smooth relaxing body buzz, creating a deep physical tranquility, initially accompanied by a rush of uplifting euphoric energy and sativa-like cerebral effects.



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Using equal parts throughout all growth cycles, there's no fumbling around with different measurements. It's easy to use for the beginner but has been formulated to meet the complex needs of the professional grower.

DUAL FUEL IS:

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4.8Kg/10.5lbs

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DUAL FUEL 2
0-3-6

2PART NUTRIENT SYSTEM



4LITRE
1.1US GAL
NET WEIGHT
4.4kg/9.7lbs

THE HIGH TIMES 100



DISPENSARY OWNERS

THE CANNABIS INDUSTRY HAS MADE REMARKABLE STRIDES OF LATE, AND THE FIRST-EVER HIGH TIMES 100 CELEBRATES THE EFFORTS OF THE MEN AND WOMEN CURRENTLY SHAPING THE MARIJUANA LANDSCAPE. WHILE THE REMARKABLE CONTRIBUTIONS OF POT PIONEERS THROUGHOUT THE 20TH CENTURY ARE LARGELY RESPONSIBLE FOR THE FREEDOMS AND SUCCESSES WE NOW ENJOY, THIS LIST FOCUSES ON THE PEOPLE WHO ARE ACTIVELY INFLUENCING THE CANNABIS WORLD. AS SUCH, WE'VE LIMITED THE HT 100 TO THE LIVING, WITH AN EMPHASIS ON CURRENT CONTRIBUTIONS TO CANNABIS. HERE ARE THE 100 MOST INFLUENTIAL GROWERS, EXTRACT ARTISTS, DISPENSARY OWNERS, PRODUCT MAKERS, ACTIVISTS, POLITICIANS, SCIENTISTS, MEDIA MEMBERS, CELEBS AND SPORTS FIGURES IN THE CANNABIS WORLD.

DR. DINA, JASON BECK & SCOTT LAMBERT AHHS COLLECTIVE

Alternative Herbal Health Services (AHHS) co-owner Jason Beck is one of the first and most successful medical-marijuana dispensary operators and cultivators in the United States. Born with cerebral palsy, Beck is in the unique position of being a patient, caregiver, business owner, cultivation specialist, advocate and adviser. Fellow AHHS co-owner Dr. Dina (who received her nickname from Snoop Dogg) has been named the "Pot Doc to the Stars" by *Variety*, and she was the inspiration for Nancy Botwin in Showtime's *Weeds*. She is the cannabis consultant for Netflix's *Disjointed*, founder of the nonprofit *freedomgrow.org* and host of the upcoming travel show *Top Shelf with Dr. Dina*.

WANDA JAMES SIMPLY PURE

Wanda James was the first (and for a long time, the only) African-American cannabis-dispensary owner in Colorado. James is a former Navy lieutenant and political-campaign manager who was appointed to work on President Barack Obama's National Finance Committee, as well as the Amendment 64 Task Force that laid the groundwork for regulating recreational cannabis in Colorado. James and her husband, Scott Durrah, a former Marine and certified chef, have owned restaurants in Los Angeles and Denver for nearly two decades; they recently sold the popular Jezebel's in Denver to focus fully on their cannabis company, Simply Pure. In 2016, James was named one of the "50 Most Important Women in the Cannabis Industry" by *Cannabis Business Executive*.

**YVONNE DELAROSA GREEN
99 HIGH TIDE COLLECTIVE**

Activist Yvonne DeLaRosa Green is not only a female pioneer in the cannabis industry, but also a respected actress. Credited with opening the world's first upscale hybrid dispensary (99 High Art) by way of an art gallery in iconic Venice Beach over 10 years ago, Green has since opened the 99 High Tide Collective in Malibu, which has been named one of the best dispensaries in California. She was also Los Angeles's first recipient of a cannabis business license. As an actress, Green has appeared in countless films and television shows, including *Weeds*.

**JAKE SALAZAR MMJ AMERICA**

Jake Salazar is a Colorado native, born and raised in Louisville, a suburb of Boulder. In his 10 years in the cannabis industry, Salazar has built the respected MMJ America brand in markets throughout the United States, as well as in other countries, including Australia and Puerto Rico. Salazar owns four MMJ America dispensaries in Colorado and one in Nevada, which together have won 18 High Times Cannabis Cups. He also owns the Vault Genetics. Salazar has played a pivotal role in the cannabis-legalization movement with his political connections and board positions. He is a proud member of the Hispanic Chamber of Commerce.

AARON JUSTIS BUDS & ROSES

Under the leadership of president and CEO Aaron Justis, the Buds & Roses team has been recognized for its efforts with consistent customer and revenue growth, and 26 High Times Cannabis Cup awards. Buds & Roses consistently sources and sells the highest-quality cannabis available, creating a premier shopping experience year-round. The store's friendly, attentive staff are rigorously trained and certified in cannabis knowledge, so they can expertly guide each client to the best product for their needs.

**DONNIE ANDERSON WESTERN CAREGIVERS**

Medical-cannabis cultivator Donnie Anderson is a co-owner of the Western Caregivers dispensary in Los Angeles. With over 10 years' involvement in advocacy and activism in the cannabis-reform movement, Anderson in 2015 was appointed to chair the NAACP California-Hawaii Cannabis Task Force. He has embraced his role in guiding the cannabis industry to become a newly legal and powerful economic force as a founding board member of the California Growers Association, co-founder of the Southern California Coalition and chairman of the California Minority Alliance. Anderson is keen on advancing equal-opportunity representation of marijuana-reform-policy initiatives and commercial-enterprise endeavors for all socioeconomic groups.

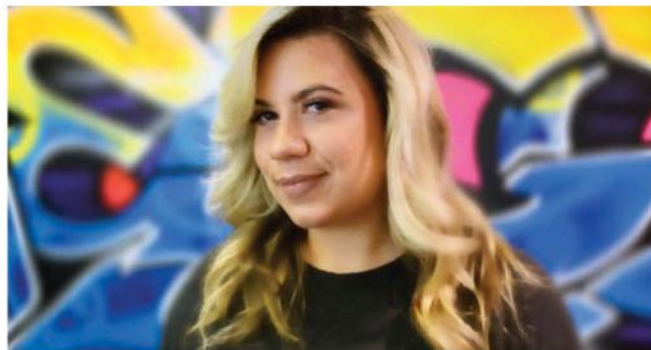


BROOKE GEHRING LIVEGREEN AT PATIENTS CHOICE COLORADO

Brooke Gehring founded Live Green Consulting in Denver in 2009. She is a co-founder, chairwoman and CEO of FGS Inc., Patients Choice of Colorado and LiveGreen Cannabis, a vertically integrated medical- and recreational-marijuana company. Gehring is a sustaining member of the National Cannabis Industry Association, a founding board member of the Council for Responsible Cannabis Regulation and is a founding member of Women Grow.

STEVE DEANGELO HARBORSIDE HEALTH CENTER

Steve DeAngelo has been a cannabis activist, advocate, entrepreneur and educator for over four decades. He has founded many successful socially responsible ventures, including Oakland's Harborside Health Center, one of the largest cannabis dispensaries in the world, where he serves as CEO. As an accomplished speaker, DeAngelo can be found at events and conferences around the globe. His unique sense of style and his passion for cannabis make him both a role model and a cultural icon.



LAURA VEGA GREEN STATE OF MIND

Laura Vega served as a member of the Portland Minority Cannabis Cabinet and Cannabis Tax Steering Committee tasked with utilizing cannabis tax funds to help minorities disproportionately affected by prohibition. Vega also served on Oregon's Cannabis Testing Rules Advisory Committee. She started Green State of Mind in Oregon with her husband in 2014, receiving accolades from the national media for its edibles. Green State of Mind received its recreational license in 2017, and the company has since expanded its product line, collaborated with premier industry brands and consulted on brand creation. In 2018, Green State of Mind's product line will launch in California's adult-use market.



DAVID WEISSER ROCKY MOUNTAIN HIGH

David Weisser has a decade of experience in cultivating and dispensing medical marijuana. He has been hailed for developing a medical model in "seed-to-sale" enterprises with an emphasis on tracking clinical data. In Colorado, Weisser owns Rocky Mountain High, comprising eight dispensaries and four cultivation facilities. Weisser also serves as chief operating officer and a member of the board of directors of Compassionate Care Research Institute Inc., doing business as Garden State Dispensary, a nonprofit licensed to operate vertically integrated medical-marijuana operations by the New Jersey Department of Health and Delaware Health and Social Services.



ROSA CAZARES LA MOTA

At the age of 28, Rosa Cazares is leading the cannabis industry as CEO of one of Oregon's largest dispensary chains, La Mota. Cazares heads a workforce comprising nearly 80 percent women. However, as someone who calls the late Steve Jobs her hero, Cazares doesn't consider herself a feminist so much as a savvy businesswoman. Cazares also holds a position on the Oregon Liquor Control Commission's Technical Advisory Subcommittee, which gives her a hand in the state's rulemaking process overseeing the cannabis industry.



RYAN KUNKEL HAVE A HEART COMPASSIONATE CARE

Ryan Kunkel opened Have a Heart Compassion Care to serve the medical market in Washington in 2011. Since then, Have a Heart has branched into six Washington recreational shops, with stores in Hawaii, California and Oregon opening soon. Kunkel built his company in the spirit of medical compassion, applying the same principles to recreational adult use. Have a Heart is recognized as Washington State's "Best Overall" dispensary, most recently by Leafly in 2017.

TAREK TABSH NEW AMSTERDAM NATURALS

Tarek Tabsh has over a decade of experience building businesses in the legal cannabis industry. As the co-founder of New Amsterdam Naturals in Las Vegas, Tabsh was among the first people to legally dispense cannabis in the state of Nevada. Tabsh also produces ultra-premium, cannabis-derived beer and spirits through Province Brands, a Toronto-based marijuana beverage company that he co-founded.



JOHN LORD
LIVWELL ENLIGHTENED HEALTH

Entrepreneur John Lord has founded, built and sold several consumer-products companies. Prior to founding LivWell Enlightened Health, Lord created a successful baby-products company whose products were available at major retailers. After selling the company, Lord was drawn to the fledgling marijuana industry by the opportunity to apply his business acumen. Lord has worked hard to put LivWell Enlightened Health at the forefront of the industry, blending marijuana culture with solid business principles.



ADAM TASSELMYER
HERBAL SOLUTIONS

Adam Tasselmyer is a resident of Ypsilanti, MI, where he worked closely with local government officials in crafting the cannabis ordinance. Tasselmyer opened Herbal Solutions, the second locally licensed dispensary in Michigan, in May of 2011. Herbal Solutions has since won more than 50 High Times Cannabis Cup awards. Tasselmyer is also the owner of Higher Society Extracts and Loyalty Extracts. This year, Tasselmyer looks forward to bringing the Herbal Solutions brand to California.



MATT MORGAN
GREEN AXIS

Matt Morgan, a leading player in Nevada's recreational-cannabis market, co-founded Bloom Dispensaries in Arizona, building the business to 100 employees in less than a year and bringing in over \$1 million per month. He left Bloom to form a new partnership with a private investor in Nevada, creating Tryke Companies/Reef Dispensaries in 2014. Reef Dispensaries currently operates six retail locations, two manufacturing plants and two laboratories across Nevada and Arizona with over 350 employees.



MAX COHEN **THE CLINIC**

Max Cohen is a seasoned marijuana entrepreneur and industry trailblazer. In 2009, Cohen founded the Clinic, which is now a large vertically integrated multi-state marijuana company. Under Cohen's leadership as CEO, the Clinic has designed, constructed and operated several cultivation, processing and dispensary facilities that produce some of the top-rated marijuana products on the market. The Clinic consistently ranks as one of the highest-quality marijuana producers in the country and has won over 45 first-place cannabis-industry awards for its unique strains.



KYLE SPEIDELL
THE GREEN SOLUTION

Kyle Speidell is CEO and co-founder of the Green Solution, a Colorado-based family-owned premier cannabis company with 14 locations across the state. Through innovation, Speidell and the Green Solution team aim to increase access to cannabis worldwide, providing consistent quality at competitive prices through a variety of distribution channels, prioritizing consumer safety and understanding cannabis's social impact.



DEBBY GOLDSBERRY
MAGNOLIA WELLNESS

Debby Goldsberry is executive director at Magnolia Wellness, an award-winning dispensary in Oakland, CA, and is the managing director of the Hi Fidelity dispensary in Berkeley. She co-founded the Berkeley Patients Group medical-cannabis collective in 1999, directing its growth for over 10 years. Goldsberry published *Starting & Running a Marijuana Business (Idiot's Guides)* in 2017, and is a sought-after industry business-management consultant.



ADAM BIERMAN **MEDMEN**

In 2010, Adam Bierman co-founded MedMen in Los Angeles with Andrew Modlin. Since its inception, MedMen has helped more than 100 businesses in the United States navigate the complexities of the legal marijuana market. In 2016, the firm launched the MedMen Opportunity Fund, a \$100 million private-equity fund with cannabis-related investments. MedMen brings together expertise in critical areas for the cannabis industry—licensing, production, retail operations and capital formation.



ARMEN YEMENIDJIAN
ESSENCE VEGAS

Armen Yemnidjian founded Integral Associates I and II, medical and recreational-cannabis companies that own three Essence Vegas dispensaries and Desert Grown Farms, a 54,000-square-foot cultivation and production facility in Las Vegas. Under Yemnidjian's leadership as CEO, Essence Vegas has received numerous accolades, including being named *Business Insider's* number-one dispensary in Nevada and a top-25 dispensary in the United States.



BIGMIKE CEO OF ADVANCED NUTRIENTS

Since founding Advanced Nutrients in 1999, Michael Straumiets, better known as “BigMike,” built the brand into a 100-million-dollar-a-year plant-nutrient powerhouse with current operations throughout North America, Eastern Europe, Germany and Spain, as well as sales in over 100 countries and growing. All along the way he has championed the cause of cannabis and, in particular, the growers who create the quality flowers from which it all begins. His newest venture, Lacturnus Labs, is a world-class 20-million-dollar laboratory-research facility.



WHOOPI GOLDBERG & MAYA ELISABETH CO-FOUNDERS OF WHOOPI & MAYA

When the legend of stage, film and television decided to enter the cannabis business, she partnered up with a multiple Cannabis Cup winner to create a product line with a focus on relieving menstrual pain and discomfort. Whoopi & Maya produces high-quality medical-cannabis-infused topicals, edibles and more for women (and men) interested in quality pain relief. The company's products are available in over 350 dispensaries in California, and it's recently expanded into Colorado with plans for more growth. With several *High Times* alumni on board, Whoopi & Maya is poised for global dominance.



GARYN ANGEL CEO OF MAGICAL BUTTER & FOUNDER OF NEXTCANNABIS

This award-winning inventor, entrepreneur and philanthropist from Port Richey, FL, created the innovative Magical Butter machine, a self-contained appliance that produces cannabis-infused butter, oil, tincture, gummies, lotion and more. While disrupting the edible production marketplace, Garyn Angel also successfully decriminalized cannabis in his hometown and has helped foreign countries rewrite their cannabis legislation. He believes that cannabis is a dietary essential, and his life-changing innovations continue to make it easier for people to easily convert herbs into edibles.



CHRIS HAGEDORN GM OF THE HAW- THORNE GARDENING COMPANY

As the son of Scotts Miracle-Gro CEO and chairman of the board James Hagedorn, Chris has some big shoes to fill in the horticulture industry. He's gotten off to a brisk start, acquiring some of the biggest companies in hydroponics, but not without causing some pointed discussions along the way about a corporate takeover of the marijuana biz. Controversies aside, recent multimillion-dollar acquisitions of Gavita Lighting, General Hydroponics, Vermicrop Organics and American Agritech/Botanicare by Hawthorne prove that the big boys of “Big Ag” are doing more than simply eyeing the cannabis space.



TRINITY ANGEL CHIEF EXECUTIVE DIRECTOR OF OPERATIONS AT LOS ANGELES KUSH

Trinity Angel has been in the medical-cannabis industry for over eight years. Not only does she run operations for Los Angeles Kush, she's also its head event planner as well as head director of Flight Farms Vape and LAK Vape. She's also responsible for the LAK apparel and packaging line, managing everything from design to manufacturing and distribution. Under Angel's supervision for just the last two years, the company has won multiple Cannabis Cups and other awards for its flowers, oils, vapes, booths and other products.



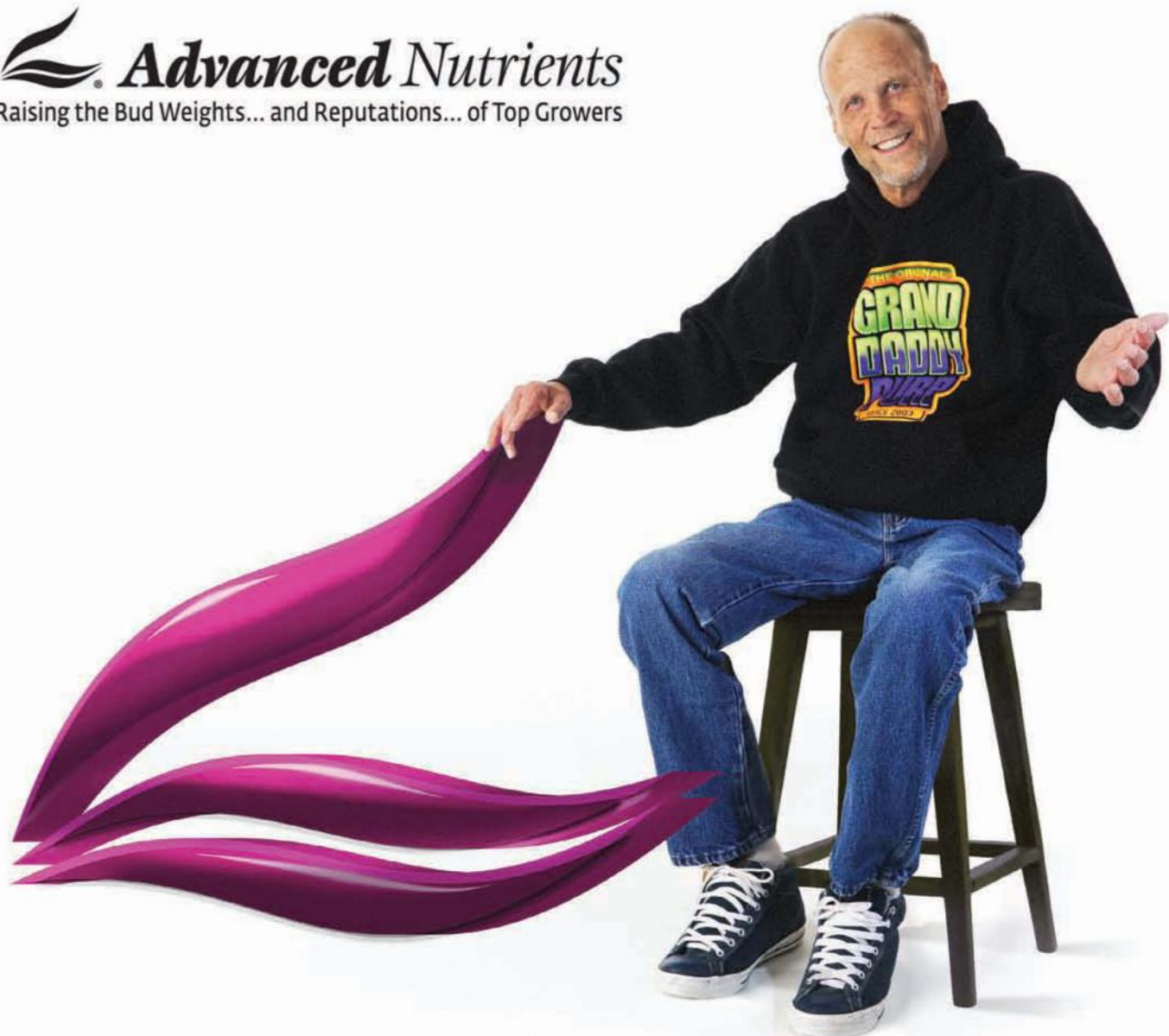
DAVE MAGGIO COO OF CHEEBA CHEWS

Along with partners CEO James Howler and CMO Eric Leslie, Dave Maggio built Cheeba Chews into one of the cannabis-infused-edible industry's most iconic brands. They started up together in 2009, long before any legal recreational use existed, and, due to their manufacturing and product-development initiatives, they became guiding forces in the space. Maggio's love for cooking and cannabis shines through in every product he's released into the marketplace. The “deca-dose” Cheeba Chews in particular, have left their mark on the world.

To grow world-class strains, you need world-class nutrients.

Ken Estes, Grand Master Grower and originator of the world-famous medical marijuana strain **Grand Daddy Purp**, puts his faith in Advanced Nutrients to get bigger, more potent yields.

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JASON DELAND
CO-FOUNDER OF DO-SIST & CO-INVENTOR OF DOUBLE BARREL

Jason DeLand has spent 20 years in consumer marketing and innovations. Four years ago, he saw a clear opportunity in cannabis to bring a higher level of design, innovation and marketing to the industry. In 2016, Dosist was born, the result of an incredible partnership of experts in device innovation, design, science and branding. Since then, Dosist has become one of the most recognized and successful brands in the space.



JOSH PRIEBE
DIRECTOR OF MARKETING AT THC DESIGN

This Southern California native started his career 17 years ago in the action-sports industry. As a marijuana advocate his whole life, Priebe's transition from skate, snow and surf fashion into the cannabis world was seamless. He joined LA cultivation powerhouse THC Design in 2016 as its creative director, overseeing all of the company's marketing and shaping it into one of the first nationally branded cannabis companies.



JORDAN LAMS
CO-FOUNDER & CEO OF MOXIE

After losing his younger sister to leukemia, Jordan Lams dedicated his life to the medical-cannabis industry. His experience drove him to advocate for accessible, standardized, pharmaceutical-grade cannabis products. Lams's leadership has driven Moxie from a self-financed start-up to an international enterprise with facilities in four states and over 40 countries, where he works to ensure emerging markets are regulated safely.



ALEX LEON
PRESIDENT OF W VAPES

For over a decade, Alex Leon has been a cannabis marketing and branding executive. During his tenure, he's been tapped to help brands and develop sales strategies for industry leaders like Terraform Genetics, Golden State Greens Point Loma, Advanced Nutrients and Nameless Genetics. As president of California W Vapes, Leon focuses on supporting and developing new product innovation and continuing to improve W Vapes's product and brand awareness.



CAMERON FORNI
CO-FOUNDER & PRESIDENT OF CURA CANNABIS SOLUTIONS

Well-known in the industry as one of the leading authorities on the design of cannabis vape cartridges, Cameron Forni has built a strong reputation for being inventive, energetic and laser-focused. He leads the charge in product innovation, supply-chain management and strategic sales development. Since creating Select Oil in September 2014, Cameron has grown the brand to extend into California and Nevada, thus becoming the best-selling cannabis brand on the West Coast, according to BDS Analytics.



KRISTI KNOBLICH PALMER
CO-FOUNDER & COO OF KIVA CONFECTIONS

Founded in 2010, Kiva Confections' mission is to produce safe, consistent and delicious edibles. Kristi Knoblich Palmer is the driving force behind Kiva's customer-service philosophy, employee development and best practices in manufacturing, business and marketing. She and her team have successfully grown the company to more than 100 employees. Palmer holds a board seat on the California Cannabis Industry Association and is a co-founder of the California Cannabis Manufacturers Association.



BRAELYN DAVIS
CO-FOUNDER & MARKETING DIRECTOR OF FLAV

Braelyn Davis started with a vision to shift the negative stigma of cannabis by creating a positive brand that's approachable by all. Since then, Davis and his team have created a line of CO₂-extracted THC- and CBD-infused drops, salves, edibles and bath bombs as well as outstanding solventless and glycol-free cartridges, all available in California and Washington. Flav's vision was well embraced in 2017 through athletics, music and education, and the company plans to continue to evolve and expand its mission in 2018.



RUBEN CROSS
OWNER OF KUSHY PUNCH

Having worked as the marketing director and consultant for several LA-based collectives, Ruben Cross successfully developed and manages a diverse portfolio of companies including Kushy Punch. His background in business-to-consumer marketing ensures that this medical-marijuana entrepreneur stays on the right track. Ruben is an active member of the National Cannabis Industry Association, the largest cannabis trade association in the US and the only organization representing pot-related businesses at the national level.

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JOSEPH ENCINOSA
FOUNDER & PRESIDENT
OF GOLD DROP CO.

A lifelong allergy sufferer, Encinosa found relief with cannabis for his ADD and social anxieties; however, his allergy to cannabis limited the benefits it provided him. As a result, he has dedicated the last 10 years of his career to innovating the concentrate market. As a pioneer and expert in cannabis concentrates, Encinosa has created extracts and formulations that have earned him 85 awards from every medical-cannabis competition in the United States.



DOUGLAS DRACUP
OWNER & OPERATOR
OF HITMAN GLASS

At only 32 years old, “Doug-ee,” as he’s known to friends, has built an empire inspired by great weed and hash. He’s been collecting pipes since 2004 and making hash oil since 2007, and he co-founded (with his late friend Erik Weissman) Hitman Glass in 2009 and started the Chalice festival in 2014. Along the way, he’s also opened his latest venture—Hitman Coffeeshop in Los Angeles, with plans to branch out to many other locations. Doug-ee also recently partnered up with cannabis legend Mila Jansen in a joint operation called HashQueen.



ADAM BERGMAN
KING PEN, LOUD PACK
& GREENWOLF

This CEO and founder of Loud Pack Inc. and owner of the GreenWolf dispensary first became involved in the cannabis industry over 23 years ago. In 2014, Bergman attended a High Times Cannabis Cup; shortly thereafter, he opened the GreenWolf dispensary. After only a few months operating GreenWolf, Bergman saw a shift away from flowers and toward extracts and vapes, and he founded the Loud Pack Extracts and 710 King Pen brands. They continue to be the world’s most awarded dispensary and vape-pen brands on the market.



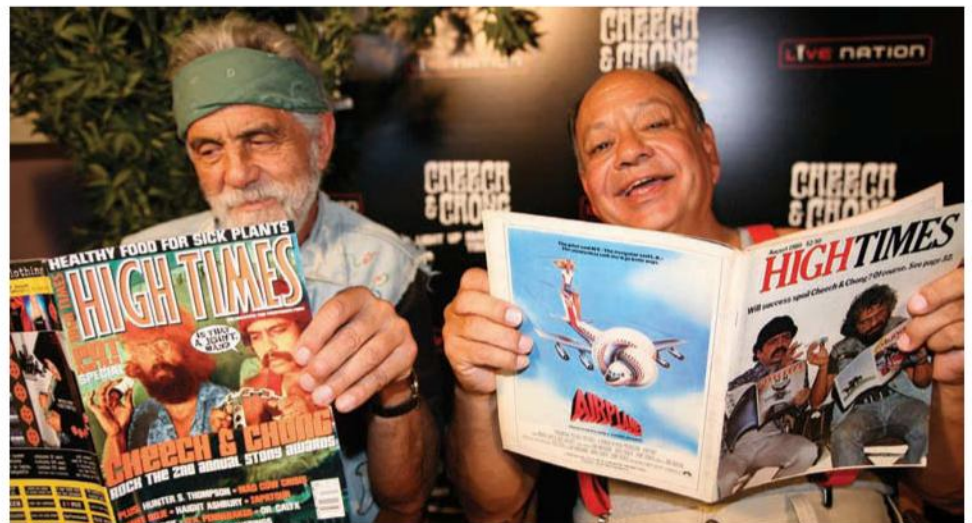
GRAHAM GIBSON
PRESIDENT & CEO OF
KANDYPENS

Since starting his company with an Indiegogo crowdfunding campaign in early 2014, Graham Gibson has built KandyPens into one of the largest vaporizer lifestyle brands in the world, featuring over 20 different product lines including their new RUBI refillable open-pod system vaporizer. Graham leveraged the power of celebrity endorsements and music video integrations by pursuing game-changing collaborations with A\$AP Rocky and Amber Rose. The KandyPens empire continues to grow under his watch.

CELEBRITIES

DAVID AGUILAR
CO-FOUNDER OF
BRASS KNUCKLES

Building a brand in the THC-cartridge scene has gotten much harder as more and more companies flood the market. This makes what David Aguilar and his team at Brass Knuckles have accomplished even more impressive. In practically no time, Aguilar and partners Mike Healey and Alvin Joiner have gone from forming a start-up to becoming industry leaders in super-premium CO₂-extracted cannabis-oil products. Brass Knuckles’ flavorful and potent one-gram high-quality quartz oil cartridges are among the most desirable products available, and its three-story “speakeasy” mega-booth was the talk of our recent 2017 SoCal Harvest Cup.



CHEECH & CHONG

Cheech and Chong have been on the cover of *High Times* more than any other celeb stoners—a record eight times (five times together and three times with Tommy going solo). Cheech Marin is a multigenerational star and a cultural icon, and has appeared in over 20 films, including *Tin Cup*, and *Once Upon a Time in Mexico*. He also has a line of cannabis products called Cheech’s Private Stash. Tommy Chong is a Grammy-winning comedian who has appeared in several films, including *Far Out Man* and *National Lampoon’s Senior Trip*. He also starred in *That ’70s Show*. After battling and defeating prostate cancer, Chong was diagnosed with rectal cancer, and he’s now seeking ongoing treatments with the help of various therapies, including hemp oil. Never one to give up on a fight, Chong is an avid speaker and activist for the medical wonders and potential health benefits of marijuana. He curates a line of cannabis products under the name Chong’s Choice.

HIGH TIMES 100 MOST INFLUENTIAL PEOPLE IN CANNABIS

THANK YOU FROM THE BOTTOM OF OUR BOWLS.

Congratulations Adam.
Thank you for your leadership, creativity
& contributions to the cannabis industry.

FROM YOUR FAMILY AT:

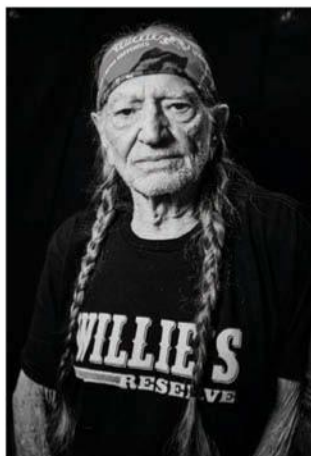


KINGPEN



LOUDPACK





WILLIE NELSON

This 84-year-old living legend has been writing and performing country music since the late 1950s. Willie Nelson has also championed farmers with his Farm Aid festival, promoted sustainability by putting his money where his mouth is by traveling by biodiesel bus, and co-chaired the advisory board of the National Organization for the Reform of Marijuana Laws (NORML). In 2014, he started Willie's Reserve to provide his signature cannabis strains as well as edibles, vapes and accessories in Washington, Colorado, Oregon, Nevada and, most recently, California.



MELISSA ETHERIDGE

Iconoclast. Cannabis advocate. Melissa Etheridge is a woman of innumerable talents. Nominated for 17 Grammy Awards (she took home two), Etheridge won an Academy Award in 2007 for Best Original Song, "I Need to Wake Up," written for the documentary *An Inconvenient Truth*. She discovered the medical benefits of cannabis when she was battling breast cancer, and has since been an outspoken advocate for legalization, along with her tireless activism for LGBTQ rights. Etheridge is creating a line of cannabis products through her company Etheridge Farms.



B-REAL

OG weed rapper B-Real has become a staple of California's legal cannabis industry, releasing Cannabis Cup-winning strains and partnering with ROOR for Phuncky Feel Tips. B-Real is also a tireless legalization advocate, speaking out about the benefits that a fully legalized marijuana industry can offer. *High Times* named him "Stoner of the Year" in 2014, and he was one of the cannabis legends on the Mount Kushmore cover. He's currently tearing it up with his new supergroup Prophets of Rage. Catch B-Real smoking with all kinds of celebs on his show *The Smokebox*, airing on his live streaming network, the video and news site B-Real TV.



DOUG BENSON

This stand-up comedian and podcast pioneer has been advocating for marijuana-law reform and the rights of cannabis consumers for over a decade. In 2004, Benson co-created and performed onstage in *The Marijuana-Logues* with friends Arj Barker and Tony Camin. His 2007 film, *Super High Me*, documented his use—and non-use—of marijuana. He hosts the popular podcast *Doug Loves Movies* and a weekly YouTube show called *Getting Doug With High*, during which all guests consume cannabis at 4:20.



DAMIAN MARLEY

The youngest son of reggae legend Bob Marley has been performing since he was 13 years old. Now the multiple Grammy-winning Damian Robert Nesta "Jr. Gong" Marley uses his music and his business acumen to send a message championing cannabis and hemp. With his cannabis company Stony Hill recently launching a line of CBD products, he's also partnered up with Ocean Grown Extracts to grow marijuana in an abandoned prison and he's joined a group of investors who've bought your favorite weed magazine—*High Times*!

JOEY DIAZ

This comic got his start performing stand-up in front of fellow prisoners at a correctional facility in Denver in 1988. Since then, Joey "Coco" Diaz has been touring regularly, acting in films and television, and appearing as a regular on Joe Rogan's podcast, often discussing his love for marijuana edibles. He also hosts his own biweekly podcast, *The Church of What's Happening Now*, and airs inspirational and hilarious "Morning Joint" pot-friendly broadcasts on Periscope.

BILL MAHER

Bill Maher has been a mainstay on late-night television for 25 years, first with *Politically Incorrect* (1993-2002) and now with the Emmy-nominated *Real Time with Bill Maher* (since 2003). An unapologetic proponent of cannabis, Maher has used his voice to advocate for marijuana-law reform, often discussing the subject on air. He is an advisory-board member of the National Organization for the Reform of Marijuana Laws (NORML) and was named the number-one pot comic by *High Times* magazine.



SNOOP DOGG

Snoop Dogg's image is now synonymous with marijuana. He has graced the cover of *High Times* four times, including as part of the legendary Mount Kushmore gang. And Snoop is not only an OG weed rapper—he's a legit cannabis businessman. He's invested in multiple cannabis ventures, including the digital-media platform Merry Jane, his brand of cannabis products Leafs by Snoop and venture-capital firm Casa Verde. Casa Verde recently invested in Cannalysis, a cannabis lab that tests medical- and recreational-cannabis products.



REGGIE WATTS

Reggie Watts is an internationally renowned vocal artist/beatboxer/musician/comedian who wows audiences with his 100 percent improvised live performances. Using his formidable voice, looping pedals and vast imagination, Watts blends and blurs the lines between music and comedy. He definitely credits cannabis with helping hone his creative process, and regularly incorporates it into his work: "It's kind of a constant experimental life relationship that I have with the plant," he once told *High Times*. Watts has performed sold-out headlining tours in the United States and Europe, and he's a founding member of *jash.com* and can currently be seen on *The Late Late Show with James Corden*.



The **SPARK** *of*
CHANGE

YEARS OF PROHIBITION guided by misinformation are beginning to give way to cannabis legalization. For over half a century, Willie Nelson advocated his love for this plant, despite its cost in fans, bookings and the hassling from authorities.

WILLIE'S RESERVE® is the brand he created to share the best of cannabis and turn that spark to flame. It's inspired by his journey as an artist, outlaw and cannabis activist.



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MASON TVERT FOUNDER & PRESIDENT OF MARIJUANA POLICY PROJECT, VS STRATEGIES

As founder of Safer Alternative for Enjoyable Recreation, Mason Tvert was instrumental in the passage of Colorado's Amendment 64 and has continued his activism in recent years as the Marijuana Policy Project's communications director. Tvert has also joined forces with Colorado-based VS Strategies in hopes of sharing lessons and implementing strategies to help cannabis businesses, trade associations and state governments better understand the complexities that come with legalization.

ROZ MCCARTHY FOUNDER & CEO, MINORITIES FOR MEDICAL MARIJUANA

As the founder and CEO of Minorities for Medical Marijuana Inc. (M4MM), she is responsible for the organization's day-to-day operation and is the chief strategist involved in developing advocacy, education and marketing campaigns to promote awareness, information and education about the efficacy of medical marijuana. M4MM is a membership-based organization working hard to ensure people of color have a true quantifiable opportunity to participate in the medical-marijuana marketplace and are afforded adequate access to care, no matter what their economic situation.

SHANEL LINDSAY FOUNDER & PRESIDENT OF ARDENT

Shanel Lindsay helped create Massachusetts's adult-use pot law, and she sits on the state's Cannabis Advisory Board. But this attorney's passion is for helping medical-pot patients get the most out of their medicine. As such, the founder of Ardent LLC created the NOVA Decarboxylator, which helps prepare cannabis for infusions, simply and consistently. Lindsay advocates for medical pot and emphasizes the need to educate the public in order to make marijuana an accepted treatment for a variety of conditions.



DENNIS PERON CO-AUTHOR, PROP 215

Few figures in the cannabis world loom as large as Dennis Peron. Known as the "father of medical marijuana," Peron worked tirelessly on behalf of medical-cannabis patients. In fact, the system of state-sanctioned medical-pot programs that now exist in more than half the country can all be traced back to Peron, who co-authored California's medical-cannabis law (the country's first), in 1996. (As this issue went to press, we learned of the unfortunate passing of Peron, who died at the age of 71. He will be greatly missed by the cannabis community and the innumerable patients whose lives he touched.)



NINA PARKS CO-FOUNDER OF SUPERNOVA WOMEN

Nina Parks helped found Supernova Women in 2015 to provide a space for women of color in the ever-changing cannabis movement. With a mission based in education, Parks's organization fosters community empowerment and creates advocacy training and education through cannabis business workshops and networking. Sparking change and opportunities for women of color has led Parks to speak up for would-be Oakland ganjapreneurs and to work to revise the current medical-pot program.

EBELE IFEDIGBO CO-FOUNDER OF THE HOOD INCUBATOR

For all the good the legal cannabis industry has done, it has also ultimately taken work away from the growers and sellers who made a living in the illicit market. As co-founder and co-director of the Hood Incubator, Ebele Ifedigbo is working to help such underground cannabis entrepreneurs transition to legal markets. Ifedigbo is passionate about racial and economic justice and advocates for those who have been disproportionately affected by the War on Drugs.

BILL PIPER THE DRUG POLICY ALLIANCE

Bill Piper's sole focus is ending the nation's misguided War on Drugs. As senior director of the Drug Policy Alliance's office of national affairs, Piper uses his nearly 20 years of political experience in Washington, DC, to lobby Congress in support of drug-law reform as well as fighting federal interference in state-sanctioned marijuana programs. Piper is also one of the most prolific reformers in the country, with his commentary and analysis appearing in publications throughout the country and around the world.



SEAN KIERNAN PRESIDENT OF WEED FOR WARRIORS

After serving four years in the US Army airborne infantry, Sean Kiernan had a successful career as a Wall Street hedge-fund manager until he began to suffer emotional trauma from his time in the service. With heavy pharmaceuticals and the VA failing him, Kiernan turned to cannabis and was able to stop taking all other meds. As president of Weed for Warriors, an organization that advocates for the right of veterans to choose cannabis, Kiernan helps to provide services, counseling and even free cannabis to qualifying veterans.

KEITH STROUP FOUNDER OF NORML

For those with any knowledge of the cannabis world, Keith Stroup is a household name. Stroup is the founder of the National Organization for the Reform of Marijuana Laws (NORML) and serves as legal counsel for the organization. Since founding NORML in 1970, Stroup has been a force in the reform community. After nearly 50 years, he is still lecturing, writing and advocating on behalf of his life's passion, cannabis-law reform.

NEILL FRANKLIN EXECUTIVE DIRECTOR OF LAW ENFORCEMENT AGAINST PROHIBITION

Maj. Neill Franklin was one of Maryland's top cops when he retired in 2010 after 34 years in law enforcement. Over the course of those three-plus decades, he went from being an active supporter of the War on Drugs to a staunch opponent. While serving as a narcotics agent with the Maryland State Police, Major Franklin was persuaded by the then mayor of Baltimore, Kurt Schmoke, who declared that the War on Drugs was counterproductive and created excessive violence. He retired from policing in 2010 to lead the Law Enforcement Action Partnership as executive director. When not working with LEAP, Major Franklin volunteers his time by serving on many boards, including Murder Victims Families for Reconciliation, the Faith Based Community Council on Law Enforcement and Intelligence and the Place of Grace Church.

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TERRY BOOTH
FOUNDER & CEO OF
AURORA CANNABIS

At Aurora Cannabis, Terry Booth takes on myriad responsibilities: operations, patient acquisition, genetics development, doctor-education programs and sales, among others. Booth is known in Edmonton, Alberta, as much for his corporate leadership as he is for his philanthropic work, the latter typified in his support for organizations dedicated to ending domestic violence, including the “Walk a Mile in Her Shoes” campaign and other charitable causes that address issues such as early childhood development disabilities.



JEFF MALINOVITZ
OWNER OF NAMELESS
GENETICS

The name behind Nameless Genetics is Jeff Malinovitz, the founder and owner of the venerable company. Malinovitz also founded the WEED, or Wellness Earth Energy Dispensary, in Studio City, CA, home to some 500-plus top-shelf cannabis products, as well as Go Green Hydroponics in Encino. When he’s not racking up Cannabis Cups, Malinovitz consults on giant grow ops and buildouts, which is good news for everyone.



DON & AARON **FOUNDERS OF DNA GENETICS**

Don and Aaron, founders of DNA Genetics, were born and bred in California but found their groove in Amsterdam. In 2003, the brothers launched DNA, a company with some 40 employees and operations in Amsterdam, California, Canada and Chile. They have bagged scores of Cannabis Cups and hundreds of other awards, and were early inductees in the High Times Seed Bank Hall of Fame, in 2009. While still killing it with their seed company, they also run a thriving consulting business, sharing their expertise around the world.



CROCKETT
CROCKETT FAMILY
FARMS

Crockett Family Farms was launched in 2008 by the pseudonymous “Crockett,” a grower from the Sierra Nevada mountains who had been raised in the secretive world of cannabis culture. Crockett’s legendary Tangie and Strawberry Banana strains are beloved by tokers the world over. As perennial Cannabis Cup winners, it was a no-brainer to install Crockett Family Farms in the 2017 High Times Seed Bank Hall of Fame.



SCOTT REACH
FOUNDER OF RARE
DANKNESS

Scott Reach has been a leader in cannabis cultivation for over 15 years. He launched Rare Dankness and Europe-based Rare Dankness Genetics in 2011. Four years later, Reach built a state-of-the-art facility in Colorado that produces high-end cannabis for both the medical and adult-use markets. Reach shares his expertise all over the world, consulting with start-ups looking to establish best practices in the industry.



ARJAN ROSKAM
FOUNDER OF
GREEN HOUSE
SEED CO.

Calling yourself the “King of Cannabis” would be a presumptuous affectation for almost anyone in the world—but not for Arjan Roskam, founder of Green House Seed Co. in Amsterdam. For over 30 years, Roskam has scoured the remotest corners of the planet to collect and preserve cannabis landraces, a project that has given the world some of its most cherished strains. That honorable mission has been documented in recent years in the HBO/Vice series *Strain Hunters*.



NEEMA SAMARI
CO-FOUNDER & COO
OF CANNABIOTIX

Neema Samari brought a connoisseur’s vision to his first big gig with Gold Coast Extracts and Collection. In 2015, he partnered with his best friend, Jeff Buchman, to launch Cannabiotix, a cultivation and extraction company in California and Nevada. The COO attributes Cannabiotix’s success to the lofty aspirations of his crew: “We honestly believe that cultivating cannabis is a craft that can never be truly mastered,” Samari told *HT*.

GROWING
EXPOSED

THE GAME HAS CHANGED

Article by Jeremy Deichen

Beautiful buds ready for harvest

Growing Exposed, a new video series produced by Jeremy Deichen, has been coined "the MTV Cribs of the marijuana industry" for its exclusive look into the once underground world of North America's gardens. Aside from revealing secrets of industry leaders, David Robinson, author of *The Growers' Handbook*, lends his expertise to a segment called *Teachings of the Garden Sage*. You can check out gardens, like the ones that make British Columbia's Kootenay region the Mecca of B.C. bud, on the latest episodes at growingexposed.com.

When Bryan Johnston began growing cannabis, it was the early '90s. He was using 1000 watt bulbs hung from the ceiling commonly referred to as "Donkey Dick" lights. During this period, British Columbia was becoming infamous for the highest quality bud on the planet and people were calling the province's crops "Beaster". A lot has changed in the 25 years since — including his setup and the base plant food he uses, thanks to Green Planet Nutrients.

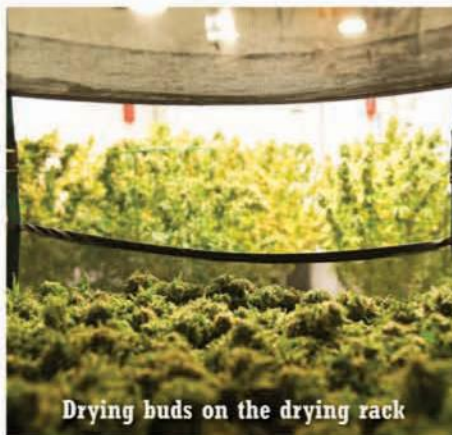
An environmentally conscious guy, Bryan says he remembers, back in the day running those 1000 kilowatt bare bulbs. Today, his indoor garden uses a smaller wattage but yields dramatically more per watt than ever before.

**"Everything has changed.
The game has changed,"**

he says. "I'm running doubled-ended P.L. lighting with four Spectrum King 600-watt LED lights and doing a massive cross spectrum of light, running four 315-watt P.L. ceramic metal halides. So I'm totaling just under 4,700 watts and yielding on average, two pounds or more for every 1,000 watts of light."

The most recent change to Bryan's garden wasn't in setup though, but to a new base plant food. Manufactured by Green Planet Nutrients, Dual Fuel is a highly concentrated, two-part formula that provides all the energy plants need without the need for calcium or magnesium additives. It's known for an easy application process which leaves less room for error.

"I've tried different brands but I've been using Green Planet's Hydro Fuel and got fantastic results, so when I went to my local grow shop and got some samples of Dual Fuel about two years ago, it wasn't a stretch to give it a try," Bryan says. "But on some level, any type of switch is a leap of faith as a grower. People who consume my product are used to a level of quality and I can't afford to give them anything less than the best."



Drying buds on the drying rack

Growing Lemon Haze since 2011, Bryan says this strain takes a little longer to flower than normal but the flavour and sativa experience is well worth it. He finds it easy to grow and the resulting product very consistent in quality. With the switch to Dual Fuel, Bryan says he noticed changes to his plants almost right away.

"The switch was really easy and the first noticeable difference was that my plants became way greener than before and they stayed lush green into the later stages of flower. It's also cleaner and I don't have salt residue or buildup. Plus I'm getting better and faster yields, so I'm saving about a week overall on my crop. I've done the math on what it costs to run other brands and not only am I saving money but I'm having better results."

With Dual Fuel, Bryan uses only three additives: Green Planet's Massive Bloom Formulation, Finisher, and Terpinator. He says when he's tested plants grown with the additives versus ones without, he's noticed way more cannabinoids.

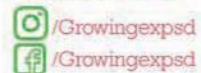
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EXPOSED

Check it out on HighTimes.com

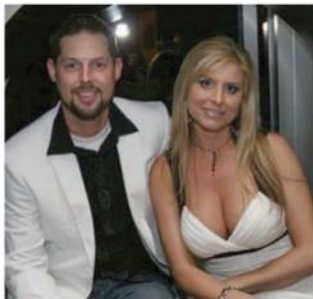
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▶ Dual Fuel by Green Planet Nutrients



ROBERT & KATRINA MCKINLEY CEO OF PHAT PANDA

"We like to think of ourselves as a large-scale boutique," says Robert McKinley, CEO of Grow Op Farms in Spokane, WA. The operation, and its popular product line known as Phat Panda, has been around since 2014, and usually has some 80 cannabis strains proffered at any given time, including its wildly successful OG Chem and Golden Pineapple. McKinley, along with his wife, Katrina, has flourished with a "go big but think small" philosophy.

EXTRACT ARTISTS



MILA JANSEN FOUNDER OF THE POLLINATOR

Mila Jansen, the original "Hash Queen," has been a permanent fixture in the Amsterdam scene since its inception in the 1970s. One of the first to own a legal coffee shop, the Mellow Yellow, Mila's biggest claim to fame was her revolutionary contributions to the global hash market. Her creation, known simply as "the Pollinator," revolutionized the hash-making process, removing the need to import hash products from Africa and the Middle East and establishing a new "Nederhash" pressed-kief product that could be made locally, anywhere cannabis is grown.



BRUCE LINTON FOUNDER OF CANOPY GROWTH CORP.

Bruce Linton is the founder, chairman and CEO of Canopy Growth Corporation and co-founder of Tweed Marijuana Inc. Canopy Growth became the first cannabis-producing company in North America to be listed on a major stock exchange (TSX, July 2016). Linton's skill sets in raising investment capital—\$625 million to date—and positioning cannabis brands are driving the company's international expansion. The company's subsidiaries and partnerships expect to deliver medical-marijuana products and cannabis beverages to the world soon.



BERNER FOUNDER OF COOKIES & EXOTIKZ

Founder and owner of Cookies, one of the most popular cannabis brands in the country, this Bay Area-based rapper and marijuana business mogul keeps the hits coming. In addition to Cookies, Berner is the man behind the Exotikz brand and he's helping to bring kick-ass kind to dispensaries across the country through his partnership with Jungle Boys. Berner's set his sights on world domination with plans for global expansion in the coming year for the Cookies brand.



VINCENT D'ACCOLTI CO-FOUNDER OF ROSIN TECH INDUSTRIES

When Vincent D'Accolti and his college roommate Sam started SHO Products in 2015, they worked out of D'Accolti's garage, producing a single line of Rosin Tech Products. They quickly grew into a major purveyor of solventless extraction equipment and concentrate-smoking accessories, now with five brands—Rosin Tech Products, Pollen Masters, Dab Nation, the Electric Nail and SHO Industries—with global distribution agreements in play for a variety of related award-winning products.

FRENCHY CANNOLI EXTRACT EXPERT

Frenchy Cannoli is a master hashmaker and historian. For years, he has traveled the globe smoking and creating concentrates. Through his travels from the Himalayas to Morocco, he's acquired knowledge of all the classic hashmaking techniques. He now resides in the Bay Area, where he's merged his old-school sieving techniques with new-school methodologies. This unique integration yielded his line of high-quality hash products. You can learn his masterful techniques through his YouTube videos and classes, which he gives in the United States and Europe.

ALEX QUEUPUMIL CRITICAL CONCENTRATES

Alex is the founder and owner of Critical Concentrates, a Southern California-based extraction company that specializes in dabable THC and CBD products. Alex's diligence and care for his work is unmatched in the industry, as he's refined and retooled his processes for years, eventually becoming a perennial Cannabis Cup champion several times over.

JERETT WASSERMAN WEST COAST CURE

Jerett Wasserman owns and operates the LA-based extraction company known best for its fiery OG waxes and oils culled from some of the top OG Kush phenotypes in the world, most notably Paris OG. West Coast Cure has been a staple at Cannabis Cup competitions for years, taking home several first-place awards in the concentrates categories.

DENNIS HUNTER ABSOLUTEXTRACTS/CARE BY DESIGN

The six and a half years that Dennis Hunter spent in federal prison for cannabis cultivation did nothing to dissuade the owner and CEO of AbsoluteExtracts and Care by Design from pursuing his passion for the plant. With a quarter century of cultivation and cannabis activism under his belt, Hunter and his products have helped innumerable patients with cancer, epilepsy, PTSD and chronic pain. He has a simple reason for his indefatigable commitment: "I love the plant, love what it does."

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RICKY WILLIAMS
FORMER NFL
RUNNING BACK

This Heisman Trophy-winning running back played 12 seasons in the NFL while suffering from severe bouts of social anxiety. After a brief stint as a spokesman for pharmaceutical drugs, Ricky Williams discovered cannabis and told ESPN, "Marijuana is 10 times better for me than Paxil." After years marred by fines and suspensions for violations of NFL drug policy, Williams quit professional football and traveled the world training to become a holistic healer, and he continues to be a vocal medical-cannabis advocate.



CLIFF ROBINSON
FORMER NBA PLAYER

This 6-foot-10 center's NBA career spanned almost 20 years playing for five different teams and making the All-Star team in 1994. He credits much of his longevity to the anti-inflammatory benefits of medical cannabis and works to change drug policies in professional sports. "Uncle Cliffy" is now known as "Uncle Spliffy" through his partnership with Pistil Point Cannabis in Portland, producing branded pre-rolls for the Oregon market and working on a topical pain cream, transdermal patches, and CBD- and THC-formulated vaporizer products.

NICK & NATE DIAZ
MMA FIGHTERS

Stockton, California, natives Nick and Nate Diaz are professional American mixed martial artists and world-renowned Gracie Jiu-Jitsu black belts. Both of the Diaz brothers are seasoned



triathletes who sustain themselves on plant-based diets, and they have advocated for and used cannabis and CBD since starting their careers in their teens. Known for their phenomenal endurance and exciting fights, they are seasoned veterans within the sport and they've consistently ranked in the top 10 for over a decade. The Diaz brothers are two of the most powerful and recognizable names in MMA today.



AL HARRINGTON
FORMER NBA PLAYER

From an all-American high-school basketball career to 16 years in the NBA, Al Harrington has been a standout in every game he's played. After years of taking prescription medicine for pain management, Harrington turned to medical cannabis when he retired from the game. But it wasn't

until he witnessed the transformation cannabis had on the health of his grandmother Viola, who suffered from glaucoma and diabetes, that he became inspired to invest in the industry. He's now entered the cannabis sector as the lead investor and public face of the Viola Extracts and Harrington Wellness brands.

POLITICIANS



CORY BOOKER
US SENATOR, NEW JERSEY

The junior senator from New Jersey is one of only 10 African Americans to have served in the US Senate. Booker, the former mayor of Newark, is speaking out for climate change and criminal-justice reform. An outspoken proponent for cannabis legalization, Booker recently introduced the Marijuana Justice Act into the Senate. The bill would remove cannabis from the DEA's list of controlled substances and legalize it federally. Booker is cool as shit, and he could be gearing up for a 2020 presidential run. Cannabis consumers will be watching (and voting).



DANA ROHRABACHER
US REPRESENTATIVE, CALIFORNIA

A staunch supporter of states' rights, Congressman Dana Rohrabacher believes that the federal government should not interfere with states' ability to shape marijuana policy. Famously, he helped create the amendment known as Rohrabacher-Farr (now Rohrabacher-Blumenauer), protecting medical-cannabis patients and prohibiting the Justice Department from spending funds on prosecuting in legal states. A tireless supporter of the cause, Rohrabacher has pot smokers' backs in the tumultuous climate created by the current administration.



EARL BLUMENAUER
US REPRESENTATIVE, OREGON

Congressman Blumenauer is a longtime supporter of ending the failed War on Drugs. He's called on Congress to reschedule, tax and regulate cannabis; allow for the cannabis industry to bank and operate in a normal business environment; and ensure safe access for patients—especially our veterans. In 2013, Blumenauer, along with Jared Polis (D-CO), wrote "The Path Forward: Rethinking Federal Marijuana Policy," a straightforward report outlining everything from current issues with federal and state pot laws to removing the ban on industrial hemp.

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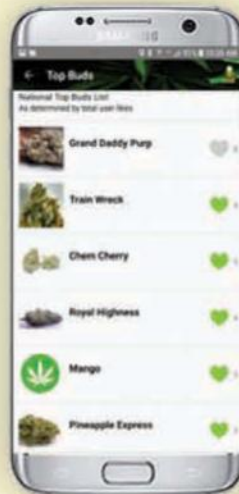
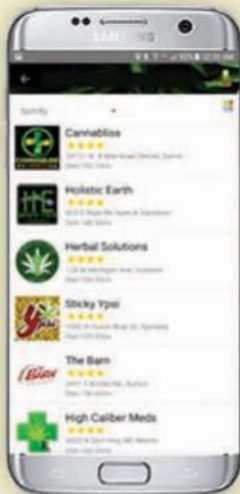
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HERB WESSON
PRESIDENT, LOS ANGELES CITY COUNCIL

Herb J. Wesson Jr. has served as the president of the Los Angeles City Council since November 2011 and has represented Council District 10 since 2005. Wesson is the first African American to hold the position of Council president in the city's history and has been re-elected three times to lead the city's legislative body. During his tenure as Council president, Wesson has presided over policy initiatives making Los Angeles a better place to live, work and raise a family. Under his leadership, Los Angeles lawmakers unanimously backed a host of new regulations for the adult-use cannabis industry. Wesson urged the LA City Council before the vote to "make history."



JARED POLIS
US REPRESENTATIVE, COLORADO

In an uncertain political climate, it's impossible to overstate the importance of a staunch and ferocious ally. Fortunately, the cannabis community has such a supporter in Representative Jared Polis. As a member of the House of Representatives since 2009, Polis has worked to end the government's War on Drugs and to legalize cannabis. He's introduced legislation that would remove marijuana from the Controlled Substances Act and launched the Congressional Cannabis Caucus in 2017 to develop a rational approach to federal pot policy. Polis will run for governor of Colorado in the 2018 election.



GAVIN NEWSOM
LIEUTENANT GOVERNOR OF CALIFORNIA

The lieutenant governor of California is one of the hottest up-and-coming politicians in the country. An early supporter of the Golden State's adult-use cannabis law, Proposition 64, Newsom supports marijuana legalization and has pushed back against the Trump administration's federal cannabis crackdown. Newsom has broad support from the cannabis community for the 2018 gubernatorial race in California, and many expect a run for the White House will be next on his list.



CAT PACKER
EXECUTIVE DIRECTOR OF THE LOS ANGELES DEPARTMENT OF CANNABIS REGULATION

Appointed by LA Mayor Eric Garcetti in 2017, Cat Packer serves as the city's first executive director of the Department of Cannabis Regulation. Packer was the California policy coordinator for the Drug Policy Alliance (DPA), where she worked to ensure the successful and equitable development and implementation of California's evolving cannabis laws and policies. Packer championed responsible regulation, industry diversity and reinvestment in communities most harmed by marijuana prohibition.

SCIENCE



DR. JOSHUA KAPLAN
NEUROSCIENTIST & PROFESSOR

Dr. Joshua Kaplan is a neuroscientist and science writer specializing in medicinal cannabis. He's a senior fellow at the University of Washington as well as a prolific science communicator, whose work has appeared in *Dope Magazine*, *Leafly* and, of course, *High Times* (see "Can Cannabis Rescue the Opioid Overdose Epidemic in 2017?"). Dr. Kaplan is currently working on the therapeutic potential of the endocannabinoid system, with goals toward treating autism and epilepsy.



DR. SUE SISLEY
PSYCHIATRIST

Dr. Sue Sisley has been a leading advocate for PTSD patients, as well as for NFL players suffering from repetitive head injuries. Dr. Sisley brings needed medical expertise to public discussions of medical marijuana. Dr. Sisley is the site investigator for the only FDA-approved clinical trial looking at use of whole-plant marijuana in combat veterans with treatment-resistant PTSD.

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MATT NORDGREN CEO ARCADIAN FUND

Matt Nordgren's NFL career was cut short by injury, but the former quarterback has matured into an executive leader in cannabis financing, in particular in ancillary businesses. As founder and CEO of the Arcadian Fund and Arcadian Capital Management, Nordgren brings venture capital to companies in and around the cannabis and hemp industries. To date, he has managed over \$7 billion in transactions and maintains a portfolio of some 25 companies. Nordgren also founded the Leadership Foundation, an organization committed to empowering youth through sports and education.



JUSTIN HARTFIELD FOUNDER OF WEEDMAPS

Justin Hartfield is an entrepreneur and venture capitalist based in Southern California. He is best known as the founder and former CEO of Weedmaps, a groundbreaking SEO-based platform that has changed the way medical-marijuana patients find and access their medicine in MMJ states. Hartfield also serves on the board of directors for NORML and the Marijuana Policy Project.



MATT STANG CHIEF REVENUE OFFICER OF HIGH TIMES MAGAZINE

Since starting off at *High Times* almost 15 years ago as an assistant in the ad department, Matt Stang quickly rose through the ranks into a management and ownership position and earned a sizeable stake in the marijuana-media landscape. He has nurtured and grown a portfolio of advertisers and brand partnerships worthy of the almost-50-year-old brand. With years of sales and business-building experience and an eye toward the future of legal cannabis, Stang's leadership lights the way forward for more "high times" to come.



TIM MCGRAW FOUNDER & CEO OF CANNA-HUB

Tim McGraw began developing and managing real estate 20 years ago, but more recently planted his flag in the sweet-spot niche of the cannabis space. As the founder and chief executive officer of Canna-Hub, McGraw and his team have secured millions of square feet of commercial space for cannabis businesses. We like that McGraw actively seeks small, economically challenged communities in which to create jobs and bolster needy economies. For this and other reasons, the CEO took a High Times Trail Blazer Award in 2015.

BRENDAN KENNEDY CEO & FOUNDER OF TILRAY & PRIVA- TEER HOLDINGS

As president of Tilray, Brendan Kennedy's particular skill set is his insight into technology and growth industries. Thus, Tilray has blossomed into a global leader in medical-cannabis research and production, and today it delivers cutting-edge flower and extract products to patients, doctors, medical facilities and researchers on four continents around the globe. Tilray looks to be the world's most trusted medical-cannabis brand and, with Kennedy at the helm, it's on its way.



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DABBING GRANNY

Labeling herself a “granny that loves dabs” and a “cannabis advocate and silly entertainer,” Dabbing Granny has carved a fun little niche for herself on YouTube, garnering close to 35,000 subscribers. When she’s not cheering on the Denver Broncos or pounding dabs, Dabbing Granny’s main mission is to wish you peace and love. Best of all, she’s demonstrating the positive power of concentrates regardless of age. If only every granny could be a Dabbing Granny!



JOLIE OLIE

With 1.4 million subscribers on his YouTube channel, *CustomGrow420*—a.k.a. Joel Hradecky, or “Jolie Olie,” as he calls himself—has dabbed an endless array of concentrates, smoked plenty of blunts, and reviewed and unboxed too many weed-related products to count. A trusted name in the cannabis game, Olie’s sponsored posts—which make up many of his reviews—fill his YouTube page along with his favorite greeting: “What up, YouTuuuuuuuube!” Olie balances entertainment with information, and his loyal fan base will ensure that he won’t be disappearing in the smoke anytime soon.

WRITERS/MEDIA



TOM ANGELL REPORTER AT MARIJUANA MOMENT

Cannabis writer Tom Angell is a go-to voice for those of us tracking weed news on the daily. Between editing his “cannabis portal” Marijuana Moment, chairing the nonprofit Marijuana Majority and writing the occasional herb-themed piece for *Forbes*, Angell stays on top of crucial cannabis news as much as any reporter in the country. Anyone trying to keep track of the myriad daily developments in weed politics and law would do well to follow this guy.



MARTIN A. LEE AUTHOR & ADVOCATE

Martin A. Lee is an author and activist who has written numerous books and articles on drug policies, politics and consumption, including *Smoke Signals: A Social History of Marijuana—Medical, Recreational, and Scientific*. Lee is a co-founder and director of Project CBD, an informational nonprofit organization started with Fred Gardner in 2010. Lee regularly lectures at universities across the country, and his work has appeared in many publications, including *High Times*.

PROMOTION



TIM BLAKE FOUNDER OF EMERALD CUP

With more than a decade’s worth of experience building and presenting the Emerald Cup in Northern California, Tim Blake has created one of the most successful cannabis competitions in the United States. In addition to bringing consumers, growers and cannabis businesses together at his events, Blake, who has 40-plus years of growing experience, helped cultivators and law enforcement to create California’s 9.31 program, allowing for cannabis farmers to grow as many as 99 plants.



EVAN NISON CANNABIS-INDUSTRY PUBLIC RELATIONS (NISONCO)

As the youngest member on the board of the National Organization for the Reform of Marijuana Laws (NORML), Evan Nison works alongside legislators to champion and write marijuana legalization. Nison is also the founder and owner of a cannabis-specific public-relations firm, NisonCo, allowing him to work with clients on all sides of the industry, from doctors and scientists to tech companies and inventors. Teaming up with Whoopi Goldberg and Maya Elisabeth, Nison helped found Whoopi & Maya, a line of medical-cannabis products produced with women in mind. ✨



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PATIENTS

Sifting through the changing landscape of medical marijuana laws in your state can become overwhelming. MarijuanaDoctors.com is here to help.

Our site is designed to serve patients and physicians alike, providing information about state legislation information, practices nearby, and dispensaries in your city for patients and comprehensive outreach services for physicians to connect with patients in the area.

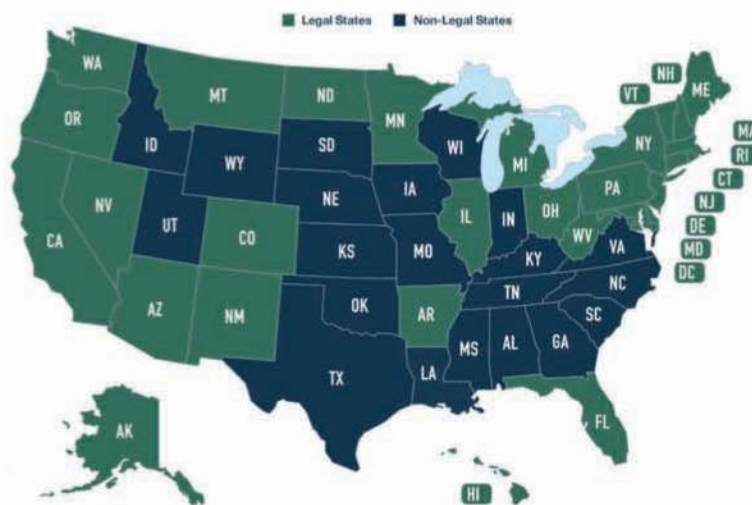
Your Journey with MARIJUANADOCTORS.COM

Patients can start by checking our database of legal and non-legal states to learn about medical marijuana laws in their states. Our state database includes information about qualifying for medicinal cannabis and how to complete the registration process.

For patients with limited mobility, we have information about telemedicine services in qualifying states -- which helps bring care right into the patient's home.

Find a QUALIFIED PHYSICIAN

Once the registration requirements are known for each state, patients can check out our list of physicians certified to recommend medical marijuana. Not only can patients search for physicians that are nearby, but they can also view reviews and ratings for physicians to get a feel for a practice before making an appointment. We've made it easy for patients to pick the right physician -- including practice information, office hours, and pre-visit requirements. Patients can schedule their appointment online right from the comfort of their home. A recommendation from a qualified physician in our database helps patients obtain the legitimate medical documentation they need in order to start the registration process for a medical marijuana card in their state.



Fill Your Recommendation CLOSE TO HOME

After patients have completed the registration process and obtained their medical marijuana card, MarijuanaDoctors.com can help them find a dispensary to fill their recommendation. Not only do we constantly update our list of dispensaries in legal states, but we have our finger to pulse of non-legal states with changing legislature and are first on the scene when dispensaries open in these states.

Patients can find rating and review information about local dispensaries to help them find the best budtender for their needs. Soon our team will be integrating ordering functionality so that patients can order directly from dispensaries, making it even easier to get the medical marijuana they need to treat their qualifying conditions.

The Nation's #1 Medical Marijuana Network



Marijuana Doctors: One-Stop Portal

If you're a medical marijuana patient or doctor, finding the resources and dispensaries you need can be difficult.

If you're a medical marijuana certified physician, MarijuanaDoctors.com has the resources to connect you with thousands of patients every month.

PHYSICIANS

Our subscription services help us optimize your profile to help draw more patients to your practice. We are constantly adding services to help physicians connect with patients in this digital age.

Digital Appointment Assistant PRACTICE MANAGER

We are happy to offer a paperless HIPAA Compliance Check-In System for physicians registered on our site. Practice Manager, the new electronic check-in system, will process forms and instantly store files into the EMR. The system will make processing patient paperwork easier, leaving physicians and practice managers just to review notes and schedule follow ups. The check-in system will also have functionality to set up reminders for patients about scheduling follow-up appointments through the Marijuana Doctors site, text, or email. The system will also give patients the opportunity to rate the practice and their experience, helping boost the practice's credibility with great reviews and testimonials.

At Your Fingertips TELEMEDICINE

Our new registration and digital signature automation will technically streamline workflow for practices using telemedicine. Doctors can connect with telehealth patients by simply clicking a few buttons in their Practice Manager. Once a doctor connects with a patient through Practice Manager, patients have the ability to see when doctors are available for a live chat about their medical marijuana treatment options. Doctors have the ability to use MarijuanaDoctors.com to have patients fill out telehealth forms, process payments, receive medical records, schedule a HIPAA compliant virtual appointment, add notes, finalize appointments, and schedule follow-ups to boost patient retention. This system is the most

seamless way to manage your practice's patients and reach out to new patients by connecting with the tens of thousands of unique visitors that use MarijuanaDoctors.com every day to understand medical marijuana.



New Functionality BUDTENDERS & DISPENSARY OWNERS

Catering even further to the medical marijuana industry, MD also provides marketing solutions for producers, dispensaries and cannabis clinics. Once a patient has received a medical marijuana recommendation and the physician has registered the patient on the state's department of health website, patients can now request an appointment with local dispensaries using our network.

MarijuanaDoctors.com gives producers the

ability to vertically integrate within their market, understanding that patients using medical marijuana to treat debilitating and chronic conditions hold a lifetime value as customers of a dispensary.

As with physicians, producers now have the ability to create profiles optimized for their location and benefit from the patient funnel that is generated by our network's skillfully developed infrastructure.

Producers will now share the

automated-functionality of scheduling patient appointments, and have access to the telehealth portal by which they may consult with patients online, instead of in-person. Furthermore, producers may also choose to become featured advertisers, opting for advanced placement in the state and city static listings, which always come up first in the search results.

ABOUT



Marijuana Doctors seeks to educate patients in states where medical marijuana is legal. Our goal is to be one-stop resource for patients to have their medical marijuana needs met in one location. In order to best serve our patients, we will provide information about medical marijuana laws, availability of physicians in patients' areas, on-demand access to physicians and pharmacists,

information about dispensing options, delivery services, ancillary products, easy online ordering, and automated product ordering. As we continue to expand our patient resources, we are excited to offer 360-view tours of featured dispensaries, the cultivation process, the manufacturing process, and products. Our patients are able to do everything—from research to ordering to reordering—from the comfort of their homes.

As a MSO, Marijuana Doctors can facilitate these services on behalf of medical organizations with medical marijuana licenses in qualifying states. We have created security checks and balances to ensure that deliveries and sales can only be obtained legally, taking the pressure off our patients. As your go-to resource for marijuana, we will keep adding the information you need to make receiving the medical marijuana you need to treat your qualifying condition as easy as a click.



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Trichomes cluster together on this bract of feminized Amnesia from Dinafem Seeds.



SUBJECT: **Feminized or Regular Seeds**

FROM: **Jake the Muss**

👉 If you were going to start a grow op and had to choose between using only feminized seeds or only regular seeds, what would you choose and why? What are the disadvantages of feminized seeds?

Dear Jake,

My preference is always to grow from regular seeds. In my opinion, you'll get hardier and more potent plants from regular seeds as long as they're purchased from a reputable seed bank in their original packaging. If this is a sizable grow op rather than a closet, tent or grow box, then you should definitely grow from clones that are taken from a female plant grown from regular seeds.

The key to achieving this is to grow out plants from regular seeds in order to select a mother plant from them. In order to know the sex of your regular seed plant, you must take a clone from it and flower the clone. This way you know the sex and traits of the corresponding parent plant without having to flower the parent plant itself.

Pick the strongest female from the clones you flowered from your regular seed plants and discard the males and unchosen females. Your vegging female mother plant is now ready for you to take clones from in order to fill up your grow op. The benefits of this are that the plants will all behave in the same way, with a level canopy that you wouldn't get growing from seeds.

The disadvantages of growing from feminized seeds is that you only grow them once and the plants lack the vigor of those grown from regular seeds. The advantage is that you don't have to cull the males. Feminized seeds are also more prone to hermaphroditism, so you have to keep a close eye on them.

Danko Tip: Aerate all hydroponic reservoirs with an air pump and air stones to increase oxygenation and keep nutrients well mixed.

OG Kush CDB
from Dinafem
Seeds con-
tains healing
cannabidiol.



SUBJECT: **CBD Strains**

FROM: **Green Flash Farms**

🌿 Aloha. I grow outdoors in Hawaii, and my patient has requested that I grow a high-CBD strain like Cannatonic or something from the CBD Crew. My question: Are any of these strains stabilized enough for a backyard grower to work with them and be sure the plant has a high CBD ratio? With little access to testing, can we as growers be sure that these strains are what are claimed, or is there a chance that some phenos will not be high in CBD? I don't want to give a patient medicine that isn't what it's supposed to be.

Dear GFF,
You can trust that any seeds you buy from the CBD Crew (cbdcrew.org) will contain CBD (cannabidiol), a cannabinoid credited with many medical properties such as reducing the frequency of

seizures. The CDB Crew is at the forefront of research into breeding CBD-rich marijuana varieties and its strains are stable and grow true to form. There are certainly also other reputable breeding outfits out there that also sell high-CBD strains as well.

You can now have your strains tested at Steep Hill Labs in Hawaii as well. The most important thing to remember about cannabis as medicine is to use a “whole-plant medicine” approach. The benefits of CBD are greatly increased when used in conjunction with other cannabinoids, including THC. This “entourage effect” is the foundation to understanding how medical marijuana works.

The key to utilizing CBD to its utmost effectiveness is the study of the ratios between CBD and THC. Different patients find relief for a variety of symptoms from cannabis with certain ratios,

and this is the reason why “CBD-only” medicine and legislation aren't good for the future of medical usage of marijuana. Don't even get me started on the Chinese “hemp paste” being sold as medicine by multilevel marketers to desperate people in states without medical-marijuana laws.

SUBJECT: **Contamination From Hermaphrodites**

FROM: **Mike C.**

🌿 If I have a hermaphroditic plant in my outdoor garden, can it pollenate the rest of my crop?

Yes, indeed. A hermaphroditic plant has the potential to seed your entire garden indoor or out. This is why it's so important to get your initial seeds or clones from a reliable source. Growing out and holding on to your own mother plants is



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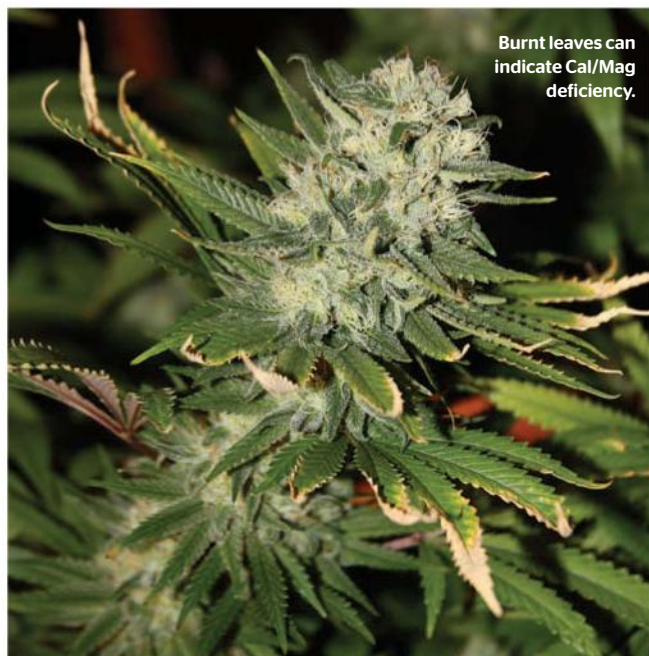
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the only true-tested way to avoid the dreaded hermaphrodite.

Hermaphroditic plants are those that exhibit the sexual organs of both males and females. It's easy to spot males but much tougher to discern a female with some male flowers interspersed. These are the "hermies" that can ruin a whole crop, and they must be removed from the garden immediately and destroyed. Keep in mind that there are some strains that only show these types of symptoms very late in flowering (particularly from Southeast Asian genetics such as Thai), but they can still be deemed keepers due to the fact that it happens close to harvest and the premature males don't have time to do any damage.



Burnt leaves can indicate Cal/Mag deficiency.

SUBJECT: **Cal-Mag Deficiency**

FROM: **KC**

🌱 I believe my plant has a calcium/magnesium problem. The leaves started to develop brown splotches on them, and within a day they went from healthy to curled and crispy (the edges break off at the touch). The light is more than far enough away and the temperature hasn't gone past 81°F. I ordered some Cal-Mag, but I'm not sure if they're going to survive that long. Should I cut off the fan leaves at this point? My other plant that's in the same bucket is doing well and hasn't shown any splotches yet. Both plants have been cleared of growth tips and fan leaves below the fourth node, and the one with the problem has been topped once.

Dear KC,

It seems that you've diagnosed your problem correctly. The only other reason your plants could be exhibiting the symptoms of a nutrient deficiency would be a pH imbalance. When the growing medium or nutrient solution is too acidic or alkaline, roots can't take in certain nutrients, even when they are present.

If pH is within the proper parameters, then add the Cal-Mag you ordered and your problem should slowly go away. Remove and discard any dead or dying leaves from your plants, but try to keep all healthy green growth intact.



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Danko Tip: Cover all indicator bulbs (such as those on power strips) with black tape to avoid light leaks

SUBJECT: **Let's Get Started**

FROM: **Siddharth C.**

🌱 I have to start my pot production on a small scale. I can't get my hands on rockwool or expensive fertilizers. In fact, I don't know anything about growing. If you could guide me through the process, it'd be a real help. Can you answer these questions?

What type of soil can I grow in? Is loamy soil okay?

How many days does it take for a plant to grow fully?

Do I have to water it like a simple plant?

Can I get it growing without the pH trouble?

Dear Siddharth,

You can surely grow cannabis without rockwool or expensive fertilizers. The best soil for growing is a light and airy mix that goes from wet to dry quickly. Loam is a combination of sand, silt and clay that's actually quite ideal for growing.

Cannabis takes a minimum of 70-90 days to up to 6 months or more to complete its life cycle from seed to harvest. Autoflowering and *indica*-dominant strains finish on the shorter side, while *sativa*-dominant plants will take longer. Outdoor plants will grow in their vegetative state from spring into summer and flower in the fall. Indoors, you control the length of the vegetative time with a light timer.

You do water it like a simple plant, but you must add plant food in the form of nutrients to your water in order for the plant to thrive and flower properly. You should test for pH and try to maintain the pH of your soil and watering solution between 6.0 and 6.8.

SUBJECT: **Vegetate in Flowering Area**

FROM: **Brian**

🌱 I always find your articles to be a big help and was hoping you could answer a question for me. I am a medical user in a not-so-friendly state, and as such the only way to get anything with both CBD and THC is to grow my own. I need to grow a little bit more than I am growing right now, but I'm maxed out on my current grow space. I grow from seed in a ScrOG setup 2-3 plants at a time. Due to variances in phenos, I always wind up with a plant that takes an extra 2-3 weeks or so to ripen and get cut down. This leaves me with a lot of unused grow space for almost a month each grow. I was wondering if I could germinate and start my next seedlings during this time. The lights would still be 12/12 for finishing off the other plants (or would they?), so I was wondering what effect this would have on the seedlings? I know that in nature most plants germinate around the spring equinox, which is 12/12, so I do not see an issue—but I do not know and cannot afford to possibly lose an entire grow cycle of my meds to test this theory out. Your thoughts and suggestions would be great. Thanks!

Dear Brian,

Plants need more than 12 hours of light in order to stay in their vegetative stage. The only way you can accomplish what you're trying to do is to give your seedlings more light than your flowering plants. You could either take them out of your flowering space during the dark time when the lights are off and provide them with light, or you can separate your grow chamber into two spaces, one for vegetative growth and one for flowering. 🌱

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HIGH TIMES

September 2016 High Times

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2016 S.T.A.S.H. AWARDS

OUR PICKS FOR GEAR OF THE YEAR

The High Times Cultivation Department is constantly on the lookout for new innovations in marijuana-farming technology. Each year, we reveal the latest and greatest grow gear as part of our Significant Technological Achievements in Secretive Horticulture (or S.T.A.S.H.) Awards.



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Trimming up
a storm

1



2



3



4



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LED (light-emitting diode) lighting is getting stronger and cheaper. The new and improved PowerPanel TrueSun LED Grow Light from BloomBoss provides a balanced spectrum and supports all phases of plant growth effectively and affordably. It's ETL-certified and now has an external power supply, which reduces heat and slims down the unit considerably. This light can be used on its own in a tent or a closet or as supplemental lighting in larger applications.

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How Select became the best-selling cannabis brand on the West Coast

Photography: Tyler Lyon

In 2015, from our home base in Portland, Oregon, Select Oil launched with our flagship product – a sturdy and reliable vaporizer pen made with an organic cotton wick, and filled with clean, flavorful cannabis oil. We got our start by identifying and solving a problem – our founder wanted to help a friend with chronic health issues enjoy the benefits of cannabis, without burning his throat with harsh smoke.

Today we've expanded from Oregon, to California and Nevada. We're laser focused on our mission to provide customers with the cleanest, most flavorful cannabis oil, using the safest delivery methods available.

Because of that, Select is now the best-selling cannabis brand on the West Coast. Here is what you should know about the Select brand:

We make oil – We pride ourselves on producing solvent-free and pesticide-free cannabis oil with the highest quality possible. Our attention to detail ensures a consistently pure and potent product.

We're known for our Select Elite vaporizer line and exceptional cartridge and battery technology – Select cartridges utilizes the most innovative hardware available for vaporizing cannabis and hemp oils. Our organic cotton wick is unbleached, allowing the fiber structure to cleanly wick viscous oil. The ceramic core technology means longer, smoother, stronger puffs that won't scorch the oil or the wick. Our pressure-fit, tamper-proof mouthpiece helps protect pets and children, while creating a tight seal for the oil in the cartridge to prevent leaking or malfunction.

We're here because we truly believe in what we do. We are dedicated to destigmatizing cannabis consumption, while at the same time educating customers about the plant and its many benefits. We maintain a desire to shift perspectives on cannabis, and tirelessly commit our efforts to normalize the image that's associated with cannabis use, by making products that are easy-to-use, discreet, safe and innovative. Find us in California, Oregon & Nevada dispensaries, or online at [SelectOil.com](https://www.SelectOil.com).

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MUNCHIE MADNESS!

THIS MONTH WE'RE GOING BACK TO BASICS WITH A FUN TWIST ON AN EASY-TO-MAKE CLASSIC. BY ELISE MCDONOUGH

COOKING WITH WEED doesn't always need to involve infusing THC into the food. Sometimes you're just baked and scrounging through your cabinets looking for snacks, and occasionally these sessions of stoned scavenging can lead to innovative new flavor combinations or fun new recipes. After all, the first person who had the brilliant idea to use crumbled Cheetos to make a crust for fried chicken must have been high, right?

Cannabis enhances a lot of things, with increased appetite being one of the main effects directly associated with being high—the munchies is a proven result of puffing, after all! But beyond making us want to eat more, THC tends to make food somehow taste better, elevating even a humble burger into a multisensory delight, as if it's the best burger you've ever had.

Written by Spencer R., the mastermind behind the @420cookbook Instagram account, *The High Cookbook* takes this idea and runs with it, presenting some of the most fun and easiest recipes for stoners to make when they're baked. Make no mistake, this is a book intended for people who have literally never cooked anything before, providing inspiration for those who would usually order a pizza to actually attempt to create beginner-level munchie food. You'll find ideas for epic snack sessions, with wake'n'bake casseroles, fruity desserts, oven-baked fries and other simple pleasures that anyone can make with a hot plate or a toaster oven.

If you're a fan of perfectly toasted, oozy grilled cheese sandwiches, take it up a notch and add crumbled cheese crackers to increase the crunchy texture, while optional pepperoni slices really ramp up the savoriness of this classic favorite. Make it gourmet by using a crusty sour-dough bread and fancier cheese, or go on a nostalgia trip with Kraft Singles and Wonder Bread. We'll bet it's the best one you've ever tasted! Or, for something a little sweet and spicy, try the delicious and easy to make Honeycomb Hamburger. ✨

HONEYCOMB HAMBURGER

INGREDIENTS

1 lb. ground beef
1-2 tsp. hot chili sauce
1/2 cup honey
4 kaiser rolls
4 slices of Colby jack cheese
A dash of salt and pepper
A dash of onion
A dash of garlic powder
Lettuce

DIRECTIONS

In a small bowl, mix together 1/2 cup honey and 1 tsp. of hot chili sauce. Taste your hot sauce mixture; if it's too spicy, add more honey. Place ground beef in a large bowl. Add the honey hot sauce and mx. Add onion and garlic powders to the mix and season as desired. Mix well and then shape the meat into four round burgers and place on a plate. Cook burgers on the grill or in a skillet. If using a skillet cook on medium/high heat. Once your burgers are cooked through, place a slice of Colby jack cheese on each burger and let melt. Once the cheese is melted, slap the burgers on a kaiser roll with a slice of lettuce and devour.



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We are proud to welcome Jeffrey Warsh to establish a new cannabis industry practice group. Jeff is an alcoholic beverage and cannabis law attorney and registered governmental affairs agent with over 30 years of experience in highly regulated industries. Our practice group advises entrepreneurs in the complex and evolving field of cannabis law, providing guidance and insight into entity formation and capital raising, real estate and zoning, permitting and regulatory compliance, and enforcement and transactions related to the licensing of alcoholic beverages and cannabis.

Contact us to learn more:

- Paul D. Strauchler
- Jeffrey A. Warsh
- Douglas J. Sherman
- Jerry Fischer

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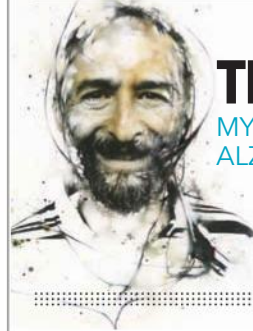
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Got a question for Dr. Mitch? Email him at 420research@gmail.com.



Myrcene is common in "couchlock" strains.

Which cannabis terpene is most common?

Oliver Stoned

Hello Mr. Stoned, Myrcene is the most prevalent terpene in cannabis, especially in sedating, "couchlock" strains. You might recognize it from all the lore about mangoes, which do contain small amounts. One whiff also reveals it's quite prevalent in hops.

I know you said that hip-hop fans are more likely to love the plant, but are there links with other types of music?

49 Cent

Hey 49, As you'd guess, fans of religious music and opera have the lowest rates of use. Possession arrests are more common at heavy-metal concerts than at classic-rock concerts, but it could be because us old hippies have a lot of practice hiding stashes. Those who love jam bands also love hallucinogens. I'm afraid these are just more examples of science proving the obvious, but it's always good to have scientific evidence if we're going to have stereotypes.

I used to hear about cannabidiol being used to treat schizophrenia, but then it all faded out. What happened?

Snoop Lemon

Hi Snoop, A full gram per day of CBD in addition to regular antipsychotic meds helped

schizophrenics improve significantly. Nevertheless, I think most researchers are too scared to try cannabidiol all by itself.

I need help explaining how cannabinoids can help mitigate the effects of Alzheimer's disease in a mouse.

Walt Dis Knee

Howdy Walt, Some mice have been genetically engineered so they will show brain inflammation, motor problems and memory deficits a lot like human Alzheimer's disease. When they get THC or CBD injections, they don't exhibit these problems as much as their buddies who have the same genes and receive placebo injections. Your mouse probably wouldn't mind a little tincture each night before bed even if he hasn't developed symptoms yet. If he happens to be friends with a duck, well, we don't have any data yet, but it probably wouldn't hurt. 🌿

Dr. Mitch Earleywine, PhD, is the author of Understanding Marijuana and The Parents' Guide to Marijuana.

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CUTTING-EDGE CRYPTOCURRENCY

How The SYB Token Intends To Solve Every State's Cannabis Taxation Problem.

Scott Holtby is a freelance writer with a pulse on cannabis industries.

Many states are moving forward in legalizing access to cannabis for both medical and recreational purposes. A new multi-billion dollar cannabis industry has grown out of these efforts, with intense debate on who should benefit the most from the new economy. For example, should it be the pioneering activists or the new canna-entrepreneurs?

Either way, one thing has become clear:

States are eager to take their fair share as a reward for pushing through the necessary legislation and regulations.

States have a number of revenue streams available, from selling licenses to charging fees. But nothing compares in importance to the potential tax revenues from cannabis transactions.

Colorado has been leading the development of the legal cannabis model in the United

States, legalizing medical marijuana in 2000 and recreational access in 2014. A report in *CNN Money* on July 19, 2017, quotes analysts predicting that state's cannabis revenues will surpass \$500 million by the end of the year. And Colorado only has 5.5 million residents.

It is no surprise that these strong early results have doubled down the interest of state regulators across the country. With legal access to medical and recreational cannabis markets growing in larger states like California, cannabis revenues could become a key contributor to any state's budget. This momentum is driving more support for legalization among even skeptics as the evidence continues to mount.

Despite success stories like Colorado, there remains serious suspicion among cannabis analysts and experts that states are missing out on a large chunk of potential revenue. This stems from the inefficiencies of the current sales market across the country. Since cannabis

is still a controlled substance from the federal government's perspective, large financial institutions like banks and credit cards have shied away from the market. This has led to a cash-based industry, ripe for underreporting and misrepresentation.

This lack of transparency is hurting all states' cases for greater legalization and access to cannabis markets from coast to coast. All states need a stronger and more efficient system to monitor cannabis transactions and collect taxes. And in an increasingly digital world, states must embrace innovative technology over cash-based systems.

Luckily one company is tackling this problem head on with the latest technology. Embracing Blockchain technology – like the kind that powers *Bitcoin* – *Support Your Buds LLC* is developing a cannabis-specific Cryptocurrency to facilitate transactions. But unlike previous attempts to integrate Cryptocurrency and cannabis,

Support Your Buds is committed to solving the state taxation problem directly.

Support Your Buds is partnering with cannabis technology leader *Alternate Health (CSE:AHG)* to integrate their Cryptocurrency with the *CanaPass* controlled substance management system. This system facilitates transactions and payments between licensed producers, medical doctors and cannabis patients or consumers, keeping secure and transparent records for both the medical and recreational cannabis industries.

Most importantly, *CanaPass's* automatic tax reporting mechanisms can work together with the *Support Your Buds* Cryptocurrency to ensure states receive exactly the revenues and remuneration they are entitled to. With greater revenues, state governments have strong incentives to support patient access to cannabis and enact sensible legislation for all citizens in their jurisdictions.



supportyourbuds.com

Women In Cannabis



Lauren Rudick
Partner, Hiller PC
Manhattan, NY

Lauren Rudick is a Partner at Hiller, PC, in Manhattan, NY, and a member of the legal team that brought a federal action suit against Attorney General Jeffrey Sessions and Chuck Rosenberg for a declaration that the mis-classification of cannabis as a Schedule I drug is unconstitutional.

▶▶ *What inspired your decision to accept the case against Jeff Sessions?*

It was our brainchild. Michael Hiller (managing partner) and I attended a few meetings of the New York Cannabis Bar Association, consisting of a group of lawyers who sought to challenge New York's overly restrictive medical cannabis regulations. In thinking through various potential causes of action for that case, we realized quickly that the strongest claims were constitutional in nature, should be lodged against the Federal government, and belonged in Federal Court.

We then thought through all of the different ways that individuals and businesses are "damaged" or suffer with "irreparable harm" as a result of the unconstitutional classification of cannabis as a Schedule I drug, reached into our personal networks, and found our plaintiffs.

▶▶ *How do you address the argument against children using medical marijuana?*

It really depends on the condition at issue, but I would encourage them to step outside traditional comfort zones, talk to physicians who specialize

Take Note How Do Investors Buy Into ? An ICO

✓ Register

Many ICOs are based on previously existing cryptocurrency like Ether. There are a number of online exchanges, so do some research and sign up for an account with an exchange that support's your ICO of interest.

✓ Transfer

Transfer USD, EUR, CAD or any relevant currency from your bank account to your registered account with the exchange. Use this capital to buy Bitcoin, Ether etc.

✓ Exchange

Create a digital wallet under your control where you can move your coins unless the ICO you wish to participate is offered on your exchange. Many start with an Ethereum wallet as most token sales take place through that network.

✓ Buy

No two ICOs are identical, but there are key similarities. A timeframe will be laid out with a number of tokens being offered. Most ICOs will have detailed instructions on how and when to participate along with all agreements inherent in the purchase.

INITIAL COIN OFFERINGS

The Latest Trend in Cannabis Investing

Nick Swan is an avid Investor and advocate for Medical Cannabis Industries

be programmed to record not just financial transactions but virtually everything of value."

Economies and markets built on Blockchain technology can function with a digital currency – or cryptocurrency – based transactions, with access to the currency initially launched through an ICO.

As Blockchain technology expands across the cannabis industry, new opportunities will be created for cannabis-focused cryptocurrencies.

For example, *Alternate Health* (CSE:AHG) has recently purchased a Blockchain-enabled mobile payments system to complement their *CanPass* controlled substance management software. This technology ensures secure, transparent and trackable transactions in much the same way an ICO is used to raise capital.

At the end of the time limit or when the full number of tokens

are sold, and the currency is live can be used for transactions. Investors can spend it, sell it or hold on to it for future gains.

Often this way of raising capital for Cannabis companies can be a more independent, transparent and quicker method for companies to get funding. For investors the important thing, as always, is to do your research to make the best of your investment in this dynamic industry.

The coins or tokens in question can appreciate in value just as stocks do in the public market, while the company making the offer generally uses the capital to fund their business. But unlike an IPO that offers a stake in the ownership the company itself an ICO sells a right of ownership or royalties to a project.

This technology ensures secure transparency with the potential to integrate digital currency transactions as the crypto-cannabis industry evolves.

Visit: Alternatehealth.ca

It's no secret that Cannabis companies have faced unfair roadblocks over time, especially when it comes to raising capital using the traditional methods.

And they aren't alone in these difficult circumstances. But with some creativity and innovation in the cannabis community, new concepts are being adapted and developed that will change how companies raise money.

The most exciting new idea is the ICO, or Initial Coin Offering.

Companies use ICOs as way of selling investors up front participation in an "economy," generally at a discount, that allows them to benefit from future gains on a digital, Blockchain-based currency.

As Don and Alex Tapscott, authors of 2016's *Blockchain Revolution*, put it:

"The Blockchain is an incorruptible digital ledger of economic transactions that can

in treating pediatric patients with medical cannabis, and talk to parents, and the children who rely on it. There's no harm in learning more, particularly when many of the medications medical cannabis can replace have disastrous, proven side effects.

▶▶ Why is this case pivotal for the Canna?

We are at a tipping point, where more than half the nation believes cannabis should be legal and lives in a jurisdiction in which some form of cannabis is legal, California is on the verge of full legalization (which is the 5th largest economy in the world, after Brexit),

the government has already declined to enforce the Controlled Substances Act against state-compliant medical cannabis businesses and individuals and has de-funded the DEA accordingly, sophisticated economies globally are recognizing benefits of legalization, and the campaign of misinformation has been largely debunked and overshadowed with promising research and success stories. The nation has been hurt and divided since last November, but the legalization of cannabis stands to unite everyone. From the left, we will address social justice reform and patient advocacy. And from the right, we will address states' rights, and our constitutional

guarantee to be free from congressional overreach. The criminalization and stigmatization of cannabis is an injustice that makes no rational sense, and the American people are waking up to that.

▶▶ What's overarching reason behind the lag in the nation-wide legalization of Cannabis?

Hearts and minds need to change, and education is the key. We've been suffering with a political campaign, rooted in racial animus, deliberately designed to mislead the American people with regard to the safety and medical efficacy of cannabis.



MARIJUANA JUSTICE IS THE NEW NORMAL

NEW LEGISLATION SEEKS TO RIGHT THE WRONGS OF MARIJUANA PROHIBITION.

Justin Strekal is political director of NORML. Visit norml.org.



THE MARIJUANA JUSTICE ACT IS THE FIRST-EVER FEDERAL BILL THAT SEEKS TO PROVIDE RELIEF TO THOSE EITHER CONVICTED OR CURRENTLY INCARCERATED FOR FEDERAL MARIJUANA CRIMES.

other to decriminalize in the remaining 28 states where a first-time simple possession charge can result in jail time with misde-

IN JANUARY, JUST 12 days after US Attorney General Jeff Sessions threatened a renewed crackdown on state-sanctioned marijuana programs, Representative Barbara Lee of California, along with 18 co-sponsors, introduced the Marijuana Justice Act into the House of Representatives.

This bill is by far the most comprehensive piece of legislation ever introduced to end the federal government's war on marijuana and address the egregious damage this policy has wrought, particularly on marginalized communities.

RETROACTIVE JUSTICE

Initially introduced in 2017 in the US Senate by Senator Cory Booker of New Jersey, the Marijuana Justice Act is the first-ever federal bill that seeks to provide relief to those either convicted or currently incarcerated for federal marijuana crimes. Of course, the majority of marijuana-related convictions are made at the state and local level, but the mere prospect of creating this national expungement program should embolden state and local advocates and lawmakers to prioritize expungement as part of any future reform effort.

The bill would also allow all federal inmates currently serving time for marijuana-possession or -use crimes to

petition the court for a resentencing, which theoretically would result in them having the rest of their time commuted.

PROACTIVE JUSTICE

This robust legislation not only removes marijuana from the Controlled Substances Act, but it also provides a path forward for the individuals and communities that have been most disproportionately targeted by our nation's failed war on marijuana consumers.

According to the ACLU, African Americans throughout the country are arrested for violating marijuana possession laws at nearly four times the rate of whites, while both ethnicities consume marijuana at roughly the same rate. One of the dynamic ways that the Marijuana Justice Act would work to reverse this disparity is by monitoring the states that choose not to legalize. Should one of those states not reduce the disparity in arrest rates, it would lose various federal funding streams.

Any serious policy wonk will tell you that one of the things that state lawmakers and law enforcement fear most is the loss of federal funding. By having a mechanism that would slash federal funding due to arresting marijuana consumers, lawmakers would jump over each

meanor or felony convictions.

In addition to having the federal government withhold funding from offending states, the legislation calls for the withheld money to be redirected into a newly created "community reinvestment fund," which would be administered by the Department of Housing and Urban Development. This fund would specifically be used for job training, public libraries, community centers and health-education programs in communities that have seen the highest rates of racial arrest disparities.

Thanks to the leadership in the marijuana reform space by Senator Booker and Representative Lee, we now have a bill that looks to not only stem the problem of federal marijuana prohibition, but also to fight back.

Commenting during the bill's rollout, Representative Lee said, "I'm proud to introduce the Marijuana Justice Act—bold, progressive legislation to address the legacy of racial bias in marijuana enforcement and to end the failed War on Drugs... It's past time that we take decisive action to right the wrongs from decades of misguided policies."

You can send a message to your federal lawmakers in support of the Marijuana Justice Act, as well as other pending legislation, at norml.org/act. 🌿

GARYN ANGEL

CEO, MAGICALBUTTER.COM



GARYN ANGEL IS A MAN ON A MISSION TO MAKE THE WORLD A HEALTHIER PLACE

WRITTEN BY ZOE WILDER



"Together we win," is a phrase you'll hear this accomplished CEO say, who is also the CSO at ANANO Scientific, a company focused on promoting the health properties of non-psychoactive cannabinoids like cannabidiol (CBD). More than words, Garyn's ability to establish teams of talented people across disciplines fuels his ability to enhance lives through charity work, policy reform, and scientific research. A man clearly on a mission, there's much to admire. So I sat down with Garyn to learn more about his latest endeavors with MagicalButter and ANANO Scientific and his journey to the High Times 100.

An award-winning philanthropist, financier and inventor, the Florida native conceived the world's first countertop appliance designed to infuse botanicals into oils, butter and topicals to help a severely ill friend create a natural herbal remedy. His friend was able to find significant relief using the prototype, inspiring Angel to sell his thriving financial practice to focus on making the world a healthier place. That's when MagicalButter.com was born.

You were also awarded CNBC's Next List award along with Elon Musk, Tim Cook, and LeBron James, among others. What inspired your entrepreneurial journey?

"The decentralization of power inspires me. That's what I share with my colleagues on the Next List. What I'm known for is solving problems with efficient solutions. Empowering people, the possibility of change and seizing opportunities excites me. I realized the secret formula to abundance in every category of life is to lift the people around you. Real badasses inspire others through goodness. Cannabis has always been about unity, community, and health. My contemporaries and I share an essential role in the future of public health because our transformational successes decentralize plant-derived compounds from big pharma."

Now, thanks to his dedication and hard work, people across the United Kingdom, Europe, New Zealand, Canada, Australia, South Africa, Mexico and the United States can access this life-changing device, empowering patients all over the world to take their health into their own hands.

In the process, seven Cannabis Cups have been won by dispensaries who make their edibles using the MagicalButter Machine.

"I'VE HAD THE PLEASURE OF WORKING WITH GARYN ANGEL AND HIS TEAM AT MAGICALBUTTER FOR SOME TIME NOW ACROSS A RANGE OF PROJECTS, AND THOSE THAT KNOW HIM AND MEMBERS OF TEAM MB WILL SURELY AGREE WHEN I SAY THEY'RE BEST IN CLASS... AND ALL HEART. SO WHEN THE OPPORTUNITY ROSE TO INTERVIEW GARYN FOR THE HIGH TIMES 100, I JUMPED AT THE CHANCE."

- ZOE WILDER, AUTHOR



"I WAS A BORN ENTREPRENEUR, I SOLD BUBBLE GUM IN MIDDLE SCHOOL, OPENED A COMPUTER BUSINESS IN HIGH SCHOOL, HAD MY FIRST EXIT AT 19, AND GRADUATED COLLEGE BY 20. ACCOMPLISHMENTS ARE CHALLENGING THE FIRST TIME. YOU BECOME A NATURAL WITH EXPERIENCE AND A GOOD NETWORK."



Your family is entrepreneurial—your father owned one of the first Apple franchises. What are some impactful lessons you learned from watching his business endeavors?

"Two incredible dads raised me. My parents divorced when I was five. I learned about success and not to fear failure on a grand scale from blue and white collar parents. I would say the best lesson is: fail, fail often, and yes, always fail forward. Take calculated risks daily, because you can't save your way to retirement—you just grow old. Learn by losing until you persevere. I hope this advice helps your readers crush it!"



NEWT GINGRICH MET WITH YOU ABOUT THE HEALTH BENEFITS OF CBD, ALSO MITCH MCCONNELL AND RAND PAUL ON FEDERAL MARIJUANA POLICY REFORM. YOU'RE ON A MISSION TO HELP MAKE THE WORLD A BETTER PLACE. WHY PUBLIC HEALTH? WHY CANNABIS?

"I CHOSE PUBLIC HEALTH BECAUSE MONEY ISN'T IMPORTANT TO ME, I WANT TO HELP PEOPLE. EARLY IN MY CAREER, I FOCUSED ON MONEY, AND IT DIDN'T MAKE ME HAPPY. WHEN YOU INVEST IN THE RIGHT PEOPLE, YOU WIN. SCIENCES NEED TO ADVANCE, AND NEW EFFICIENCIES NEED PEOPLE TO FAST-TRACK THEM. PATIENTS ARE DYING. CHILDREN ARE CRYING BECAUSE OF UNJUST LAWS. IT SEEMS LIKELY CANCER AND OTHER DISEASES ARE CURABLE IF OPEN-SOURCED. HIPAA CENTRALIZES HEALTHCARE, BOTTLENECKING INNOVATION. WE HAVE ENTERED A NEW PARADIGM: PEOPLE ARE MINING FRUITFUL SOLUTIONS ON THEIR OWN, AND I LIKE CREATING THOSE TOOLS. POLITICIANS MEET WITH ME BECAUSE THEY WANT TO LEARN HOW TO HELP THEIR CONSTITUENTS. LOBBYING IS AN INCH BY INCH PROCESS. I INVEST BANDWIDTH IN HIGH-RANKING OFFICIALS WHO ARE WILLING TO SPEND TAXPAYER MONEY ON EQUALITY."



IF YOU COULD GO INTO BUSINESS WITH ONE PERSON FROM HISTORY WHO WOULD IT BE AND WHAT'S THE MISSION?

"I enjoyed working with George Steinbrenner on fun projects, and he was excellent to brainstorm with, but my answer is Kai Bickle Nygard. He is my business partner. We are targeting cancer in China, building out a ship to offer medical procedures currently unavailable in many places, and recently began developing blockchain medical applications. All while having the best time ever traveling the world networking with visionaries. We document the journey, and at every stop, we cheers because the best of the past, is the worst of the future."



YOU WERE BEHIND THE U.S. SCREENING OF THE SCIENTIST AN INCREDIBLE DOCUMENTARY ABOUT RAPHAEL MECHOULAM. YOU HAVE AN AFFINITY FOR SCIENTISTS AND THEIR WORK. WHERE DOES THIS STEM FROM, AND WHAT'S EXCITING YOU IN THE SCIENCE REALM RIGHT NOW?



"I understand scientists, we think alike. Their discoveries are frequently ridiculed, because innovation begins with a ray of light and people want the full beam without understanding spectrum. Scientists offer silos that are a piece of the truth and strength through pieces is my life purpose. Blockchain will fast-track scientific discovery because the ledger eliminates interpretation. The translation of language and handoff of data is often misunderstood. I act as the baton running a lifetime race for the betterment of humankind. Raphael is brilliant. It was an honor to screen his documentary The Scientist in the United States on his behalf. High Times asked me to present Mechoulam the Lifetime Achievement Award, and that will always be a special memory for me. Many scientists in this space fascinate me like Nissim Garti, a Nanoscientist on the Nobel Prize Selection Committee, and Mark Rosenfeld, a Molecular Biologist responsible for saving the Giant Panda with plant-derived compounds. Intellectuals are working tirelessly to separate the science from the stigma."

Two companies you inspire, MagicalButter and ANANO Scientific, are allowing more people to access the benefits of plant medicine. Where will plant medicine be in a few years? What new technologies will exist?

"People are terrific, the world is fantastic, and plants are awesome. What's messed up is that food is grown for shelf life instead of nutritional content. As an example, an apple from a grocery store can be more than six months old when you buy it! Sugar is used as a preservative, but that causes inflammation. We are extracting molecules with poor bioavailability like cannabinoids and rendering these compounds into microemulsions or powders that are highly bioavailable, bacteriostatic, shelf life stable, and homogenous. For the first time, health-conscious consumers have the opportunity to consume nutritionally rich foods for longevity. Cannabis is a dietary essential, eat to treat."

How do you find great people to work with that truly care about your organization the way you do?

"Emotional intelligence is equally as important as IQ. I mastered social dynamics, and building teams is what I do best. A good rule of thumb for aspiring entrepreneurs is to hire characters with a character that mentor, love, and commit to each other. Working together as a family creates the culture that companies seek because culture creates energy. Once creative power flows through the veins, it inspires your team to be self-aware and improve. Adopt this mindset in your workplace and watch your mission statement get accomplished."



"CULTURE AND FAMILY ARE EVERYTHING TO ME. TO MASTER LIFE, YOU MUST MAKE LITTLE DISTINCTION BETWEEN WORK AND PLAY, LABOR OR LEISURE. I LEAD THE PURSUIT OF EXCELLENCE THROUGH AN ALIGNED VISION, LEAVING OTHERS TO DECIDE WHETHER WE ARE WORKING OR PLAYING. TO US, WE ARE DOING BOTH."



What else is on the Horizon?

I guess what you are asking is, what's next for the Angel crew? We will remain at the tip of the spear through good commerce, strategic acquisitions, and mergers. MagicalButter and ANANO are exploring going public. Our bandwidth is committed to public health, decentralizing access to plant-derived compounds, and mentoring others. Continued advocacy is what's on my immediate horizon. I led an initiative and successfully decriminalized cannabis in my hometown. Now, I want to help friends do the same in their cities. Is it OK that I say thank you to our customers for their business and friendship and much love to High Times for the recognition to end an interview? It just feels like the right thing to do, and for your readers that don't already follow MagicalButter's adventures—we want to get to know you!

CREATING LOVE GLOBALLY.

Giving back means a great deal to you. Tell us about your charity Cheers to Goodness and how people can support the cause.

"Cheers to Goodness is a foundation that helps families lacking support from either medical insurance or government programs. We look to support families when plant-derived compounds are their best treatment modality. CheersToGoodness.org selects a worthy cause and leverages social media to raise awareness. Our followers and customers support the cause, 100% of everything donated we match, and then we give it directly to the family. Together we win!"

I know you're also working to upgrade the public health system in Jamaica using hemp...

"Inflammation is the root of nearly every disease. In Jamaica, if you are born today, there is a 20% chance you will have diabetes by age 18. That's unacceptable. We met with the Minister of Health and the Minister of Finance to draft the Emancipation Plan for the island. Last May, Minister Shaw received a standing ovation from Parliament when he unveiled the vision. The financial model reduces public health spending through proper nutrition. It is a simple solution, substitute imported food, with nutrient-rich foods and reallocate the government's healthcare savings to programs that eradicate poverty. The island lacks domestic industry except for tourism, and foreigners own most of the resorts. Hemp and cannabis help change the long-term economic equation, yeah mon!"



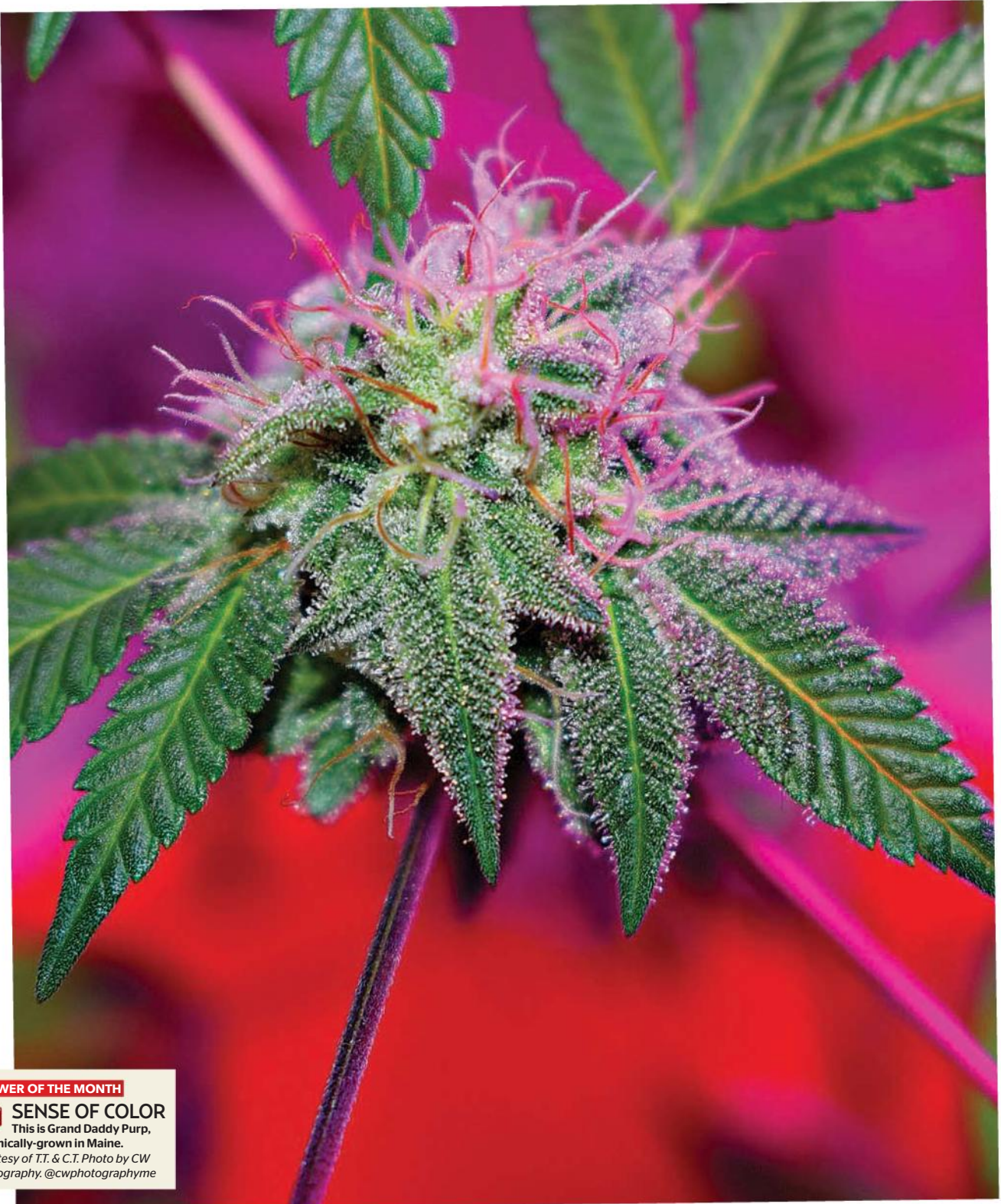
PEACE. LOVE. GARYN ANGEL.




POT SHOTS

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FLOWER OF THE MONTH
 **SENSE OF COLOR**
This is Grand Daddy Purp,
organically-grown in Maine.
Courtesy of T.T. & C.T. Photo by CW
Photography. @cwphotographyme

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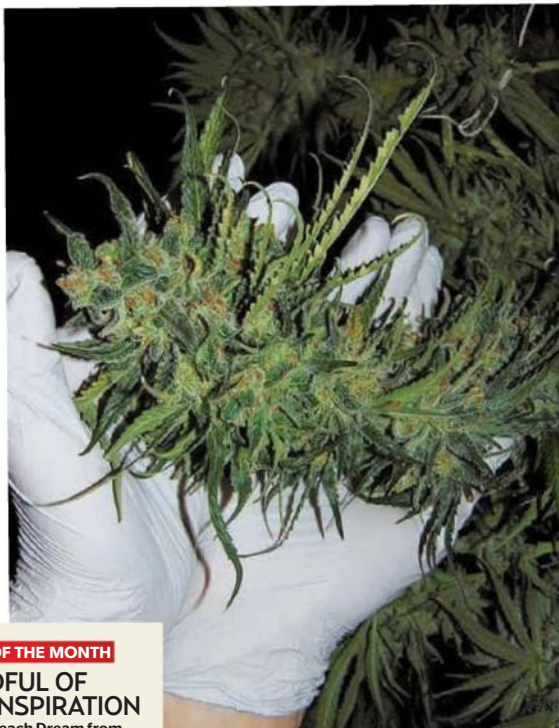


GROW OF THE MONTH



SOME RISE

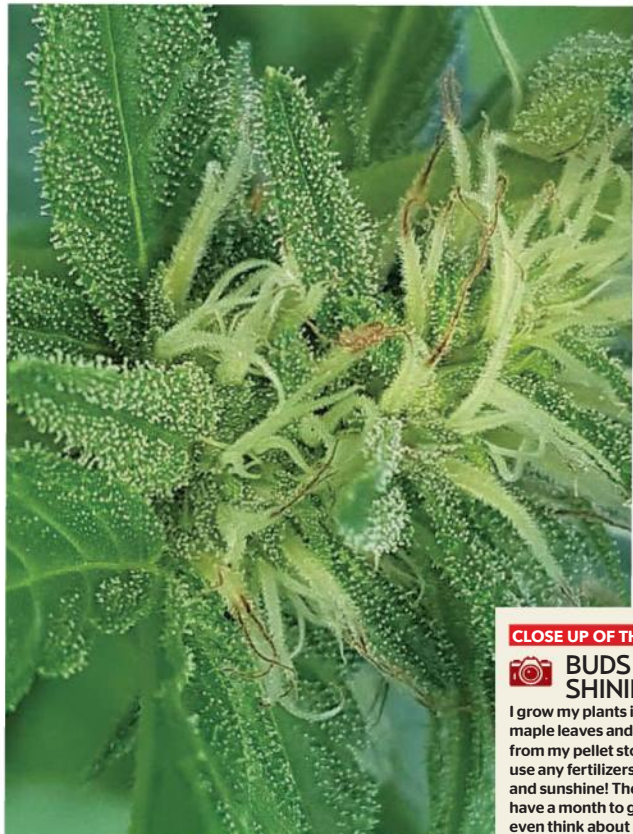
Here's a shot of my organic greenhouse-grown OG Kush x Grand Daddy Purple cross (Pheno #1). Peace, J.D. (A.K.A. Cola Monster) Sonoma County



COLA OF THE MONTH

HANDFUL OF INSPIRATION

Peach Dream from Elemental Seeds purchased at the 2014 Seattle Cannabis Cup. Grown by Jacob at Hippie Science. Arcadia C.



CLOSE UP OF THE MONTH



BUDS SHINING BEST

I grow my plants in composted maple leaves and wood ash from my pellet stove. I don't use any fertilizers, just water and sunshine! These plants still have a month to go before I will even think about harvesting. Deborah L.



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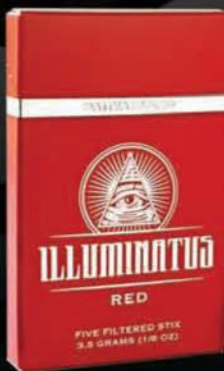
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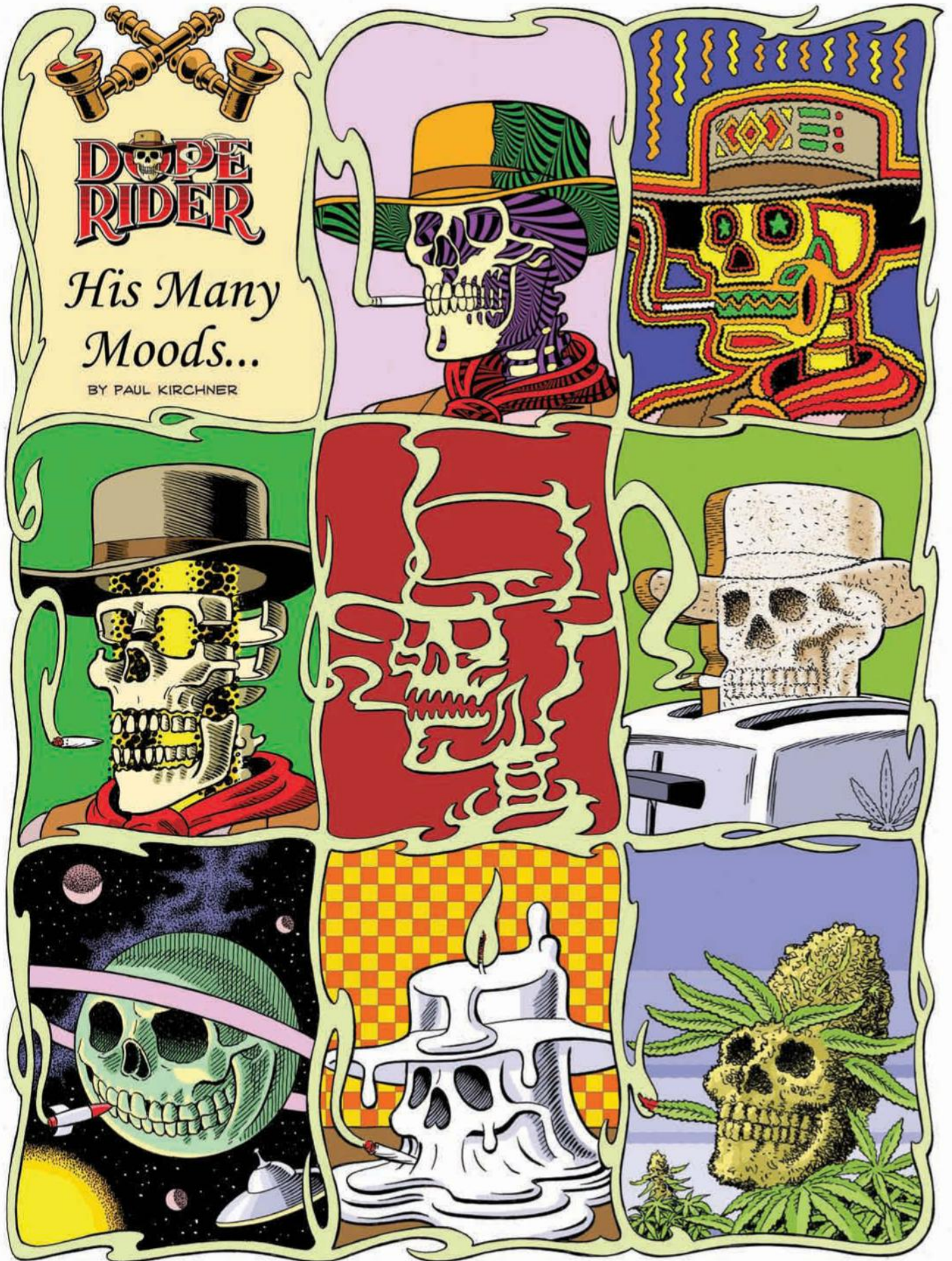


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2018 SPRING PLANTING GUIDE

Getting a good start growing in the spring results in huge yields of massive flowers in the fall. Danny Danko reveals how to prepare for cultivation success by properly germinating seeds, rooting clones and ensuring strong plants during the vegetative stage.

GROWING IN PROHIBITION STATES

Not all would-be cultivators have the luxury of growing out massive gardens in legal weed states. So, *High Times* put together the ultimate guide for growing in prohibition states, with an emphasis on stealth and security.

CANNABIS AND SEX

There are all sorts of cannabis products designed to aid women's sexuality. Jessica Delfino investigates one marijuana lube company, run by women, that is educating people on how to incorporate pot in the bedroom for a healthier sex life.

THE HIGH TIMES INTERVIEW: BROKEN LIZARD

It's official! The long-awaited sequel to the 2001 hit *Super Troopers* is coming. Fittingly, *Super Troopers 2* will premiere on April 20, 2018. The stars of the film, comedy team Broken Lizard, stop by *HT* headquarters to celebrate their latest release.

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*Corey Buffkin - Greenman Cannabis Facility
Denver, Colorado*



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