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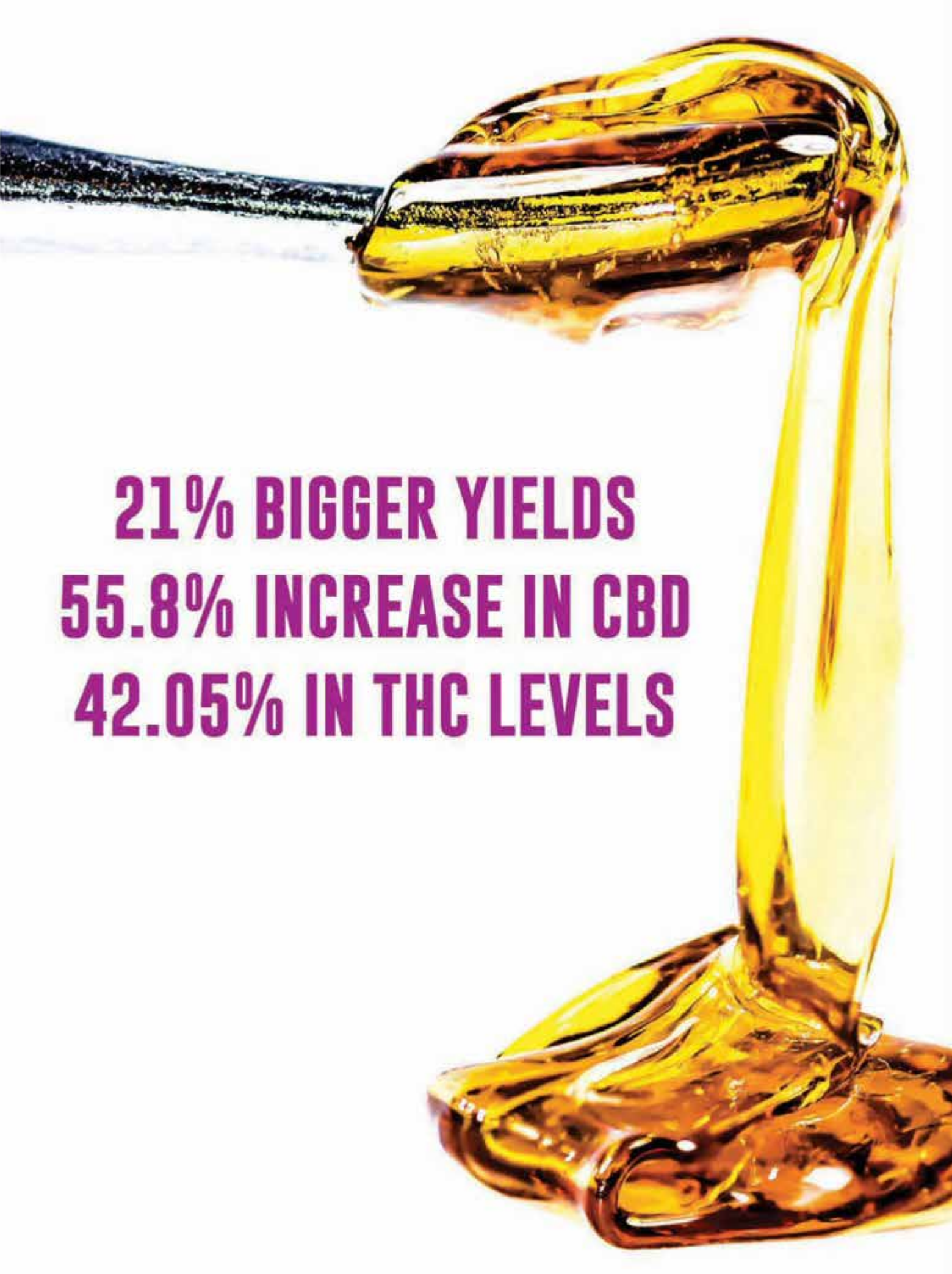
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Growing the Advanced Way—page 66

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- 80 HIGH AT THE HARVEST CUP**
High Times celebrated the California pot harvest with a very special Cannabis Cup featuring vendors, speakers, musical guests and, of course, the best pot and hash in Southern California. *By Mary Jane Gibson*
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While the cannabis industry is thriving, not everyone has a seat at the table. We take a closer look at equality in the business of cannabis and several groups working to make the industry more inclusive. *By Mike DiPaola*
- 101 THE HIGH TIMES INTERVIEW: VIC MENSA**
Vic Mensa dives deep into tough topics including mental illness, drug abuse, therapy, and his quest for truth with his latest album, *The Autobiography*. *By Kyle Eustice*



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▶ MAKE YOUR OWN VAPE PEN THC OIL!

Vape pen cartridges pre-filled with tasty THC oil are among the most popular products in the current cannabis industry. Vaping is a discreet way to get high on the go and these cartridges come ready to hit and get you lit. But if you happen to live in one of the states still clinging to marijuana prohibition, acquiring these cartridges can be difficult. Fortunately, *High Times* has you covered with our guide to making THC oil that will work in your e-cig.

While the finished product likely won't be as smooth as some of the best pre-filled cartridges on the market, it will get you high—and save you some money. And, making your own THC oil isn't as hard as it sounds.

Visit hightimes.com for the DIY guide to making THC oil for your vape pen. We break down everything you'll need to get started and take you through the process with easy to follow, step-by-step instructions.

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▶ WE WANT TO HEAR FROM YOU!

Tweet your best high observations and comments our way @HIGH_TIMES_Mag for a chance to be featured on this page! And be sure to follow us on Facebook (Facebook/HIGHTIMES-Mag) and Instagram (@hightimesmagazine) for all the latest news as it's happening!

@Gary66150684: @HIGH_TIMES_Mag Back in the 60's and 70's we had good weed but nothing like today. We were called Hippies.

@cannaconnectaz: PTSD was just added to the qualifying conditions for #MedicalMarijuana in #NewYork.

@JR_Hileman1: Some people are offended so quickly over social media. They need to get a copy of @HIGH_TIMES_Mag and think about ingesting some of the quality buds inside. #chilltime

@GrandpaPat1964: @HIGH_TIMES_Mag I'm a living, breathing, stoner who made it stoned through college with a 3.98, retired, and everything still works without needing a little pill.

@exemplarylife: @HIGH_TIMES_Mag This is a plant that use to grow wild. We should be able to grow it like tomatoes. govt wants control. It's not a drug. Its a plant 4 health

@CaptAtheism: @HIGH_TIMES_Mag Please expose people using the cannabis industry to profit, even though they never cared.

@movieloverjohn: @HIGH_TIMES_Mag sucks that @Woody-Harrelson does not smoke weed anymore do not know why either does anyone know why?

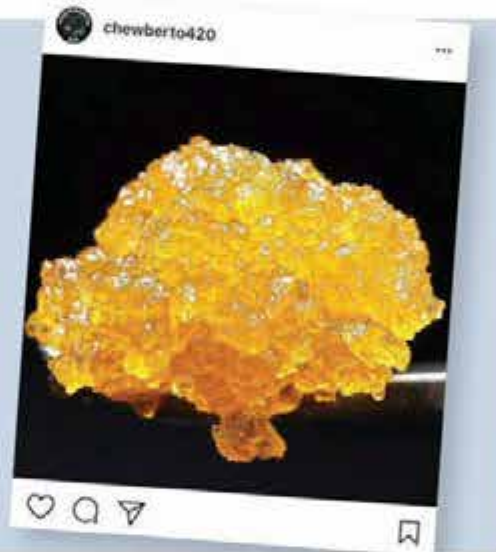
@ccandtinkerbelle: @HIGH_TIMES_Mag If MM was legal in every state there'd be a lot less suffering and we'd be a better nation for it.

@ElliotBall5: @HIGH_TIMES_Mag A nug a day keeps the existential dread away.

@GregLabrat: @HIGH_TIMES_Mag It's sad because back in the day it was NOT about the money it was about feeling good and making people happy.

▶ ON INSTAGRAM

For the uninitiated, let this be your introduction to Sauce. For years, concentrate makers have sought to create the most potent extracts possible. However, a new trend that values flavor above all else has recently taken root. Sauce, which resembles apple sauce or crystals drenched in syrup, is all about terpenes. Yes, it will still get you high. But connoisseurs value the unique flavor profiles this extract brings to the table. Here we have a delectable-looking sample of some Sour Banana Sherbert, grown out by @theherbicultureco, created by @quest_710 and photographed by the one and only @chewberto420.



What's your biggest gripe with the legal pot industry?

High Taxes	19%
Poor Supply	16%
Big Marijuana Taxing Over	25%
Lack of Diversity	4%
Uncertainty at the Federal Level	4%

▶ SMOKING POLL

The winter is a great time for griping. The days are getting shorter, the weather's getting colder and we're all a little bit cranky. So, while the legal-cannabis industry has made great strides of late and there's lots of reason for optimism, we've decided to focus on the negatives. (It's hard to stay positive when you're staring into the abyss of the bleak winter months contemplating the futility of an existence that inevitably transitions to death.) Anyway, let's exorcise these winter blues with some good, old fashioned complaining.

We asked our readers, what's your biggest gripe with the legal-pot industry? Far and away, the most popular complaint was uncertainty at the federal level, no doubt increased by Attorney General Jeff Session's contempt for cannabis. Fears of Big Marijuana taking over the industry had 26 percent of readers concerned, while 19 percent of respondents listed high taxes as their biggest gripe. Poor supply and a lack of diversity were the biggest complaints of 5 and 4 percent of readers respectively. **Take our latest poll online!**

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Taking cannabis cultivation to the next level

THE WEED INDUSTRY GROWS UP

WHEN I FIRST BEGAN writing cultivation pieces for *High Times* over a decade ago, vertical grow systems were an up-and-coming trend for underground growers trying to subvert prohibitionist laws in urban areas. Now that trend has come full circle as more and more commercial growers also turn to vertical grow systems to maximize space, yield and profits.

Ironically enough, vertical grow theory did not originate in the cannabis world, but rather through sustainable feed-the-world programs that saw pod growing and bio domes spring up in the harsher climates around the world where improved agricultural output was desperately needed. Today, with medical marijuana legal in more than half of the states in the United States (not to mention nine fully legal adult-use states, including Washington, DC), cannabis cultivation is at an all-time high and growers are looking for every advantage when it comes to the booming business of weed. (For more on vertical growing, see our feature on page 44.)

Speaking of a business that's growing up, the burgeoning cannabis industry strives to be progressive, so when it comes to race and gender equality in the workplace, it's clear these disparities need to be addressed. Check out our "Cannabis Equality" investigation into equal opportunity in the marijuana world (page 95). Also packed into this issue you'll find a profile on nutrient powerhouse Advanced Nutrients and owner "Big Mike" Straumietis, a review of the latest data from the federal government on the cannabis industry and an epic interview with hip-hop sensation Vic Mensa.

Enjoy this issue of *High Times*, amigos, and, as always, thanks for your support. Remember: Grow, and help the world grow, too!

Nico Escondido

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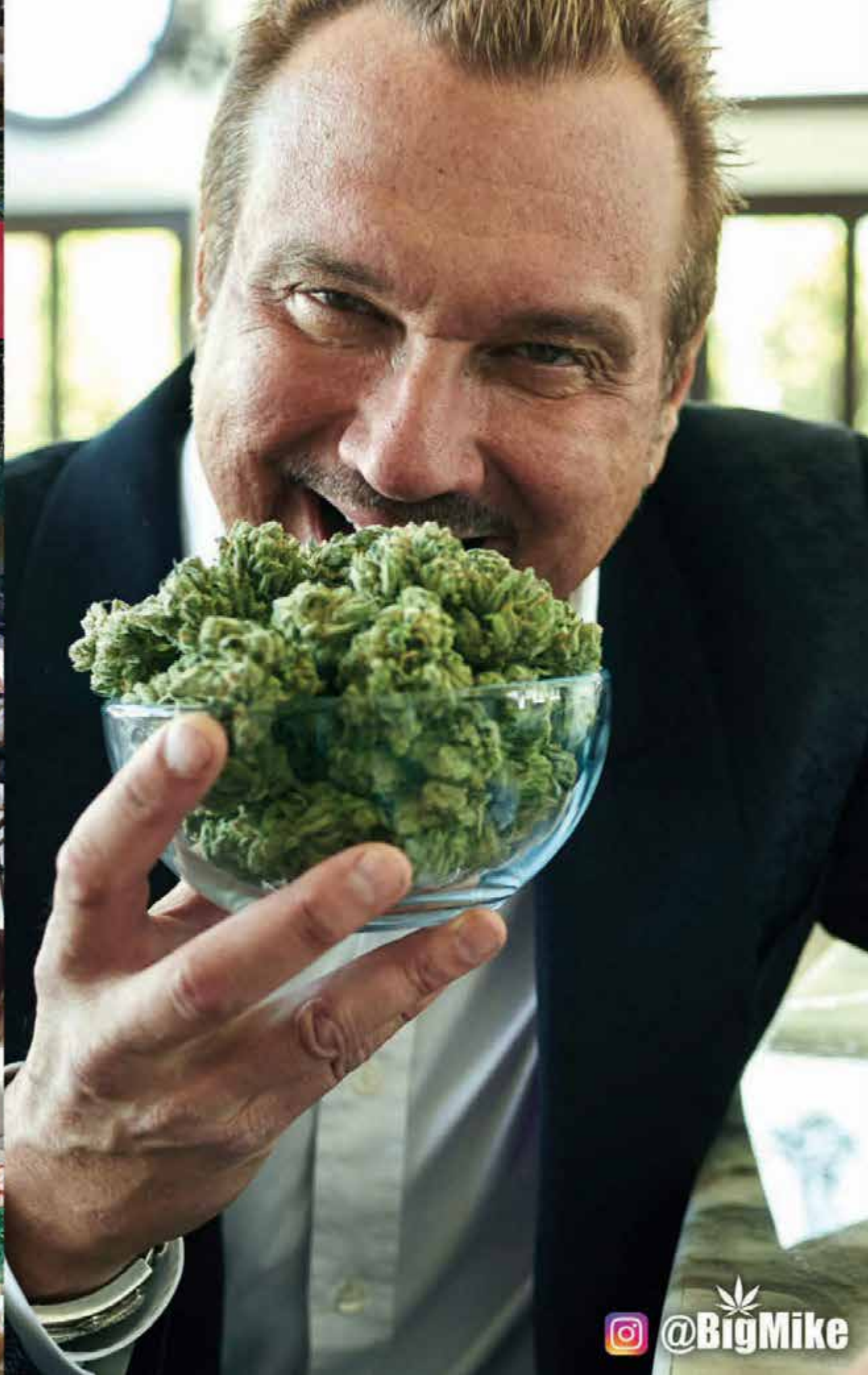
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HEMP TRAP

So, we are being railroaded in Saint George, Utah. We ordered 20kg of hemp from overseas, filing the FDA paperwork to import it and doing everything by the book. On September 28, the drug task force came and treated us like criminals, did some sort of fake test and claimed it was marijuana. Now we have gotten court summons trying to charge us with a third degree felony claiming we are marijuana dealers.

We were experimenting with making cosmetics such as shampoos and such. They are also trying to pin intent to distribute charges on us. These charges are laughable. We have all of the paperwork and the test proving it to be hemp. We tried to keep this out of court but the state prosecutor is not willing to listen. We will also be suing the state after all of this is finally dropped.

J.
Saint George, UT

CLEAN UP NEW JERSEY

It is great that Democrat Phil Murphy was elected governor and cannabis is going to be legalized in New Jersey, but let's make it work for everyone. There are some flaws in the current proposal, like the too-high age requirement and unfair home grow ban.

A suggested age requirement of 21 is not based on science. Making pot legal while burdening 18-20 year olds with a serious adult drug conviction for possession will screw up things like student aid, housing and jobs. The marijuana age should be no higher than 18, as cannabis is a safe substance that one cannot overdose on.

Also, it is crazy to say we will legalize cannabis, but not allow people to grow it at home. Let the people grow their own stone with legal home growing.

Does anyone remember Jon Peditto, the Ocean County personal pot grower who is still rotting in prison? What about activist Edward Forchion aka NJ Weedman facing trumped up charges? Pardon them ASAP, let them go home, and end the injustice.

Gov. Murphy must empower the poor, youth, women and minorities to grow the industry using a non-profit collective ownership model, and ask the NAACP, ACLU, Coalition for Medical Marijuana NJ and Garden State Equality for advice on licensing and affirmative action.

Legal pot should mean jobs, business opportunities, and good smoke for



"IT IS CRAZY TO SAY WE WILL LEGALIZE CANNABIS, BUT NOT ALLOW PEOPLE TO GROW IT AT HOME. LET THE PEOPLE GROW THEIR OWN STONE."

everyone, not just the rich, corporate, white and male. The current dispensary owners all look like Tony Soprano and have political connections with the Christie Administration. We need a diverse cannabis marketplace for all.

Rev. Dr. Eric Hafner
Former Congressional Candidate (HI-2)
Toms River, NJ

G'DAY HIGH TIMES!

I read with interest SE's letter, titled "Change Up" which appeared in the January issue (#504) and would like to put in my \$0.02.

Being in Australia it's wonderful to see the breakthroughs in North America and also extremely frustrating at the same time. The plant is illegal here in all States and Territories and there is no prospect in sight of this changing—it's never so much as a topic of discussion. We still get the reefer madness brand of "information" as if we are all too blind to see the successes of more sensible regulation overseas.

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I believe *High Times* would do themselves and their readers a huge

favor with some more international spotlight—perhaps an annual? Or maybe you could establish your first international edition/supplement in Australia? It might just sprout more than sweet Mary Jane seeds!

ADI986
New South Wales, AUSTRALIA

DON'T GIVE UP THE FIGHT

I've certainly had a long dance with cannabis in my 50 years. All of it under an umbrella of shame and secrecy. Bad people did drugs. It was morally wrong. You were a criminal. These thoughts ensued a love-hate relationship with cannabis for the first half of my life. I loved it because it made me feel better. It made me feel like my brain could take one big ol' sigh of relief. I hated it because I had been conditioned to fear it.

I get it now. I understand why I reacted that way. It is my body's medicine. As a child, I suffered injuries to my neck, head and spine when I fell from the top of the monkey bars at my grade school. I had pain from that

moment on in my life, but I didn't really think anything of it, because it was my normal. I just thought everybody hurt.

In 2015 I was diagnosed with Complex Regional Pain Syndrome. It is a chronic illness that is so painful, it has the nickname is "The Suicide Disease." I understand why because it led me to a point of desolation and despair. I have tried a lot of things on my journey, some of which, such as opioids, benzodiazepines and sedatives, should have killed me.

I live in the great state of Nebraska, with a governor that is hell bent on keeping cannabis out of it. You can be prescribed Marinol, which is a synthetic form of cannabis, yet we can't get any movement on LB622—the medical marijuana bill.

Honestly, it is hard to be your authentic self when you are doing something illegal every day. I hate the repercussions that may come of it at times, especially for my family. But we all should understand the concept that freedom is not free. Sometimes, you have to stand up.

Lia
Springfield, NE

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GROWING GETS ADVANCED For two decades, Advanced Nutrients has been helping cannabis cultivators produce massive yields of heavy and heady flowers. Find out what the company has in store for the future and learn how CEO "Big Mike" can help you grow big buds on page 66. *Photo by Justin Cannabis*



**Contact
High**

HARVEST CUP High Times returned to the NOS Events Center in San Bernardino, CA for the 2017 Harvest Cup. Check out all the vendors, speakers, musical guests and, of course, all the winners from this epic event starting on page 80. *Photo by Jesse Faatz*





**Contact
High**

GROWING UP Cylindrical, hydroponic grow chambers like this one run from floor to ceiling (8'), with 360°-lighting down the center channel and a 70"-diameter footprint. Capable of holding over 300 plants each, several vertical grow units can be placed in a single room to create towers of sea-of-green (SOG) growing. For more on maximizing space and yield, check out "Vertical Growing" on page 44. *Photo by Nico Escondido*





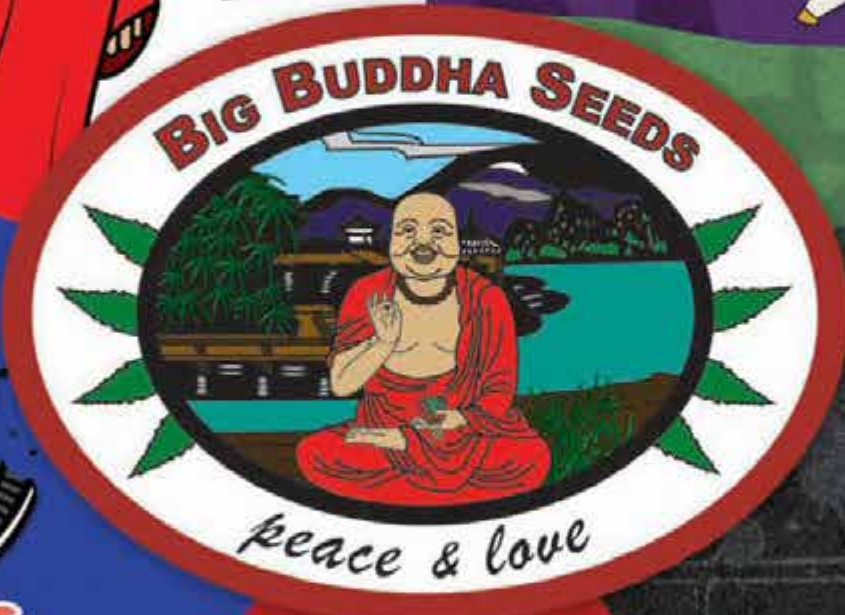
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HIGHWITNESS NEWS

WOODY'S TRUMP CARD



STYLE

LORD JONES

Edibles maker Lord Jones is teaming up with the Standard to bring pot treats to the hotel. p.30



ENTERTAINMENT

TRICKY

Trip-hop legend Tricky chats with HT about cannabis, the music business and his unique sound. p.32



New England has promises to keep...

WHAT'S THE MATTER WITH NEW ENGLAND?

SIX STATES IN THE NORTHEAST ARE IN VARIOUS STAGES OF LAUNCHING—OR THWARTING—THE GREEN REVOLUTION. WHERE DO WE GO FROM HERE? BY MIKE DIPAOLA

Now that Maine and Massachusetts voters have demanded legalized marijuana, and with Vermont having developed legalization plans via its legislature, New England is poised to become an East Coast foothold in the cannabis industry. So what's the holdup?

Although the voters have spoken, state legislatures have been sluggish in developing and implementing regulations for recreational retail, and there are many reasons for the stagnation. Some local governments move slowly as a matter of course in the interest of "getting it right," others are controlled by recalcitrant legislators who didn't want legalization in the first place, and all are wary of

moving fast when they cannot predict whether their overlords—the federal government—will allow legalization at all.

In Massachusetts, there is pushback coming from local governments. Thirty-five communities have decided to permanently ban recreational-weed retail shops; another 89 have temporarily put the kibosh on retail sales. Some of these cities and towns are simply waiting for the state to issue guidelines, and they are otherwise eager to launch a market predicted to generate tens of thousands of jobs.

The Bay State's Cannabis Control Commission must issue regulations for licensing and sales by March 15; license applications will be accepted from April

1, and the earliest they can be issued is June 1. In theory, retail sales could commence on July 1, but it is doubtful that licenses will be issued by then.

The people of Maine ushered in legal cannabis with a citizen-initiated referendum on the ballot in 2016. "An Act to Legalize Marijuana" narrowly won, and today adult Mainers can possess up to 2.5 ounces of weed and grow as many as six plants. But, like Massachusetts, citizens still cannot buy or sell the stuff for recreational purposes.

Maine's Republican governor, Paul LePage, a jackass by any other name, is a big part of the problem. LePage vetoed the most recent attempts by the State Legislature to get a marijuana program rolling, and then blamed the federal government for his own obtuseness: "Until I clearly understand how the federal government intends to treat states that seek to legalize marijuana, I cannot in good conscience

« support any scheme in state law to implement expansion of legal marijuana in Maine,” LePage wrote in a letter to the legislature.

In the same missive, LePage exposed his ignorance further by conflating marijuana with his state’s Oxy/heroin problems: “The dangers of legalizing marijuana and normalizing its use in our society cannot be understated. Maine is now battling a horrific drug epidemic that claims more than one life a day due to overdoses caused by deadly opiates.”

Vermont made history in 2017 when its legislature became the first in the country to legalize recreational pot (other states have gone legal through voter initiatives). Or anyway, it would have been the first if Republican Governor Phil Scott hadn’t vetoed the legislation, believing (against all evidence) that the weed bill as written would imperil the state’s highways and its youth. “I believe what adults do behind closed doors and on their own personal property is their choice as long as it doesn’t negatively impact the health and safety of others,” Scott harrumphed at a press conference following his veto.

Connecticut’s governor, Democrat

IF ONLY THE STATE ESTABLISHED A RECREATIONAL-CANNABIS MARKET, IT COULD AT LEAST PUT A DENT IN ITS REVENUE BLACK HOLE.

Dannel Malloy, just signed off on the state’s two-year, \$41.3 billion budget that increases taxes by about \$1 billion in an already tax-heavy state (while also cutting social services, education and municipal aid). If only the state established a recreational-cannabis market, it could at least put a dent in its revenue black hole. But the governor is notoriously anti-pot and periodically spouts such nonsense as “I think if Colorado leadership had to do it all over again, they wouldn’t do it.” Meanwhile, 71 percent of Malloy’s constituents are cool with going fully legal.

Rhode Island’s legislature has considered measures to legalize cannabis for recreational use, but the initiatives have stalled out before becoming actual bills. A special legislative commission is currently pondering how and whether to proceed. There is some concern that when Massachusetts gets its adult-use market up and running, the competition next door might destroy Rhode Island’s medical-marijuana businesses.

New Hampshire is the least likely to go green anytime soon. The Granite State mulled a rec-legal bill in November, but it didn’t make it out of committee. As in Maine, opponents did not want to create a legal market that conflicted with federal law. One would think that the “live free or die” folks would be a little more protective of states’ rights, but not in this case.

New England states that voted in 2016 to legalize weed and are now dicking around to get their laws in place might want to glance over at Nevada, which also joined the green club with a voter initiative in the 2016 elections. Eight months later, dispensaries were legally selling recreational weed—so much weed that the biggest problem so far has been keeping up with demand. The revenue streaming in has defied all expectations.

The green revolution will come to New England eventually, and we look forward to the Yankee ingenuity that will lend itself to the cause. Please don’t make us wait too long. ✨

HIGH FIVE

HEMP ALL AROUND US

MANUFACTURERS SEEKING HEALTHIER, ECO-FRIENDLY PRODUCTION TECHNIQUES ARE TURNING TO HEMP. BY FRANK GREGORY



BATTERIES

It’s obvious that energy-storage technology needs to evolve—and cannabis may spur this along. *Alter-net* reports that researchers are focusing on using cannabis products to produce more efficient supercapacitors. The key is the development of nanosheets using hemp fibers, in much the same way that graphene, a strong electrical-conductor material, is used. Hemp is much less expensive, so production costs could drop and, hopefully, so could the price of the batteries and chargers.



EYEWEAR

Hemp Eyewear, located in Edinburgh, Scotland, produces hemp eyeglass frames. More lightweight than plastic frames, which typically weigh around 1.5 ounces, hemp frames reportedly weigh half of that. Each of the frames has its own unique plant-fiber pattern, in a choice of five different styles. While the lenses are still plastic, the company recently announced it will be adding prescription and sunglass lenses to a new and improved collection. “We want to ease the burden of plastics on the environment,” founder Sam Whitten says.



BUILDING MATERIALS

Building materials are among the most exciting new hemp-based products, especially in areas of the world where resources are limited. A concern is the threat to the mighty timber industry, but, on the other hand, preserving trees is a pretty good idea for ecological reasons. Certainly, hemp crops can be turned over much faster than forests—trees require about 20 years to grow into usable timber, while hemp only requires three months. Materials such as concrete and plastics used for piping, wallboard and insulation can all be hemp-based.



LIVESTOCK FEED

Raising livestock requires many resources: land, food and water, just to start. Hemp has been used around the world in livestock feed, and it’s been found to have a measurable impact on livestock products. Reportedly, cattle gain lean muscle mass from hemp content. Fatty acids and high oil content aid digestion, and farmers get more from their feed. Opening up hemp production in America would decrease the cost of livestock resources and lead to production of better-quality products.



BEAUTY PRODUCTS

Beauty products containing hemp for healing or cosmetic purposes are surging into today’s marketplace. Hemp-seed oil is a common component for many beauty products like hairstyling gel, skin and hand cream, and lip balm. While hemp-seed oil does contain miniscule THC levels, its antioxidants, such as vitamins A, C and E as well as omega-3 and omega-6 fatty acids are what’s coveted for these products. Creams and gels are absorbed directly through the skin and hair and not through the bloodstream.

THERE GROWS THE NEIGHBORHOOD

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There's bud in this boulder

BOULDER STASH

An Oregon man was busted recently for smuggling weed inside artificial rocks he'd made. Not content with merely being a state-licensed cannabis grower, Curran Millican Manzer, a 36-year-old taxidermist, began shipping weed inside his custom-built fiberglass rocks via UPS to unidentified recipients outside the state, according to the *Register-Guard* of Eugene. Marion County police caught wind of the scheme and intercepted six of the faux boulders crammed with 143 pounds of marijuana and five pounds of extract. Charges against Manzer are both numerous and severe. On the receiving end of the fully packed ersatz boulders, arrests have also been made, although details weren't immediately made available by the cops.

FEAR AND LOATHING IN CANADA

Canadian activists have teamed up to embed public-service announcements in the names and purported effects of newly created cannabis strains. R.I.D.E. CHECKS, an organization that promotes road safety, has partnered with medical-pot producer Beleave to use fear as a deterrent by creating three new "Consequence Strains" that warn of the dangers of driving while high. The overwrought names Kourtroom Kush, White Whiplash and Slammer Time are meant to invoke certain consequences of driving while high: dealing with a DUI, auto-related injuries and jail time, respectively. Even the descriptions of the highs are in the form of a mini-lecture.

Driving while high is a complex topic that warrants a serious discussion. Unfortunately, this campaign has skipped the conversation and jumped directly to fearmongering.

SUPER GIRL



A 12-year-old girl in Colorado is suing the attorney general of the United States, Jefferson Beauregard Sessions III. Sixth grader Alexis Bortell found that conventional medicine wasn't helping her severe epileptic seizures, so her family pulled up stakes in Texas and moved to Colorado. There, Bortell began taking a daily dose of *Haleigh's Hope*, a CBD-heavy strain named after a 4-year-old with cerebral palsy and epilepsy. "Ever since I've been on this cannabis, I've actually been seizure-free for—today it's 974 days, so we're coming up on 1,000. So I think that's pretty good," Alexis told *CBS News*. Her lawsuit seeks to demonstrate that the *Controlled Substances Act* is unconstitutional as it relates to cannabis.

As if she doesn't have enough on her plate, Bortell has also written a book, *Let's Talk About Medical Cannabis*, available via Amazon.

Harrelson recounts a tense dinner with Trump on *Real Time*.

WHEN WOODY MET DONNY

Before Donald Trump's improbable, unbearable ascension to the White House, when he was merely an egotistical gasbag looking for attention, he had an earlier plan to run for president (as a Democrat). In 2002, the Orange Menace threw a dinner party, hoping to entice former wrestler/governor Jesse Ventura to be his running mate. Ventura brought actor Woody Harrelson as his plus-one, and Harrelson recently shared the experience on *Real Time With Bill Maher*. "I went, and it was brutal," Harrelson recalled. "I never met a more narcissistic man. He talked about himself the whole time. You could see the standard he was going to bear from that. I had to walk out halfway through to smoke a joint just to, like, steel myself for the rest of the dinner." Harrelson says he's been off pot since 2015, which makes us wonder how he steels himself every day, now that the celebrity-apprentice president is running the country.

CALIFORNIA TRIPPIN'

Trendsetting California is at it again. A new movement to legalize it—psilocybin mushrooms, in this case—is gaining traction. A recent analysis of a legalization proposal concluded that magic mushrooms would be good for the budget, eliminating costs associated with law enforcement and stoking the public coffers with tax revenue. Medical-cannabis advocate Kevin Saunders and his fiancée, Kitty Merchant, filed the ballot initiative last summer in hopes that voters will be able to decide on the issue in 2018—when Saunders also intends to run for mayor of the city of Marina, in Monterey County. The initiative would exempt adults 21 and older from criminal penalties for possession and cultivation of psilocybin. The campaign now needs to collect 365,880 signatures to get the measure on the ballot. Like weed, magic mushrooms are listed as a Schedule I drug. And, like weed, it doesn't belong there because it certainly has medical applications. Studies have demonstrated psilocybin's efficacy in, among other things, treating anxiety and depression in cancer patients.





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MEXICAN STANDOFF

Mexico has been easing up on draconian drug laws in recent years, from decriminalizing possession of small amounts of cocaine, heroin and other drugs to legalizing medical cannabis in 2017. Unfortunately, liberalization hasn't extended to the country's journalism. Mexico's Commission for the Qualification of Illustrated Publications and Magazines, a branch of the Ministry of the Interior, is threatening to shut down *Cañamo*, the country's only pot-culture magazine. The commission wants to revoke the bimonthly glossy's domestic-circulation certification because it says the magazine promotes "acts against morality and good manners" and "apologizes for the consumption of prohibited substances," reports the *Columbia Journalism Review*. The commission's secretary told the *CJR* that if *Cañamo* stuck to covering medical cannabis without advocating recreational use, there wouldn't be a problem. If the decision about *Cañamo* holds, anyone who publishes, sells or circulates the magazine could face 15 days in jail as well as fines.

MEDICAL POT MATTERS TO GEORGIANS

While the Left Coast (plus Colorado) has fully legalized, with some New England states poised to follow, the American South has been mostly absent from the green revolution. That may change soon thanks to Georgia. A recent survey conducted by Georgia College reveals that 77 percent of Georgians support legalizing medical marijuana, with only 19 percent opposed. No other issue examined in the survey—not Obamacare, not same-sex marriage, not even guns on campus—has as much support. Georgia instituted extremely limited medical-pot regulations in 2015, but the expansion of the program to include more patients is now championed by supporters like State Representative Allen Peake, who is expected to be all over the issue again in the 2018 General Assembly. Meanwhile, Atlanta's City Council recently voted unanimously to decriminalize pot possession, so getting caught with an ounce or less will now mean just a \$75 fine. Savannah is expected to follow suit soon.

A TAXING SITUATION

Legalization will bring down the price of weed, right? Maybe not so much in California. Some locales in the Golden State could see effective tax rates on recreational pot reach a whopping 45 percent, according to credit-rating and research group Fitch Ratings. The statewide levies include a 15 percent excise tax and a cultivation tax of \$9.25 per ounce of flowers (\$2.75 per ounce for leaves), as well as state and local sales taxes ranging from 7.75 percent to 9.75 percent. Such onerous taxation can undermine one of the main selling points for legalization—that it can generate revenue for local and state governments. Besides harshing everyone's mellow with inflated weed prices, hefty taxes could also drive consumers back to the black market. This will deny local governments revenue, which is what they are hoping for with higher taxes. Put another way, they're killing the golden goose.

Tap that ash.

**STONERS HAVE MORE SEX**

"A positive association between marijuana use and sexual frequency is seen in men and women across all demographic groups," according to new research published in the *Journal of Sexual Medicine*. Women who use pot daily reported they had sex 7.1 times in the four weeks prior to the survey; nonusers got busy a paltry six times over the same period. For men, daily users got some 6.9 times (nice), while nonusers bumped uglies on just 5.6 occasions. Lighter-weight tokers—those who reported weekly or monthly herb intake—also reported elevated sexual frequency compared to nonusers. As always, correlation does not mean causation. We cannot say, based on this research, that toking bud will necessarily lead to more sex, although we can't rule it out either. The authors agree that more research is necessary: "Although reassuring, the effects of marijuana use on sexual function warrant further study," they conclude.

NAME-DROPPING

In January, we reported on the precarious status of strain names that might infringe on other companies' copyrights ("A Strain by Any Other Name"). Now a big name in bud is changing its name in a settlement agreement with the adhesive company that called itself "Gorilla Glue" first. Under the agreement, GG Strains and licensees of their Gorilla Glue #1, #4 and #5 have agreed to drop the name and other similarities to the Gorilla Glue Company. GG Strains will also shut down its *gorillaglu4.com* website and remove the word "Gorilla," as well as gorilla imagery, from its products. Ross Johnson, a founder of GG Strains, said the dispute and rebranding efforts will cost the firm around \$250,000, as reported by the *Cannabist*. "We're going to survive; we're going to overcome it," Johnson said. "Is it a setback? Most definitely it is a setback. But it's all behind us now, and it's allowing us to move forward."



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HIGH-END EDIBLES IN A HOTEL LOBBY

Edibles brand Lord Jones is striking up a partnership with the boutique hotel group Standard International to open a luxury dispensary retail shop in the lobby of the Standard Hollywood.

Lord Jones offers a range of THC and cannabidiol (CBD) edibles, including gourmet gumdrops that were named Best Low-Dose Edible for New Users by *High Times*. The company's partnership with the Standard Hollywood will bring its line of gumdrops, caramels, chocolates and chews to the nation's first hotel-based dispensary just as California laws change to allow for recreational use by adults. The company plans to expand to the Standard's downtown Los Angeles location and beyond, as regulations permit.

Located on the ground floor of the Standard Hollywood hotel in West Hollywood, the luxury dispensary will cater to both hotel guests and Los Angeles locals. The two companies plan to collaborate on an exclusive line of co-branded THC and hemp-derived CBD products that will eventually be available to guests at all Standard hotels. lordjones.com

NO NAME, JUST FLAME

If you love weed and like to dress with a nod to the cannabis lifestyle, Nameless has just the duds for you. The company's low-key logo looks great on its flat-brim hats and tees, and those who know will be impressed with how you represent. Check out the full line of Nameless merch and get yourself some casual cannabis couture!

[@namelessgenetics_](https://www.instagram.com/namelessgenetics)

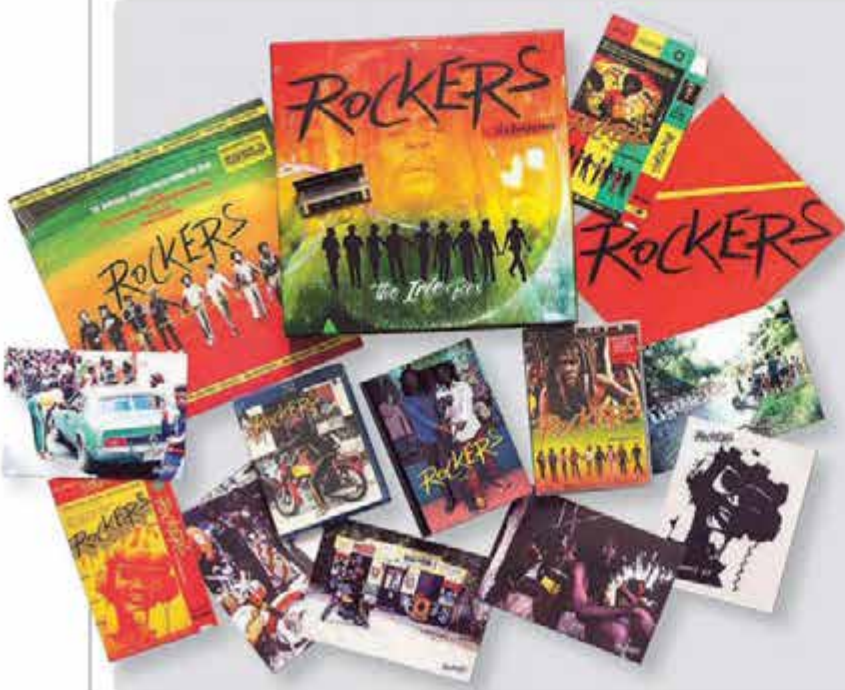


SPOTLIGHT

ROCKERS IRIE BOX SET

In celebration of the all-time classic reggae film *Rockers* (1978), this deluxe box set includes the original soundtrack of the film on tricolor red, yellow and green vinyl. It also includes the film on DVD and Blu-ray, a deluxe 384-page Japanese photo book, a poster, an iron-on T-shirt decal, rolling papers, postcards and various original VHS box covers. It's truly a collector's dream. Did we mention the rolling papers?

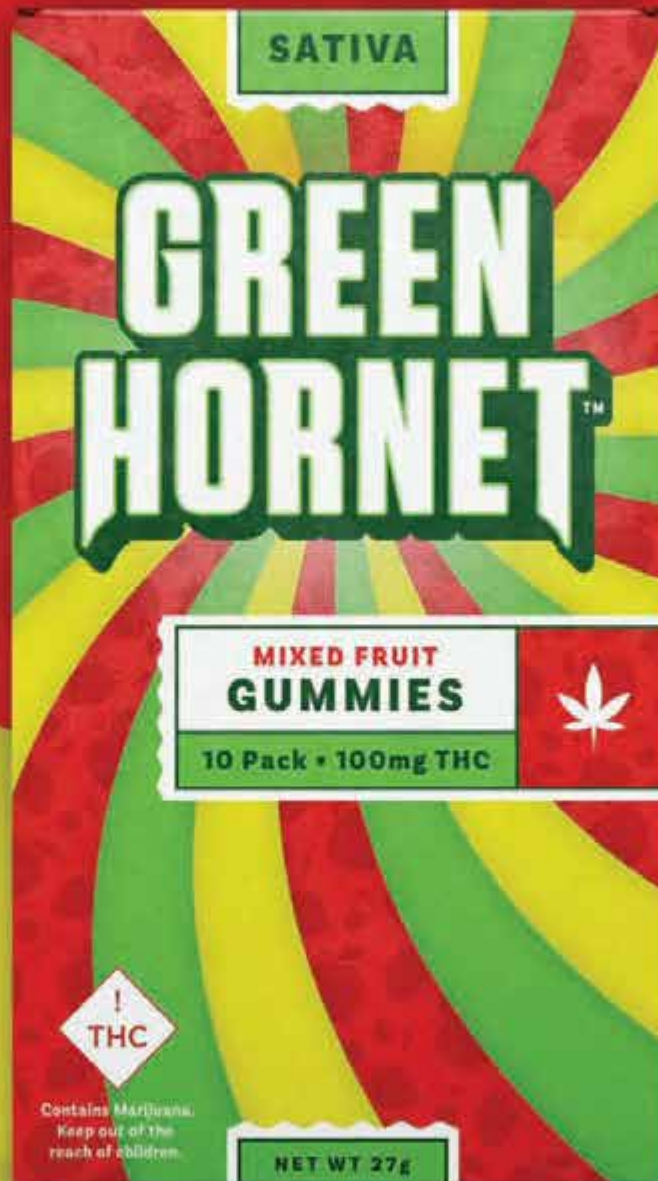
A riotous burst of energy and color, *Rockers* is a cameo-packed feature film of ganja-smoking drummer Leroy "Horsemouth" Wallace's attempts to succeed in the cutthroat Jamaican music business. The cast list reads like a who's who of reggae royalty, featuring leading musicians and producers of the day including Peter Tosh, Gregory Isaacs, Lee "Scratch" Perry, Dennis Brown, Jacob Miller & Inner Circle, Bunny Wailer, Third World, Big Youth, the Heptones, Kiddus I, Robbie Shakespeare, Leroy Smart, Dillinger, the Maytones, Junior Murvin, Junior Byles and Burning Spear. The film captures the heyday of reggae with its vibrant and magnificent soundtrack, digitally remastered from the original 35mm film. mvdshop.com



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A TRICKY RHYTHM

THE KING OF TRIP-HOP RETURNS. BY TOMMY SMITH.

IN 1997, I BOUGHT tickets to see PJ Harvey. Tricky opened.

He performed entirely in purple backlight. As a hypnotic beat swelled, Tricky's longtime female singer Martina Topley-Bird eased into the spiraling opening lines of "Ponderosa." Then Tricky came out. He lit a cigarette—the only time the audience saw his face. Clouds of maroon smoke filled the strictly nonsmoking venue.

"I drink 'til I'm drunk / And I smoke 'til I'm senseless." As the duo sang, I was stunned. I had never heard such music before—a smattering of hip-hop beats distorted and laced with acidic lyrics about drugs, sex, despair and the failure of all human relationships.

Later dubbed trip-hop, this gritty but alluring sound is undeniably Tricky's own reassembling of pop music into something wholly strange, mysterious and masterful. Often working with guest artists—from Topley-Bird to Björk to former bandmates Massive Attack—Tricky regularly acts as a backup singer to his own tracks, lacing his entire discography with his iconic hypnotic growl.

Tricky has recently used music to dispel some shadows darkening his career, as he talks about herein. And his newest album, *Ununiform*, is another diverse arrangement of beat-driven sonic experiments, filled with the slow-jam standout "When We Die" and an aching cover of Hole's "Doll."

Taking time to chat with *High Times*, Tricky speaks with a bubbly Bristol accent whose staccato rhythm indicates the broken roll of his mesmerizing compositions.

So how do you see *Ununiform* setting itself apart from *Skilled Mechanics*, your release last year?

I'm playing around and having more fun now. On *Skilled Mechanics* and my last two, three albums, I've had a massive tax in America and in England. For the last, say, three years, I've been paying off a tax debt.

Oh no!

I wasn't homeless or anything. I still had a good quality of life. But it's the first time I've had to think monetarily. Like if I do an album, as long as I like the album and I'm happy with it, I don't have to worry about making money. But the past few years, I had to earn £10,000 a month to live and pay this tax.

So now I'm doing a tour because I *want* to do the tour. Before, I was touring because it's almost like, "Well, I can't miss that show because I need that money." I've *never* thought about money before. But with *Ununiform*, I could have fun again. The music is really strange and really weird. It's really experimental.

I wanted to ask about your relationship between your artistry and marijuana, or any other substance—and if that's used in any way to create any of your albums.

I grew up smoking weed. My dad smoked weed. I don't smoke like I used to. I used to wake and bake, that kind of vibe. Now I smoke now and again. Like, for instance, I hadn't smoked for three, four months now. Then I got to America. [Laughs] But I feel like once you've learned something about something—you've got that. Once you've got that vibe, it'll never leave you. Weed has a way of making you concentrate, focus—right? You can sit there

and you can work on something. But I don't need it to make music. I mean, I really don't need it. My life experience is what I've had. It always will stay with me. Like my mum committing suicide or anything I've been through. So I don't really need the weed to feel that, you know?

You've got that experience in you so that, just like any other experience, you can recall it.

It's like I've took acid before, so I know what that feels like. I've had an experience, and that will never leave me. Like weed, it'll never leave me. I grew up smoking. It was so normal for me to smoke because my dad smoked. I'd smoke on the street. People would have to say to me, "Hey, look, you can't." But I'd smoke anywhere. And not because I was being like, "Oh, I don't give a fuck." It was so normal to me. It was like a part of my culture, you know?

And since you moved away and moved into your own artistry and your own life, that fell away?

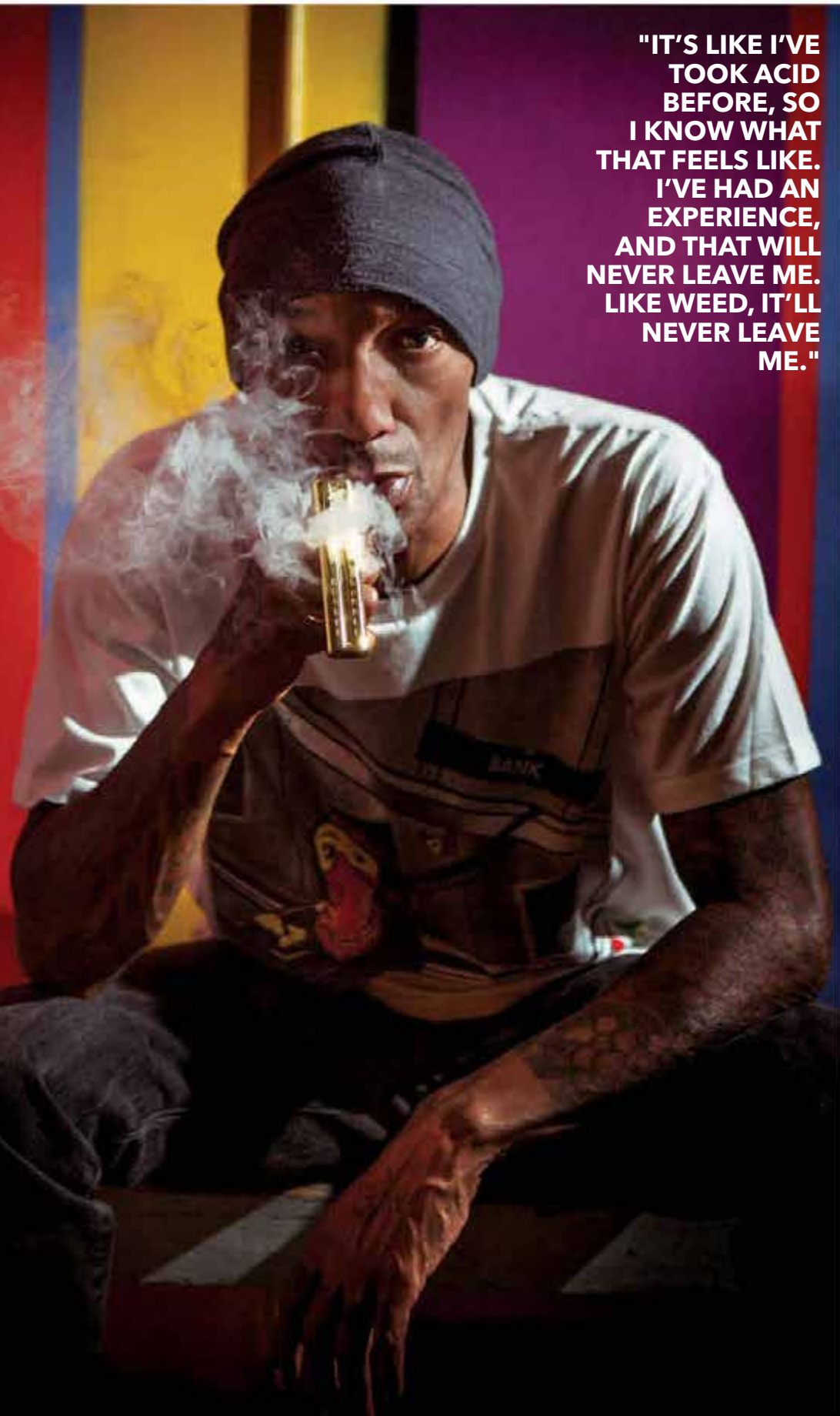
Yeah, and then what's nice about it now? I was a slave to weed before. So it was like when I was on tour, as soon as I got somewhere, whoever's picking me up, they've got to have weed on them. I got a bit tired of being like that. I smoked yesterday because someone gave me a spliff. I mean, it ain't like I'm going out hunting for it. A guy who was in the crowd, when I was walking through into the club, said, "Hey, Tricky, how you doing? Thanks for being here," and then put a spliff in my hand.

Amazing.

And it's *nicer*, rather than me going out. It's almost like I smoke now when it comes to my life—instead of searching for it.

GRETCHE ROBINETTE

The trip-hop icon puffs tough on Manhattan's Lower East Side.



**"IT'S LIKE I'VE
TOOK ACID
BEFORE, SO
I KNOW WHAT
THAT FEELS LIKE.
I'VE HAD AN
EXPERIENCE,
AND THAT WILL
NEVER LEAVE ME.
LIKE WEED, IT'LL
NEVER LEAVE
ME."**

That's a pretty good metaphor for your musical process right now. You don't have to worry about taxes and you can just let it come to you.

Yeah, exactly. Exactly. Same thing, yes.

Given what you've seen over almost four decades in the music business, what would you change if you had one wish from a genie lamp?

I'd bring people like Chris Blackwell back, from Island Records. Or, like, loads of Chris Blackwells running Warner, running Interscope.

What about that would change things?

Chris is more into the music than the business. Because right now we're in a thing where it's about business now. It's about your record sales. I hear people called geniuses. I hear the word "genius" thrown around because someone sells five million records. Then I'm hearing it and I'm like, "I don't get what's genius about this."

Back in my day, someone who sold a lot of records was a pop artist and you didn't really look at it any differently. You know? Now it's like if you ain't selling millions of records, you're a failure. It never used to be like that. Like Bob Marley's first album never sold. PJ Harvey's first album never sold a lot. It was about the music. Now it's just about the record sales, and music is the second part of it. So I would get people like Chris Blackwell back.

That is an alarming trend. You can't have an indie hit anymore.

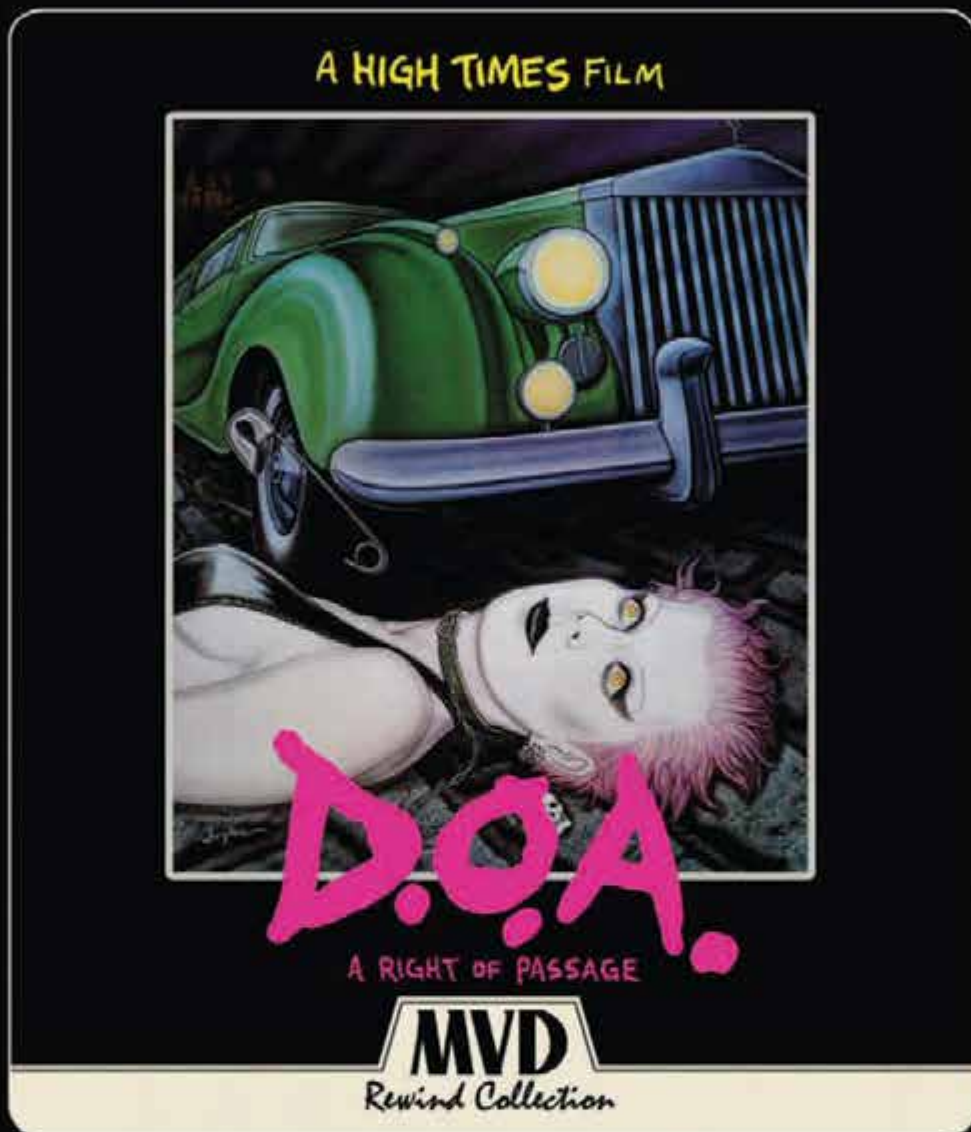
No, you can't. It's done. Those days are over, which I think is kind of sad for the music industry, you know? I think it's a sad state for the music industry to be in.

Well, with artists like yourself out there, you're fighting the good fight and continually putting out awesome releases, so thank you for that.

Great talking to you, bro. ✨

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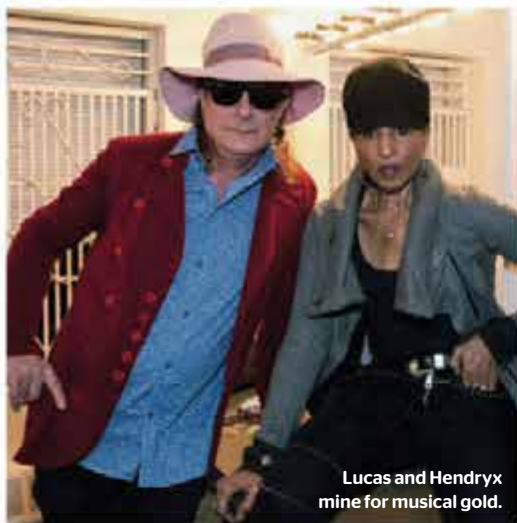
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TROPICAL HOT DOG RITES

DEEP IN THE HEART OF DON VAN VLIET.

As “reimagined” by vocalist Nona Hendryx and former Beefheart guitarist/chronicler Gary Lucas, *The World of Captain Beefheart* is that rarity in the world of tribute albums, a respectful but not ass-kissing overview of an artist’s work that reveals intriguing insights into the singularity of the original material by using that material to springboard into fruitful further development.

One of the most fascinating revelations here is the genuinely sweet melodicism and sturdy songcraft that Don Van Vliet had kept hidden just



NONA HENDRYX AND GARY LUCAS

The World of Captain Beefheart
(Knitting Factory Records)

below his freaky surface; through his Delta blues DNA lens, any sort of genuine sentiment was best buried beneath clattering, caterwauling heaps of rhomboidal squawk’n’shriek and general musical mayhem. In startlingly alternative ways, tracks like “My Head Is My Only House Unless It Rains” and “I’m Glad” (which here sounds like a long-lost Delfonics confection) benefit enormously from Hendryx’s

sharp-edged and sassy attitude about the Beefheart concept; she’s a female counterpart of Van Vliet—a challenging, tough-love-type partner and not a mere enabler—who yanks out the sugary big-heartedness that Beefheart himself knew was there but was rarely in the mood to reveal, apparently.

Lucas is a guitar hero and arranger of quite a different stripe throughout, handling the rough-hewn sculpture-scratch angularities of his own and other original Beefheart Magic Band guitarists’ electric-slide charts with wittily athletic aplomb in classics like “The Smithsonian Institute Blues (or the Big Dig),” “Sugar ’N Spikes,” “Suction Prints” and a wonderfully harsh, impenetrable, noisy and random “When Big Joan Sets Up.”

John Payne

MUSIC RECOMMENDATIONS



TRICKY

Ununiform
(False Idols/K7 Music)

➤ The famously abstruse British producer’s trippier mutations have from his rocky start proclaimed an inability to communicate directly, yet imparted a lot about sticky issues of race, male (dis-)empowerment and the banality of loneliness. *Ununiform* finds him gathering the ultra-spare

and shadowy-sinister sound of his earlier influential stuff to make low-key points about having made peace with himself. His non-macho toughness is especially cool when he cedes the mic to Asia Argento in “Wait for Signal,” and Martina Topley-Bird in the deeply moving “When We Die.” *JP*



ELECTRIC WIZARD

Wizard Bloody Wizard
(Spinefarm Records)

➤ Over the course of the last 20-plus years, English doom lords Electric Wizard have regaled us with infectious Sabbathian tales of dopethrones, witchcults and black masses galore. The band’s ninth album sees them as red-eyed, occult-obsessed and retro-mantic as ever, reveling in heavy ’70s biker

rock, hellish Hammer Horror-isms and killer graveyard grooves. From the opening slow-mo power dirge of “See You in Hell” and ultra-thick narco-riffs of “Necromania” to the stoned, sprawling closer “Mourning of the Magicians,” *Wizard Bloody Wizard* is a treasure trove of sinister delights. *J. Bennett*



THE BLACK DAHLIA MURDER

Nightbringers
(Metal Blade Records)

➤ While essentially running America’s melodic death-metal game for the last decade, the Black Dahlia Murder have led a generation of extremity enthusiasts down the wayward path of blistering blastbeats, ruthless riffery and gleaming guitar solos—all while smoking more weed than

Ziggy Marley at Reggae Sunsplash. Led by vocalist Trevor Strnad, the Michigan metal squad’s eighth album is crammed with neck-snapping bangers like “Widowmaker,” “Matriarch” and “Kings of the Nightworld”—not to mention the malevolent death march of the title track. *JB*



UNCLE ACID & THE DEADBEATS

Vol. 1
(Rise Above Records)

➤ Initially self-released in a ridiculously limited edition of 30 CD-Rs, Uncle Acid’s 2010 debut finally gets a proper airing. *Vol. 1* is the bewitching origin story behind the English doom rider’s sinister alchemy of Sabbath riffs and Beatles harmonies. Replete with organ-soaked

creepy-crawlers (“Witches Garden,” “Do What Your Love Tells You”), midnight-movie psychosis (“Vampire Circus”), hallucinatory rock wizardry (“Crystal Spiders”) and killer narcotic melodies, this portrait of the artist as a young doom dealer reveals the electrifying feats of a fully-formed virtuoso. *JB*

BOOK RECOMMENDATIONS



HENDRIX: THE ILLUSTRATED STORY

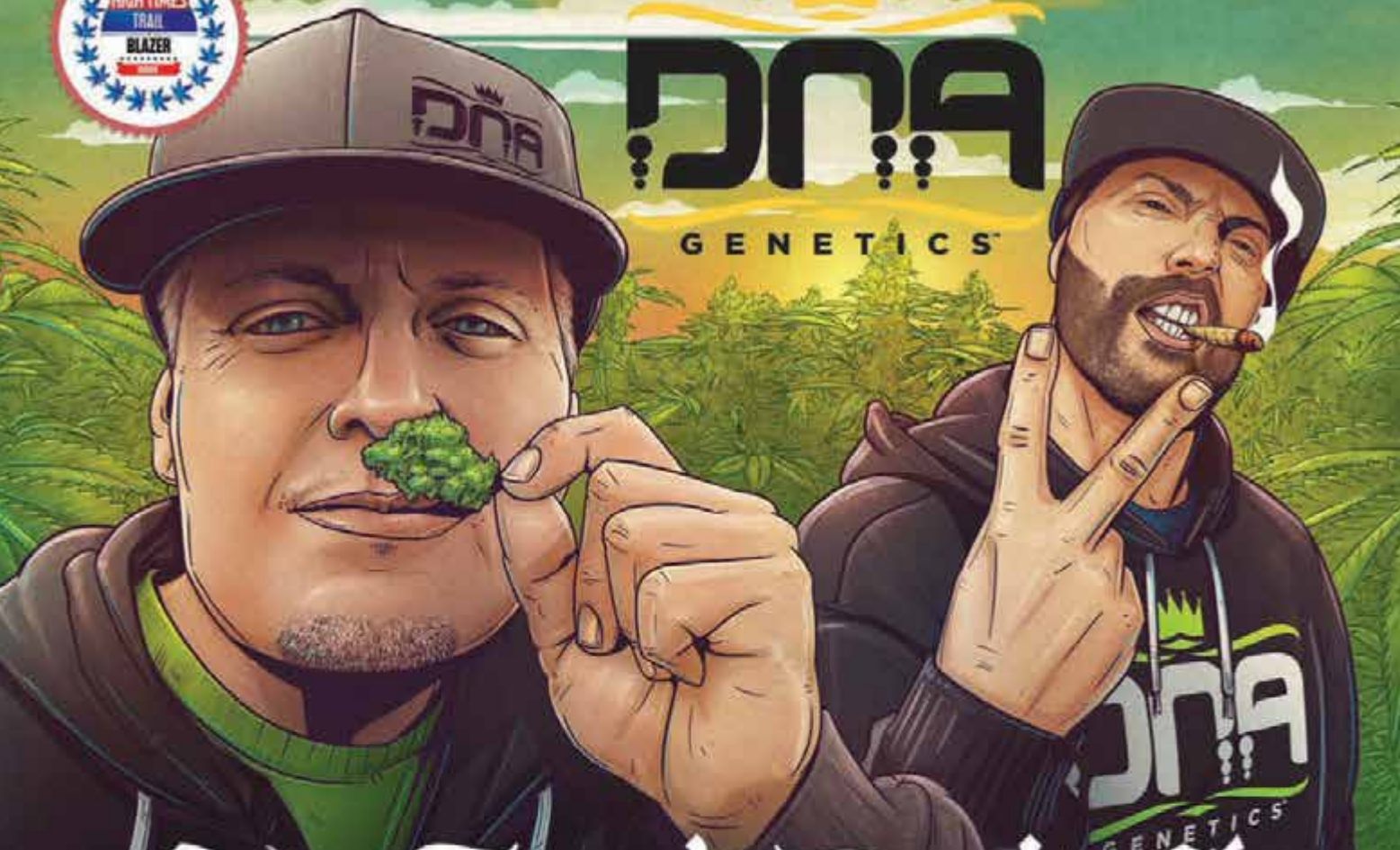
Gillian G. Garr
(Voyageur Press)

➤ The psychedelic 3-D felt cover immediately indicates that this Jimi biography is a cool package—not just another quickie. Upon entry, Hendrixheads will notice that the photos in this visual feast are rare, making it a crucial addition to any fan’s collection. The man radiated charisma. At

the same time, the pics and Garr’s text serve as a perfect intro for those less familiar with the greatest guitarist in rock history. That his career as a living star lasted only four years until his death in 1970 is astonishing—but then, singularity is a key element of genius. *Michael Simmons*



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LET THE GAMES BEGIN

CANNABIS IS ONCE AGAIN AT THE FOREFRONT FOR ATHLETES HOPING TO IMPROVE TRAINING AND RECOVERY.



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

SPRING IS IN the air, people are heading back outdoors and the 2018 season of the 420 Games kicks off March 31–April 1 in Los Angeles as organizer Jim McAlpine takes his traveling cannabis fair on the road again.

Founded in 2014, the 420 Games are more evangelical than they are competitive—a road show to spread the word and raise awareness of how cannabis can be incorporated into an active, healthy lifestyle.

Discussions that would have been almost impossible to imagine hearing in locker rooms during the “Just Say No” era of the 1980s are becoming commonplace. The major professional sports leagues have been reconsidering their policies and prohibitions, and with America’s progressive mainstreaming of cannabis culture throughout the past two decades, it was inevitable that someone would try to draw a connection—and profitable cross-branding—with sports. One indication of acceptance is that McAlpine was asked to return for a panel discussion (“Cannabis: An Alternative to Opiates in Pro Sports”) at this month’s South by Southwest (SXSW) Festival after participating in it last year.

A former skiing and snowboarding promoter, McAlpine devised two successful cannabis-promoting event programs: the annual New West Summit industry conference and the 420 Games series of athletic outings. Other 420 Games this year are slated for San Diego (May 26), Seattle (June 30), Denver (July 21), San Francisco (August 11) and Portland, OR (September 22).

“The cannabis industry kind of slapped me across the face because I’ve always personally been an athlete my whole life, and I’ve always used cannabis in my athletic career from the time I was graduating high school into college,” McAlpine explains. “My background in the sporting world of ski and snowboard had kind of an event-production twist to it. Really what I did on two levels—because I do the New West Summit, too—was kind of looked at the industry



“IT REALLY COMES DOWN TO FIGURING OUT IF CANNABIS IS SOMETHING THAT WORKS FOR YOU AS AN ATHLETE.”

as a whole [to] where there were holes, looked at the industry as one piece, and I really saw there was nobody even touching the athletic side of things, yet there are obviously athletes for decades using it.”

Clever marketing notwithstanding, McAlpine is not a medical doctor. Additional research is required to fully quantify the advantages afforded by cannabis use. Discussion about medical cannabis as an aid to recovery and pain management has recently made headlines as the NFL, NBA and NHL and their players pull back the curtains on drug testing and concerns about prescription painkillers.

As reported a year ago in the *Washington Post*, the most comprehensive study to date on painkiller use in the NFL (a 2011 survey of 644 retired players) found that more than half of the subjects reported using opioids during their NFL careers, seven out of 10 admitted to misusing the drugs and more than one

in five (22 percent) said they took six or more pills daily during their playing careers, the largest amount reported in the survey. The study also found that 7 percent of former players were still actively using opioids in retirement—more than four times the rate of opioid use in the general population at the time.

That said, McAlpine says that “part of the whole mission of the 420 Games and the things that we’ve started to do is not only to destigmatize the plant and the people who use it, but also to teach people [about] the most healthy and optimal ways of

ingestion,” such as edibles, oils or vaping rather than smoking, due to smoking’s effects on lungs and blood vessels.

Indeed, the 420 Games typically include a 4.20-mile fun run, followed by testimonials from former NFL players, biking and skating demonstrations, live music, food booths, and beer tastings. What is not seen is any smoking, even where legal; it is strongly discouraged due to negative optics and the availability of better consumption alternatives.

While McAlpine recognizes that there is no one-size-fits-all answer, his point is to encourage conversation about the possibilities. “I think there are strains that are a little predisposed to make people feel one way or the other,” he says, “but in a general sense, marijuana really does affect everybody in a different way, so I think that it really comes down to figuring out if cannabis is something that works for you as an athlete and if it takes you into that place where it accentuates your athletic abilities.” 🌿

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 -Santa Cruz, CA

MARKET ANALYSIS

Prices by the ounce

The benefits of legalization continue to be enjoyed by an increasing number of Americans, as prices sank across all indices in March. The Western Index experienced the biggest drop, finishing \$9 below its previous month's average. The overall cost for an ounce of cannabis in the US dipped to a reasonable \$312.

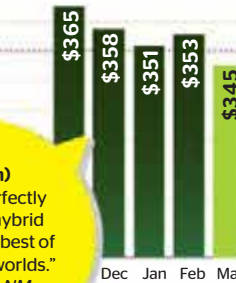
US Price Index
 YTD Average: \$317



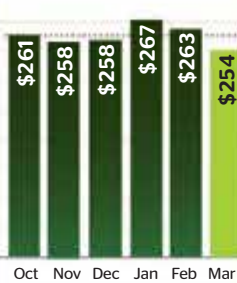
Eastern Index
 YTD Average: \$341



Southern Index
 YTD Average: \$350



Western Index
 YTD Average: \$261



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 -Roswell, NM

TRANS HIGH MARKET QUOTATIONS

STATE	CITY	STRAIN	PRICE
ALABAMA	Montgomery	Super Silver Haze	\$280
ALASKA	Fairbanks	Headband	280
ARIZONA	Tucson	Tahoe OG	260
ARKANSAS	Fayetteville	Platinum OG	400
CALIFORNIA	San Bernardino Santa Cruz	Green Crack Gelato	300 300
COLORADO	Boulder	Golden Goat	260
CONNECTICUT	New Haven Norwich	Pineapple Haze Granddaddy Kush	250 280
DELAWARE	Wilmington	Afghan Kush	480
FLORIDA	New Smyrna Beach	Gorilla Glue #4	336
GEORGIA	Americus	Lemon Kush	280
IDAHO	Blackfoot	Trainwreck	200
ILLINOIS	Chicago Peoria	Gelato Master Kush	250 450
INDIANA	Fort Wayne South Bend	Skywalker Bubba Kush	420 450
KANSAS	Lawrence	Tangerine Dream	280
LOUISIANA	Baton Rouge New Orleans	Cherry Bomb Sour Diesel	300 280
MAINE	Lewiston	Snowcap	300
MARYLAND	Baltimore	Girl Scout Cookies	240
MASSACHUSETTS	Boston	White Widow	420
MICHIGAN	Ann Arbor	Motorbreath	450
MINNESOTA	Fridley	Platinum OG	280
MISSOURI	West Plains	Gorilla Glue #4	420
MONTANA	Billings	Girl Scout Cookies	250
NEBRASKA	Omaha	Blueberry Diesel	480
NEVADA	Las Vegas	Pineapple Express	400
NEW MEXICO	Albuquerque Roswell	Blue Dream Akorn	300 250
NEW JERSEY	Atlantic City Passaic	Sour Diesel Kush	320 450
NEW YORK	Glen Cove	Sour Diesel	280
NORTH CAROLINA	Burlington	King Louis OG	325
OHIO	Lakewood	OG Kush	420
OKLAHOMA	Oklahoma City	Blue Dream	320
OREGON	Eugene Portland	Obama Kush Super Jack	270 190
PENNSYLVANIA	Pittsburgh	Green Crack	240
TEXAS	Houston	Green Crack	280
UTAH	Provo Salt Lake City	Pineapple Express Lemon Haze	280 320
VIRGINIA	Charlottesville	Jack Herer	350
WASHINGTON	Bremerton	Purple Diesel	200
WISCONSIN	Janesville	Lemon Diesel	300
INTERNATIONAL			
AUSTRALIA	Adelaide Port Macquarie	Jack Herer Bubba Kush	A\$300 400
CANADA	Edmonton Montreal	Master Kush Chocolope	C\$200 280

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VERTICAL GROWING

HOW TO
MAXIMIZE
YIELDS
IN TIGHT
SPACES

STORY & PHOTOS BY NICO ESCONDIDO

For both home and commercial growers alike, managing garden space while maximizing yields can be a difficult task. This is especially true in urban areas, where the demand for marijuana is high—but so are the costs associated with renting, buying or building indoor space for cannabis cultivation.

For decades, the indoor horticulture industry has looked for ways to best utilize indoor garden space to maximize yields. Whether it be the giant flower farms of Holland, the sprawling vegetable greenhouses of Canada or the massive indoor commercial cannabis operations in the United States, many indoor growers are using vertical grow formats, whose popularity has been on the rise over the past few years with a new demographic: home growers.



Vertical grow chambers like the Coliseum offer multiple advantages to growers.



A column of air-cooled HPS lamps hangs down the center channel for 360° light efficiency.

SYSTEM TYPES

Vertical grow systems are typically not do-it-yourself or build-your-own systems. Rather, commercially available vertical systems are purchased from hydroponic shops or wholesale distributors and then modified to the grower's specific needs and space. Just like typical horizontal or flatbed grow systems, vertical grow systems can be used with almost any type of indoor grow technique, from hydroponics and aeroponics to soilless-medium methods. The latter is the least likely example one might find, though, as the weight of soil mediums—as well as the sheer volume—can make for cumbersome maintenance, less flexibility and lower functionality (more on this in a bit).

In traditional vertical grow systems, lights are hung vertically, usually on chains, with the plants placed around them in a cylindrical arrangement from floor to ceiling. A primary benefit of this arrangement is a better utilization of light, both in terms of energy efficiency and light absorption, by the encompassing plant canopy. The removal of reflectors creates a direct path for light energy, or photons, from bulb to plants and eliminates the conversion of light into heat that occurs when photons bounce off reflectors or are

otherwise absorbed elsewhere and not by the plants. Additionally, when the vertical string of lights in these systems is adequately cooled (either by air-cooling tubes, water jackets or AC units), the plant canopy can sit within inches of the lights, thereby increasing the energy delivered to the plants.

While most vertical grow systems utilize this cylindrical arrangement to take better advantage of light placement and full photon absorption, alternatives to grow cylinders are becoming more popular, especially in large-format grows. Vertical rack systems are frequently used as commercial indoor growers look for lightweight, stackable grow systems that can deliver water and nutrients to plants quickly and effectively. These vertical grow systems mimic smaller horizontal hydro systems that can be stacked one on top of another from floor to ceiling with the required lighting placed in between each stackable tray or plant bed. Additionally, some vertical grow manufacturers claim that larger, shared beds in rack systems allow for better root systems, leading to larger yields. However, while the extra root-zone space lends itself to more developed roots, it also means each plant must share its food and water—and potential pests and diseases—with the other plants in its bed.



An EcoSystem grow chamber fitted with Rockwool slabs as medium



EcoSystem plants in week five of flowering



Clones being propagated in a simple rack system

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HOW THEY WORK

Vertical grow systems work the same way horizontal systems do, as the principles of horticultural are constant. Rather, it is the logistics that change with the footprint of the system in the room. The smaller footprint, which can range in size from 6 to 8 feet in diameter for cylindrical units or can wrap around the room for wall units, allows for more garden space in a single room as all the area is utilized, from floor to ceiling.

This is why many of the original (as well as some current) vertical grow systems deploy a cylindrical shape, as this allows for several units to be placed in a single room. And because there is no space lost to overhead lighting, all the space from floor to ceiling is dedicated to plant canopy. In cylindrical systems such as the well-known Coliseum, plants are placed in netted pot containers held in place by plastic tiers, angled slightly downward toward the center light channel. Behind the tiers is a thick wall that can hold spray misters, foggers or irrigation tubes for drip lines. At the bottom of the system are larger reservoirs to catch the runoff, just like hydroponic table systems.

Other systems can be more of a hybrid between a cylindrical system and a wall system. Wall systems use either premade wall frames or the walls of a room to attach hanging grow systems. The EcoSystem, for example, uses a cylindrical plant arrangement with vertical lights down a center channel and doors that swing open to provide access to the grow chamber. However, instead of housing the system mechanics within its chamber walls, growers attach slabs of rockwool, hung vertically around the sides, to grow their plants. Spaghetti lines run directly to the medium, and the vertical chamber is run as a top-feed hydroponic system.

Other vertical grow systems abandon the cylindrical geometry altogether and use structural walls, stackable racks or pre-made elements such as metal-pole frames from which to hang vertical grow systems. These systems range from NFT (nutrient film technique) and top-feed hydro systems to root mister/aeroponic systems. Normally, wall systems utilize narrow trays or troughs hung in a square arrangement on three or four walls with lights hanging vertically down the center, the same as cylindrical grow systems. All of these systems, whether square or cylindrical in design, do better with hydroponics rather than with soil systems, and each utilizes standard reservoirs and pump systems to deliver water and nutrients to plant sites.



WALLS OF GREEN

Aside from the physical characteristics that vertical grow systems share, they also utilize common grow theories and techniques. In almost every vertical grow system—and especially in cylindrical units—a “sea of green” (SOG) technique must be utilized.

SOG gardens comprise many smaller plants, rather than fewer larger plants. This style of growing was developed primarily for indoor and greenhouse growers who have less space to work with than outdoor farmers. In theory, having many smaller plants is a way to mitigate the smaller yields when not growing huge trees outdoors that can produce several pounds of cannabis each. Instead, indoor growers cultivate hundreds of densely packed smaller plants that, when taken as a sum, can actually yield as much or more than an outdoor garden (and

BECAUSE THERE IS NO SPACE LOST TO OVERHEAD LIGHTING, ALL THE SPACE FROM FLOOR TO CEILING IS DEDICATED TO PLANT CANOPY.

with a few more harvests per year to boot).

In SOG gardens, plants are propagated either from seeds or cloning and then allowed to develop roots and vegetate for a week or two, and then moved right into flowering, thereby keeping plant size much smaller. To aid in this technique, cannabis growers keep internode lengths shorter, which is the distance between branches on the main stem. Having shorter internode lengths means more branching, which leads to more flowering sites for budding and better plant yields.

To do this, growers use bulbs heavier in the blue spectrum, which helps plants develop good branch stacking and keeps them squat and bushy. During the initial propagation phase and before transplanting into a vertical grow system, growers keep nursery plants under fluorescent bulbs, which emit light from the blue spectrum. These lamps also use less power and run extremely cool, allowing plants to remain very close to the light source.

Once the plants are ready to vegetate, growers will utilize metal-halide (MH) bulbs for the veg cycle. MH bulbs are much heavier in the blue spectrum than high-pressure sodium (HPS) bulbs, which are used during the flowering cycle.

Top: Tiers of a vertical grow system
Middle: Plant sites for a hydro grow system
Bottom: Short internode lengths keep plants squat.

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As plants grow, keeping a fixed bulb-to-canopy distance can be a challenge.

GROWING UP

While the most compelling argument for vertical grow systems is the increased efficiency in vertically integrated, 360-degree lighting, as well as the smart use of growroom space, some of today's more modern vertical grow systems have inexplicably abandoned the vertical lighting element. Whereas cylindrical and wall-based systems continue to utilize vertical lights with the surrounding garden, some rack systems in use at large-format, commercial-grow facilities utilize vertical space simply by using racks to stack trays and lights, one on top of another, with several layers of trays and lights in each vertical column.

While these rack systems tend to maximize space, they are less effective in maximizing the efficiency of lighting systems. One likely culprit for the dismissal of vertically integrated high-intensity discharge (HID) lighting is the growing popularity of LED lamps. While these lighting systems offer convenience in size, energy consumption and reduced heat by-product, they lack in both light quality (spectrum) and quantity (strength), thereby lowering yields significantly.

However, newer LED models have begun to offset these factors by increasing both spectral range and light intensity. Still, these units are costly and bulky, and they lack many of the typical advantages associated with LEDs such as low power draw and heat emission. Still, some newer LED units are being fashioned to fit into vertical rack systems, but at a much higher cost, with the counterargument being they save

money in the long run by not needing to be replaced nearly as often as HID systems. Other rack systems feature banks of fluorescent lamps, especially in nurseries, while large rack systems utilize HID lamps hung overhead with two or three levels of garden beds. The latter option is only realistic for large warehouses with high ceilings.

Another problematic issue shared by most vertical grow systems is the difficulty posed by bulb-to-canopy distance. Traditional gardens, as well as some large-format rack systems that use overhead hanging lights, can be adjusted to maintain the distance between light and canopy as the plants grow taller. But in vertical grow systems, where the lighting systems are stationary, growers must take extra care to ensure that lights are kept cool to touch, so that as plants grow closer to the light source they do not suffer light burn or overheating.

Keeping the bulb-to-canopy distance consistent throughout a plant's life cycle provides for a more natural and stable grow environment, a benefit that is often lost in vertical grow systems. In vertical systems with stationary light systems, the distance from bulb to plant inevitably changes as the plant grows and changes shape. This can cause problems in a plant's physiological development and biorhythm. This is why it is important for growers to choose strains that grow short and squat and to pay close attention to how they raise their young seedlings and clones through the vegetative stage. Plants that remain squat will do much better in vertical grow systems with a fixed bulb-to-canopy distance.



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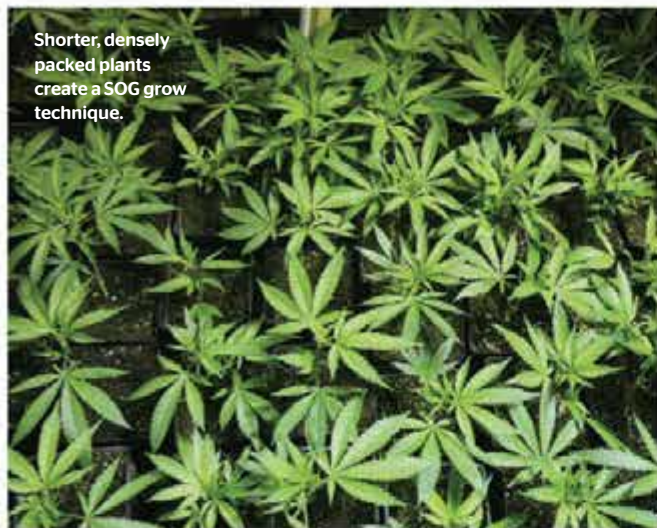


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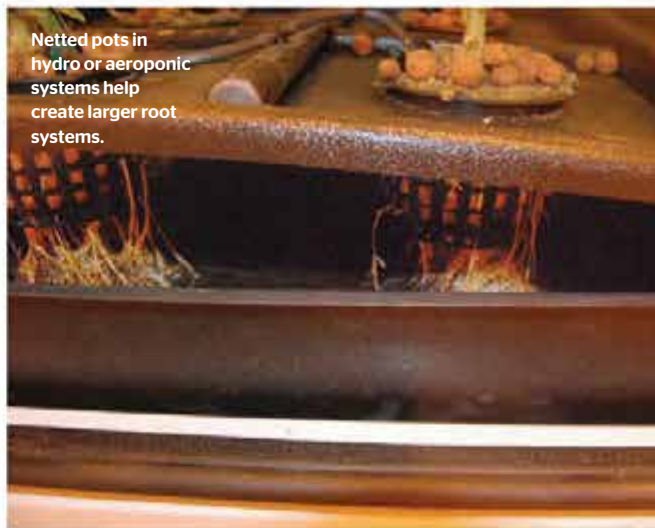
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Shorter, densely packed plants create a SOG grow technique.



Netted pots in hydro or aeroponic systems help create larger root systems.

MAKING UP THE DIFFERENCE

In order to work well with the height limitation on plant growth and the impact it might have on yields, good vertical grow systems offer the ability for plants to develop expansive root systems. As a complement to the SOG technique, vertical growers should choose systems that offer ample space for a garden's root zone.

The root structure acts as energy storage for the plant. While the plant is creating food (glucose) during the light cycle via photosynthesis, the roots are storing that energy for use during the dark cycles and for developing buds during the flowering cycle. The size of the root structure is directly proportional to the yield potential of each plant.

Vertical grow systems utilizing fixed medium sizes such as rockwool

slabs may limit the garden's ability for larger yields. Many of the most successful vertical grow systems utilize open-air walls, allowing for extensive root systems to grow out from each plant site and down throughout the back side of the system, sometimes reaching the reservoir or floor at the bottom of the chamber.

Other mediums that limit root growth are not as desirable as well. Plant sites that use netted pots and allow roots to grow out into the air will be more successful in terms of yield than a system which limits root growth either by limited medium volume or too much medium. Packing a cylindrical unit with a soil or soilless medium not only affects where the roots can grow, but it also significantly cuts down on oxygen in the root zone, which roots need to grow healthy and strong.

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THERE ARE ESSENTIALLY FIVE ISSUES TO KEEP IN MIND THAT THE HEEDLESS GROWER WILL QUICKLY DISCOVER ABOUT VERTICAL GROWS. KNOWING THEM IN ADVANCE WILL IMPROVE SYSTEM DESIGN AND RESULTS.

BY HUE GIELDER

CLEAN YOUR DIRTY PIPES:

Reservoirs should always be fully clean in order to guarantee that your plants are not being fed garbage (salt buildup, algae, etc.). System designers who would prefer to automate their watering should expect to replace all plumbing between the reservoir and spigots every few cycles in order to ensure a clean delivery of nutrients and desired biologicals. To facilitate this, use as much low-cost flexible tubing as you can. Also, when dealing with vertical hydro systems, it is important to note that pinching irrigation lines can severely impact a system's water pressure. This is especially true with a vertical "backbone" pipe, where lessening the width of tubing (for example, via T-joints or clamp valves) beyond most pumps' half-to-full-inch output will limit the pressure seen at each vertical grow tier incrementally, as the water ascends. It's best to reduce



Light movers in vertical chambers make lamp maintenance much easier.

the line width at the actual spigots (if absolutely necessary) and abide by the pump manufacturer's recommendations when pumping vertically.

DITCH THE DIRT ON THE DANK:

When growing vertically, there is always a risk that fluids or wet media will spill over onto mature or otherwise innocent buds below. Whether or not this is an issue will largely be determined by the watering system's throughput and the medium's rate of fluid absorption, as well as how the tiers of grow sites are stacked. Shared beds filled with soil will drain better by adding perlite, while hydroton (HEC) may be too heavy for some shared-bed systems.

ARE YOU PENETRATING YOUR CANOPY?

All plants prefer to be isolated and alone so that they can hoard all of the resources they desire. When growing plants within a confined space, anything that can be done to penetrate the canopy in an even manner in terms of light, carbon dioxide and fresh-air exchange will maximize individual plant health and yields.

T5s VS. LIGHT SKIRTS: Plants need evenly distributed low-intensity lighting during transplant to minimize transplant shock. Shade cloths can be wrapped like skirts around grow lights or tubes, but this plastic material also easily melts. To avoid melting plastic and potential house fires, the verti-

cal grower can create a ring out of electrical conduit or non-electrical flex wire to wrap the shade cloth around and drape down the lighting tube. However, this approach may not eliminate transplant stress. An alternative approach is to strap fluorescent T5s to the light tubes for the purpose of maintaining the proper photoperiod during transplant with much less light intensity (with the benefit of broader spectrum as well).

HOW HARD IS IT TO SWAP YOUR SPECTRUM?

Vertical growers use light tubes to move bulb heat up and out of the room before it can affect canopy temperature. However, chains of lights in glass tubes can greatly complicate the swap of bulbs that frequently accompany the switch to flower. The problem is that light tubes are generally not designed for ease of access. When connecting together individual light tubes to create a single light string, it's recommended that the grower pay special attention to the creation of a custom system of access that is convenient for maintenance. Attaching light tubes to rails of light movers so that they can slide in and out of vertical systems is a good idea. Another consideration is to fully veg plants before transplanting them into vertical systems and give them only a few days of veg cycle (using your HPS bulbs) before flipping to the 12/12 flowering stage. 🌱

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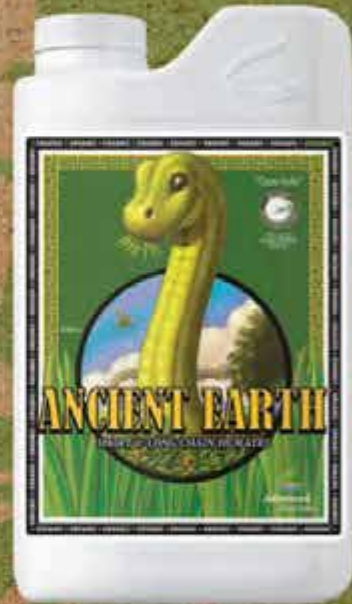


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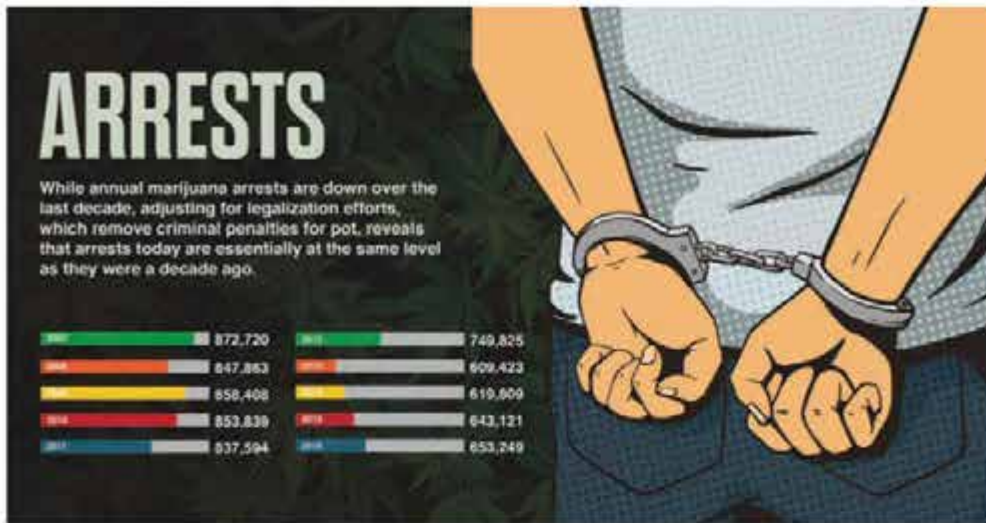
MARIJUANA BY THE NUMBERS

EXAMINING CANNABIS THROUGH THE AVAILABLE DATA GIVES US CERTAINTY. NUMBERS ARE PRECISE. STATISTICS SETTLE ARGUMENTS AND HELP PLACE ISSUES INTO CONTEXT. SO WE'RE TAKING A CLOSER LOOK AT CANNABIS DATA IN TERMS OF ARRESTS, USE, CULTIVATION, AVAILABILITY AND CONSUMPTION TO FIND OUT WHAT THE NUMBERS TELL US ABOUT MARIJUANA IN THE UNITED STATES. BY JON GETTMAN

ACCORDING TO THE ANNUAL National Drug Threat Assessment (NDTA), which is put together by federal law enforcement, "Marijuana is the most widely available and commonly used illicit drug in the United States." This article looks more closely at just what that statement means.

The data in this article were produced by the federal government. In that respect, it also reveals what information the government has about marijuana and marijuana users. The truth is that the government knows how many people use marijuana,

that prohibition has not reduced or even controlled marijuana use, and that the goal of using prohibition to discourage marijuana use is a delusion. The government is also aware that under prohibition the United States has become the premier producer of marijuana in the world, setting the global standard for cannabis cultivation. Just about anyone in the United States who wants marijuana can find it easily, and what they find is generally of the highest quality. The government also knows that the spread of cannabis legalization is draining prohibition of any credible justification for its continued existence.



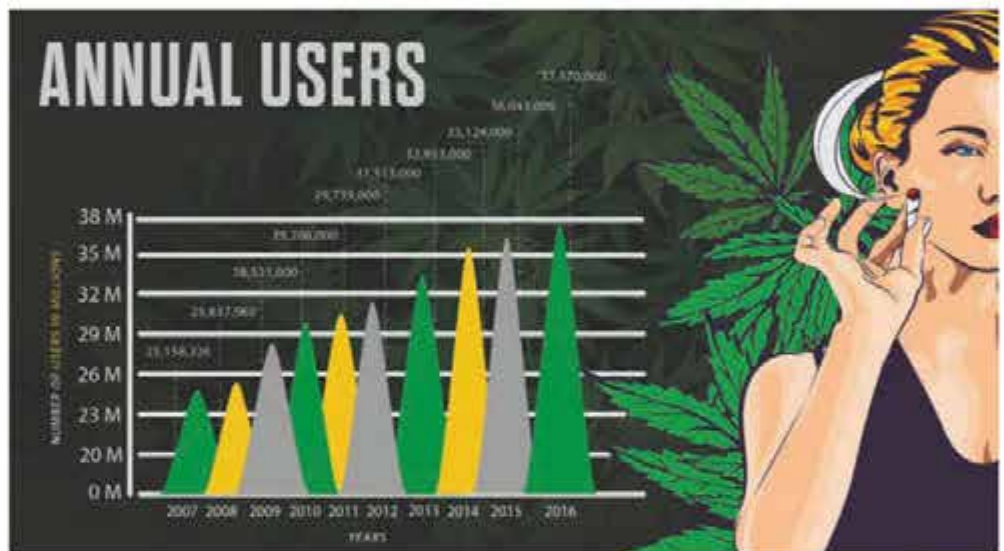
THE TRUTH IS THAT THE GOVERNMENT KNOWS HOW MANY PEOPLE USE MARIJUANA, THAT PROHIBITION HAS NOT REDUCED OR EVEN CONTROLLED MARIJUANA USE, AND THAT THE GOAL OF USING PROHIBITION TO DISCOURAGE MARIJUANA USE IS A DELUSION.

ARRESTS AND USE

In the United States, cannabis legalization began to be implemented in 2013. The criminal penalties ended by state legalization and decriminalization accounted for approximately 20 percent of annual marijuana arrests from 2001 to 2010.

In 2007, 872,720 total marijuana arrests were made nationwide. That's the largest number of marijuana arrests ever made in a year. Taking those 872,720 arrests as a starting point, the elimination of 20 percent of these due to changes in state laws provides a baseline of 698,176 arrests. Thus the average number of arrests for 2015-16 of nearly 648,185 represents just a 7 percent reduction in marijuana arrests nationwide from 2007 and just a 5 percent reduction from 2010, the second-largest year for marijuana arrests (853,839).

The average number of annual marijuana arrests from 2001 to 2010 was 799,641. Reducing this by 20 percent to account for recent reform efforts that eliminate criminal penalties provides a baseline of 639,713 annual arrests. Compared to this baseline, the average number of arrests for 2015-16 represents an increase of 1.3 percent. Marijuana arrests today are essentially at the same level as they were a decade ago.



By 2016, over 118 million Americans had used marijuana at least once in their lifetime. There were 37.6 million annual marijuana users in 2016, of which 24 million had used marijuana in the past month (and are considered regular users of cannabis). In 2016, annual marijuana use was reported by 13.9 percent of Americans, up from 11.5 percent in 2011. Past-month use increased from 7 percent in 2011 to 8.9 percent in 2016.

As noted previously, legalization has removed the threat of arrest for millions of marijuana users. Thus, while the number of arrests in non-legalization states has remained about the same as it was 10 years ago, the number of annual marijuana users

has increased by about eight million, and the number of regular users has increased by about six million. So what does this say about the effectiveness of prohibition?

First, it is helpful to have some context here with respect to the extent that various crimes result in arrests. The technical designation is "offenses cleared by arrest," which just means "arrested." Second, such data should be viewed in terms of deterrence. There are two ways to look at this. *Specific deterrence* concerns the impact of arrest on the person arrested; the issue is the extent to which an arrest for a crime discourages or prevents an individual from committing that crime in the future. *General deterrence* concerns the impact of

a potential arrest on other offenders; the prospect of arrest should discourage others from breaking the law. In 2016, about 45 percent of violent crimes reported to the police were cleared by arrest. The highest clearance percentage was for murder, with 59.4 percent of murders resulting in an arrest. Other clearance percentages for violent crime are as follows: rape (35.6 percent), robbery (29.6 percent) and aggravated assault (53.3 percent). For property crime, the clearance percentages are much lower, 18.3 percent overall, with 13.1 percent for burglary, 20.4 percent for larceny and 13.3 percent for motor-vehicle theft.

In 2011, there were 29.7 million annual users of



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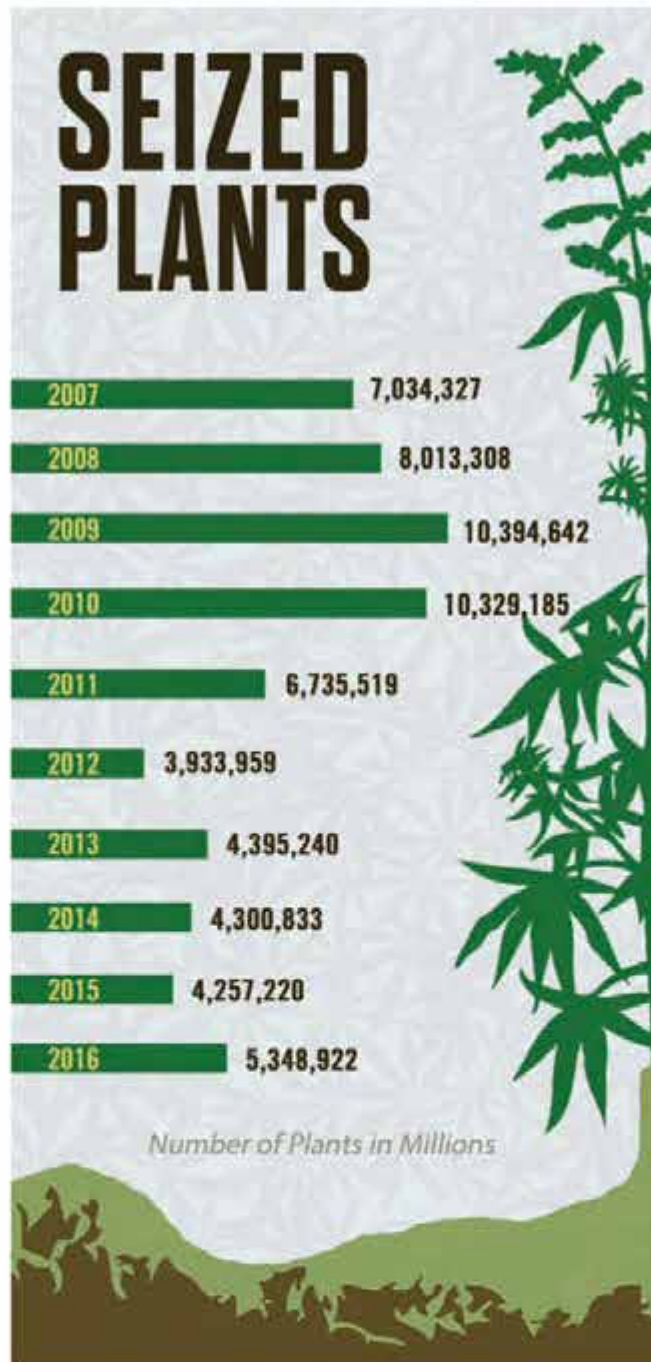
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marijuana. Of those cannabis users, 742,657 were arrested (only 2.5 percent). There can be no argument that this arrest level is effective in deterring people from using marijuana, particularly when this figure is compared with the clearance percentage of violent and property crimes.

Worse, in terms of the effectiveness of prohibition, the percentage of marijuana users arrested by police has been steadily decreasing over the last several years. This is no surprise, as several states have stopped arresting people for cannabis use. But in terms of national prohibition, the maintenance of arrest levels in non-legalization states is not sufficient to maintain the overall impact of this policy. The percentage of marijuana users arrested under prohibition laws has been decreasing from 2.5 percent in 2011 to 2.1 percent in 2012 and 2013, down to 2 percent in 2014 and now down to just 1.6 percent in 2015 and 2016.

ABUSE

In 2015, there were 213,001 admissions to treatment services for which marijuana was the primary substance of abuse, down from 352,396 in 2011 (a reduction of nearly 40 percent). According to the Treatment Episodes Data Set from the federal Substance Abuse and Mental Health Services Administration, marijuana accounted for 13.9 percent of treatment admissions in 2015, compared with 18.2 percent in 2011. However, 51.4 percent of marijuana-treatment admissions were a result of a referral from the criminal-justice system—most of these individuals had entered a drug-treatment program as a condition of probation, parole or other court directive. Furthermore, over half (54 percent) of marijuana admissions involved one or more other substances, frequently alcohol and/or cocaine as well as



methamphetamine.

Just over 85 percent of treatment admissions were given some form of outpatient treatment. Only 45.2 percent of all marijuana-treatment admissions were diagnosed with cannabis dependency, according to professional clinical standards. Another 31.8 percent were diagnosed with cannabis-abuse problems. While this indicates that many marijuana-related treatment admissions had a clinical basis for treatment,

23 percent (about 49,000) of them did not. To summarize some key statistics here, out of 213,001 treatment admissions for marijuana, just over 109,000 people were referred to treatment by the courts, close to 76,000 had not used marijuana in the last month and 49,000 had no clinical basis indicating a problem with marijuana use.

Also of note, 41.1 percent of marijuana admissions for treatment were not covered by health insurance and

another 39.4 percent were covered by Medicaid. In cases where an individual had no insurance, his or her treatment was usually paid for by some form of government payment. Consequently, most people in drug treatment for marijuana were there as an alternative to incarceration, with many agreeing to enter treatment even if they did not have a clinical problem with abuse or dependency, and most of the cost of this practice was paid for by taxpayers.

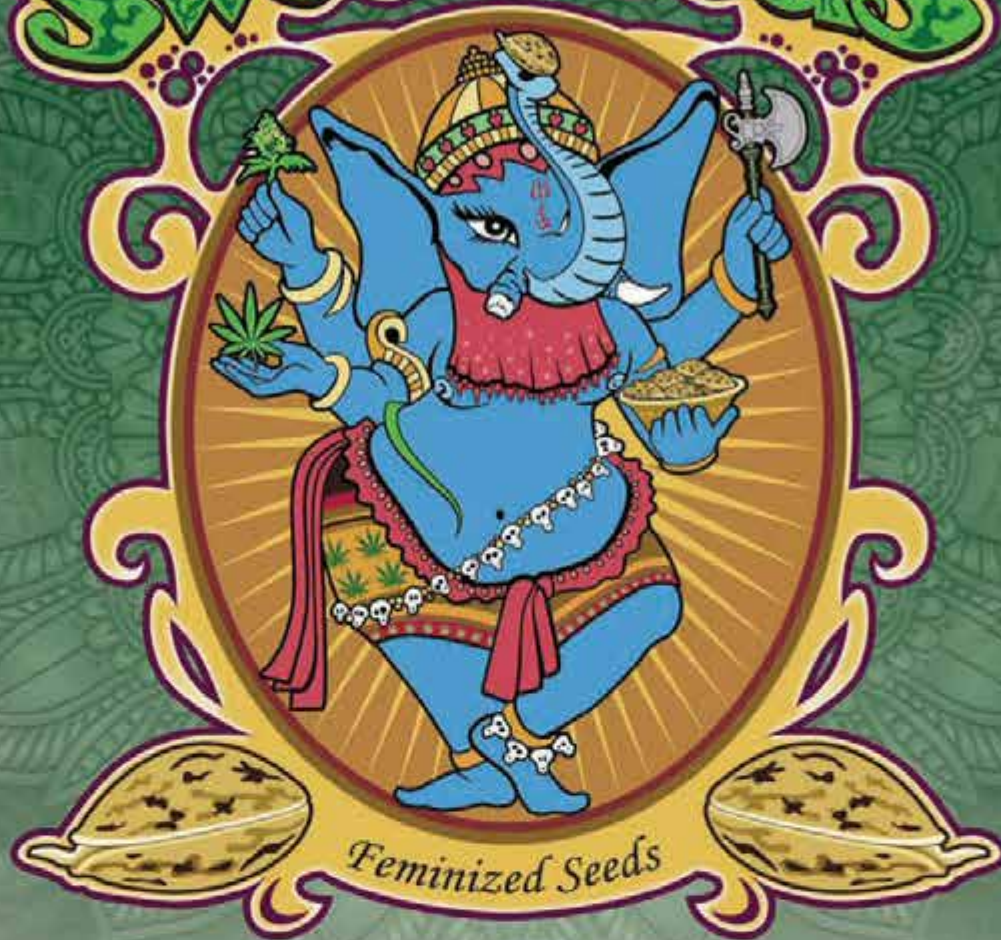
CULTIVATION, AVAILABILITY AND CONSUMPTION

In 2016, the Drug Enforcement Administration (DEA) seized 5,348,922 marijuana plants in the United States. Of these, 4,942,797 were from outdoor grow sites while 406,125 were from indoor grow sites. Agents raided 5,528 outdoor grow sites and 1,865 indoor sites. The DEA's Domestic Cannabis Eradication/Suppression Program made 5,657 arrests and seized assets valued at close to \$52 million. These figures were comparable to the past five years. While arrests were down in recent years, overall plant seizures increased in 2016 from the prior five-year average of 4.7 million. The number of indoor sites raided in 2016 was below the prior five-year average of 2,676, but the number of indoor plants seized was greater than the five-year average of 378,995.

Asset seizure increased substantially compared with the prior five-year average of \$32 million.

Most of the DEA plant seizures in 2016 were in California (71 percent) and Kentucky (10 percent). Other states of interest, with over 100,000 plants seized, were Texas, Tennessee and West Virginia. California also had the most indoor grow sites seized (643), followed by Michigan (207), Indiana (164), Florida (152) and Kentucky (95).

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The NDTA reports that 80 percent of responding agencies rated marijuana availability as high, and 16 percent rated availability as moderate. Availability increased over the past year in 34 percent of these jurisdictions, while 61 percent reported it was about the same. Demand also increased in 29 percent of the jurisdictions.

The National Survey on Drug Use and Health reports that in 2015, 56 percent of Americans found marijuana was fairly or very easy to obtain. This figure increased to 71 percent for those in the 18-to-25 age group. However, among annual marijuana users, 89.4 percent report that marijuana was fairly or very easy to get.

The 2014 National Survey on Drug Use and Health (NSDUH) reports that only 17.1 percent of marijuana users bought marijuana from someone they just met or did not know well. Over three-fourths (77.6 percent) bought marijuana from a friend, and 5.4 percent bought marijuana from a relative or family member. Marijuana was most often bought inside a home, apartment or dorm (51.7 percent), while 17 percent bought marijuana outside in a public area or parking lot. However, a follow-up question with more detailed options provided more detail about pot purchases as 18 percent responded that they bought it in a medical marijuana dispensary or club. Most people were not able to buy marijuana near where they lived, with 42.7 percent reporting that they could do so and 57.2 percent reporting purchasing it somewhere else. Almost all respondents (95.3 percent) did not sell any marijuana from what they most recently purchased. On the other hand, 52.9 percent reported sharing or giving some of their last pot purchase to someone. Most marijuana consumers (66.2 percent) bought between one and five grams during their most recent purchase, with 26.4 percent reporting a purchase of five to 10 grams and 7.4 percent reporting a purchase of 10 grams or more.

Additionally, the 2015 NSDUH reported that 2,297,279 Americans 18 years and older sold illegal drugs along with 339,488 teenagers—bringing the total number of estimated US drug sellers to 2.6 million.

As of February 1, 2016, the NDTA was aware of 1,473 licensed medical-marijuana businesses in Colorado. It notes that, at the time, 25 states and Washington, DC, had approved medical marijuana. In 2016, federal law enforcement was also monitoring legalized marijuana in Colorado, Washington, Oregon, Alaska and



THE NUMBER OF INDOOR SITES RAIDED IN 2016 WAS BELOW THE PRIOR FIVE-YEAR AVERAGE BUT THE NUMBER OF INDOOR PLANTS SEIZED WAS GREATER THAN THE FIVE-YEAR AVERAGE OF 378,995.

Washington, DC, as well as keeping track of state approval for cannabidiol (CBD) in 17 states and industrial hemp in 27 states.

Federal law enforcement, in looking for new issues of concern regarding marijuana cultivation, reports in the 2016 NDTA that “Electricity and water consumption are increasing in some localities due to increasing domestic cultivation from both state-approved and illicit grows. A 2012 study estimated the energy consumption for indoor cannabis production is around one percent of national electricity use, or \$6 billion each year. This study also claims that one average kilogram of final marijuana product is associated with 4,600 kilograms of carbon dioxide emissions into the atmosphere. Open source reporting shows that more than 1,200 licensed growing facilities use roughly half of

Colorado’s new power demands and, last year, those facilities combined to use about the same amount of energy as 35,000 households.”

Another concern of federal law enforcement has been the increasing potency of marijuana. In 2014, its testing of seized samples of marijuana indicated an average potency of 12 percent THC with the highest level reported to be 37 percent. In 1995, the average potency was just 3.95 percent. The average THC level of concentrates in 2014 was 55 percent, compared to 13 percent in 1995. Some concentrate seizures have tested above 82 percent THC.

According to the NDTA, the United States consumes between four and eight million kilograms of marijuana each year, with considerable commercial- and low-grade marijuana being imported from Mexico (though imported product is now recognized as inferior to domestically produced marijuana). “In 2015, ArcView, a market research firm for investors in the state-approved marijuana industries, reported \$5.4 billion dollars in state-approved marijuana sales in the United States, up from \$4.6 billion dollars the previous year.”

THE FUTURE

One area in which the federal government has it completely right concerns the future of marijuana in the United States. According to the NDTA, “Domestic use of marijuana will remain high and is likely to increase. Domestic production and trafficking of marijuana will likely increase as more states adopt relaxed marijuana laws.” The feds believe state legality will be exploited to produce marijuana for sale in other states; while they would be hard-pressed to admit it, this is just one more argument for nationwide legalization.

The NDTA also forecasts ongoing trafficking of Mexican marijuana, and that imported marijuana will increase in quality to compete better with domestically grown cannabis. “Fragmented and developing medical and personal use laws” create a lot of uncertainty for the public and for the marijuana industry, and this makes the issue much more complicated and complex for everyone involved, including the public, law enforcement, financial institutions and the medical community. But one thing is certain, and on this the marijuana community and federal law enforcement are in total agreement: “Marijuana will remain a part of domestic and international political discussions for the foreseeable future.” ✨

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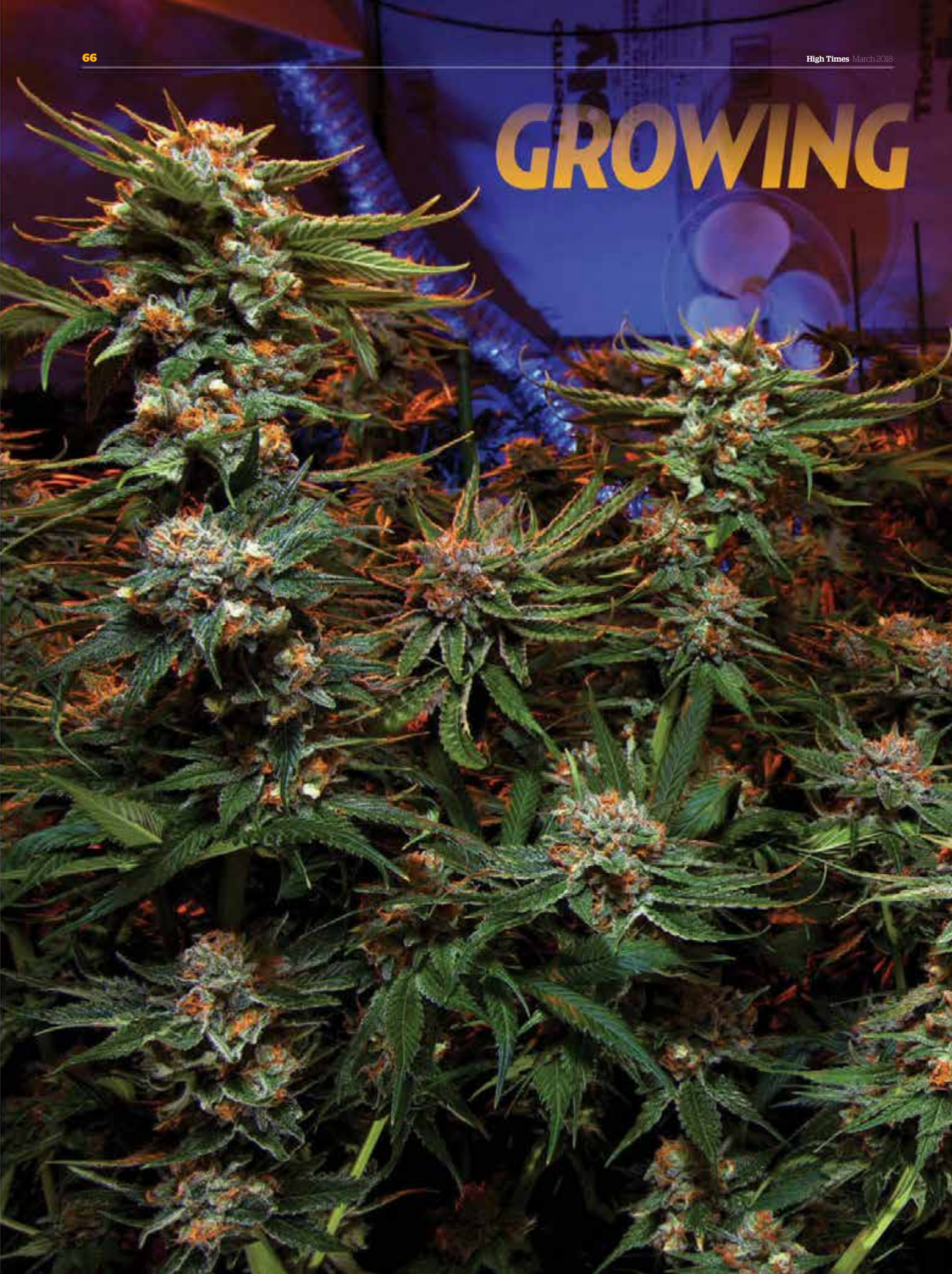
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Plants grown with Advanced Nutrients produce massive amounts of essential oils.



BigMike rallies the troops at Advanced Nutrients's Woodland, WA manufacturing plant.



Laboratory conditions result in clean and healthy plants.



BigMike checks in with his cannabis scientists.

ADVANCED HISTORY

Advanced Nutrients was founded by Michael "BigMike" Straumietis in 1999 when he saw an opportunity to create plant foods designed especially for cannabis growing. A marijuana cultivator since he was 23 years old, BigMike knew that the products available for feeding pot plants weren't optimized to their full potential.

As a co-founder of Canadian Soilless Ltd. in 1996, BigMike recognized that the hydroponics industry was stagnating and, as he was soon to find out, terrified of any connection to pot growing. Ever since the DEA's Operation Green Merchant, an offensive in 1989 that targeted marijuana-growing-equipment suppliers, companies refused to acknowledge that their products were being used to cultivate cannabis, even though they thrived on the business.

"It all happened because of fear and ignorance," BigMike tells me. "We hired scientists to develop products explicitly for growing cannabis, and all of our competitors got nervous and boycotted us. Some of it is still happening to this day."

Over time, BigMike revolutionized the hydroponic-nutrient business entirely, building Advanced Nutrients into a hundred-million-dollar-a-year company with current operations throughout North America, Eastern Europe, Germany and Spain, as well as sales in over 100 countries and growing. Advanced Nutrients now has 25 PhDs on staff who design and test cutting-edge marijuana-growing technologies, all backed by an unprecedented 100 percent money-back guarantee. Along with Tikun Olam in Israel and GW Pharmaceuticals in the United Kingdom, Advanced Nutrients in Bulgaria is one of only three companies in the world with a federally licensed permit for cannabinoid research.

Now on their seventh generation of nutrient lines, the scientists at Advanced Nutrients continue to create new pot-growing systems for farmers looking for consistently huge yields. As BigMike explains, "We don't just provide nutrients—our line is a complete cannabis growth-manipulation system. We're seeing growers achieve up to and over four pounds per 1,000-watt light!"

What separates Advanced Nutrients from its competition? "Science and research," BigMike tells me. "Our products are made to grow cannabis, so they are tested on cannabis by scientists who specialize in it. None of this 'tomato' bullshit you hear from other companies. For example, it's a complete myth that pot plants need a ton of phosphorus during flowering. We've been growing legally for over a decade and have discovered many marijuana-specific nutrient needs and fulfilled them. Our team is on the cutting edge and always looking for new breakthroughs in pot-plant growing technology."

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An expert cultivator examines growing plants.



GIVING BACK

The philanthropic work done by BigMike and Advanced Nutrients shows that they truly care about the growers and patients without whom the company couldn't exist. This isn't mere lip service but real financial help for those in need. After the recent fires that devastated growers in the northern part of the state, Advanced Nutrients donated \$100,000 in cash and \$100,000 in nutrients to the California Growers Association. Contrast that with Scotts Miracle-Gro CEO Jim Hagedorn, who reportedly gave \$250,000 to the Aviation Hall of Fame the same month and nothing to the growers of NorCal.

Advanced Nutrients also launched the Cannabis Care Program 15 years ago to distribute over a million dollars' worth of nutrients to needy pot growers. In Bulgaria, and now in Los Angeles, the company's Holiday Heroes program provides necessities to destitute and homeless people and toys for their children.

Legislative efforts are also an important part of BigMike's agenda. Through the Cannabis Freedom Fund, Advanced Nutrients is fighting to reduce regulations on consumption at events, and the company champions the social use of cannabis and the release of nonviolent marijuana offenders as well as the expungement of their criminal records. Advanced Nutrients is backing Gavin Newsom in California's gubernatorial race because, as BigMike says, "He's sincere in supporting our community in a big way!"

By never turning his back on the pot growers that supported him, BigMike built a brand that now does over \$100 million a year in sales and is expanding into a variety of ancillary businesses and nonprofits. His newest efforts include a world-class research laboratory the likes of which doesn't exist anywhere.



BigMike inspects new equipment.

LACTURNUS LABS

Named for the Roman god of crop protection, Lacturnus Labs, based in Los Angeles, is a \$20 million facility designed by PhDs in conjunction with scientists from Harvard and MIT. The lab's million-dollar Shimadzu Nexera unified-chromatography machine can analyze for particles down to single parts per billion. "You can't hide anything from us!" BigMike tells me. "Diseases are carried in the vascular bundle of the plant. We can test for these pathogens and viruses in cuttings and let the grower know immediately what they're dealing with. The biggest names in cannabis research are champing at the bit to work with our equipment."

The 50,000-square-foot Lacturnus facility will act as an incubator for top scientists with a shared intellectual-property agreement. Once up and running at capacity, the Lacturnus grow operation will be the largest in the world and will provide distribution, volatile and nonvolatile extraction, tissue-culture cloning, packaging and delivery. The lab will also contain a full commercial kitchen for developing and producing best-in-class edibles with consistent microdosing.

"THE BIGGEST NAMES IN CANNABIS RESEARCH ARE CHAMPING AT THE BIT TO WORK WITH OUR EQUIPMENT."

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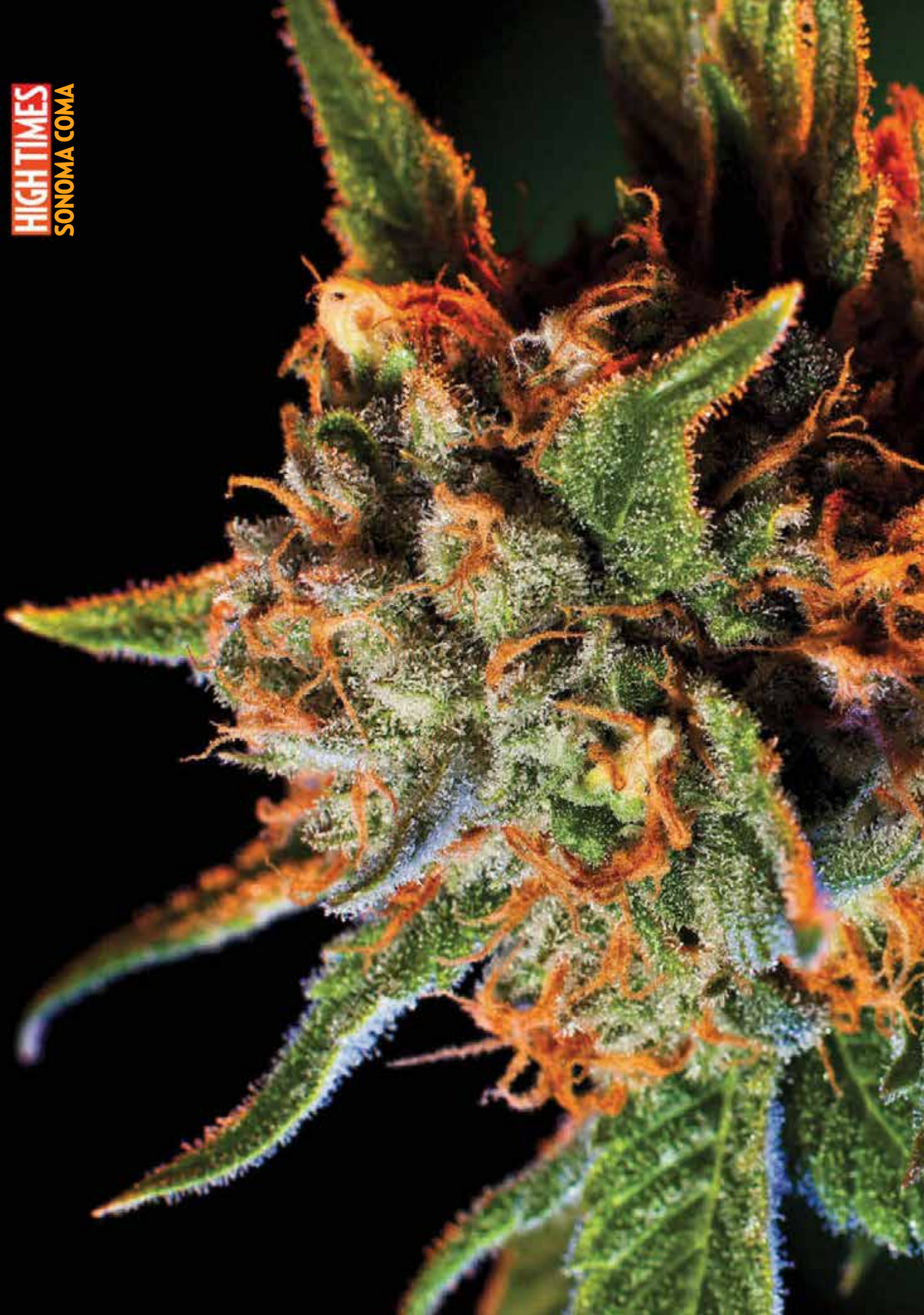
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of Top Growers



Getting a closer look at a lab specimen



Proper feeding culminates in chunky colas.



BigMike looks toward the future of cannabis.

CANNABIS FUTURE

BigMike believes we've only scratched the surface of cannabinoid research. (On a personal note, he finds that cannabigerol [CBG] greatly reduces intraocular pressure. Having gone through three corneal transplants, he uses CBG-rich edibles to provide significant relief for his eyes.)

The goal is to achieve an outcome-based recombinant product, meaning a consistent, precise and standardized medicine that's non-toxic with no heavy metals present. BigMike sees a big future in microdosing with cannabis. "It's not just about getting high," he tells me. "A therapeutic dose for a first-time user should be small enough to bind with their cannabinoid receptors without getting them too blitzed. I don't like to see someone's first experience with pot being a huge dab that messes them up and has people laughing at them. That's how you lose a patient for life instead of gaining one."

To that end, he's starting a house brand under the moniker BigMike's Blends that will provide pre-rolls, vape pens, edibles, tinctures, creams and much more. BigMike is planning an international rollout with distribution to the 2,100 dispensaries in California as well as to Europe, South America and Asia. "We want to partner with strong existing cannabis companies in a joint venture to help them scale their businesses up and take them to the next level," he says. "We'll even 'white label' products for qualified dispensary partners or other retailers."

BigMike would also like to see licensed producers in Canada and beyond start using Advanced Nutrients instead of mixing their own salts. "Depending on their order size, we'll provide them with access to our many services at Lacturnus," he says. "We can test their young plants' leaves and let them know the future cannabinoid profile of their genetics. If they have a problem they need solved, I will put one of our expert botanists or entomologists on a private jet today to help them solve it!"

I ask BigMike what it means for him to be on the cover of *High Times* magazine. "It's pretty damn cool! I've been reading the magazine all my life and consider it the gold standard, so it's quite a big deal for me," he says. "Advanced and *HT* have been working together for years to educate people on growing and using cannabis, so it's an honor to finally be recognized by the best pot publication on earth!" 🌿

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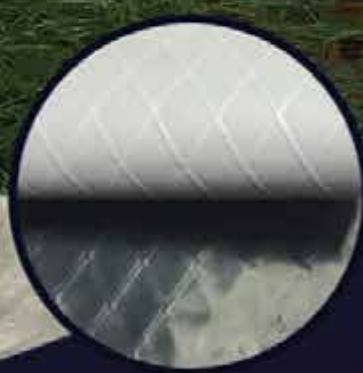
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HIGH AT THE HARVEST CUP

COMING TOGETHER TO CELEBRATE SOUTHERN CALIFORNIA'S CANNABIS CORNUCOPIA. *BY MARY JANE GIBSON*



THE 2017 HIGH TIMES HARVEST CUP kicked off on a reasonably cool Saturday morning in San Bernardino, California. The desert climate of the Inland Empire, a sprawling metropolitan area an hour east of Los Angeles, can be perilously hot at times. But on this day, clear blue skies and a cool breeze greeted the long lines of excited festivalgoers at the gates of the National Orange Show Events Center. It was November 11—Veterans Day.

Thousands of servicemen and women across the country seek relief from depression, anxiety, post-traumatic stress disorder (PTSD) and other conditions using medical cannabis. On this Veterans Day, many US military members were queued up to get into the event. A special area was set up for them by Weed for Warriors, an advocacy group that provides medical cannabis to veterans free of charge. The tented lounge contained plenty of comfortable seating, snacks and a hydration station. Veterans settled in to share their stashes, medicate and swap stories of how cannabis is helping them heal.



Free samples were flying from the LA Kush booth all weekend.



Let there be no confusion...



A little slice of heavenly shatter



Just past the veterans lounge, in the retro-futuristic Dome building, seminars on the hottest topics in the world of weed took place all weekend long. Saturday's seminar lineup included *HT* senior cultivation editor Danny Danko's ever-popular "Free Weed! How to Grow Cannabis Cup-Winning Pot at Home," financial advisor Jeff Siegel offering tips on how to invest in cannabis, legendary artists Alex and Allyson Grey explaining their visionary Cannabis Cup design and a panel of topicals mavens discussing marijuana in cosmetics. On Sunday, folks came to hear attorney Stefan Borst-Censullo discuss "Going Legal in 2018: What to Expect in California" and to listen to a talk on creating cannabis content for the digital age from producer Ryan Howard, who's partnering with rising cannabis comedy star Mike Glazer to make awesome things like the *Ganja Game Show* (keep an eye out for it in 2018!). There was also a sex-education panel called "Buds in the Bedroom." Danko wrapped up the weekend with an in-depth talk titled "Growing Big! Cultivating Craft Cannabis on a Large Scale With Kyle Kushman." Kushman is, as avid readers of *High Times* know, the original breeder of the famed Strawberry Cough, and he now has a highly sought-after line of organic nutrients, Veganics. Folks crowded in to hear the two cannabis legends discuss how to grow the world's finest flowers while still producing a heavy harvest.

SoCal-based GENXOC displays their wares.

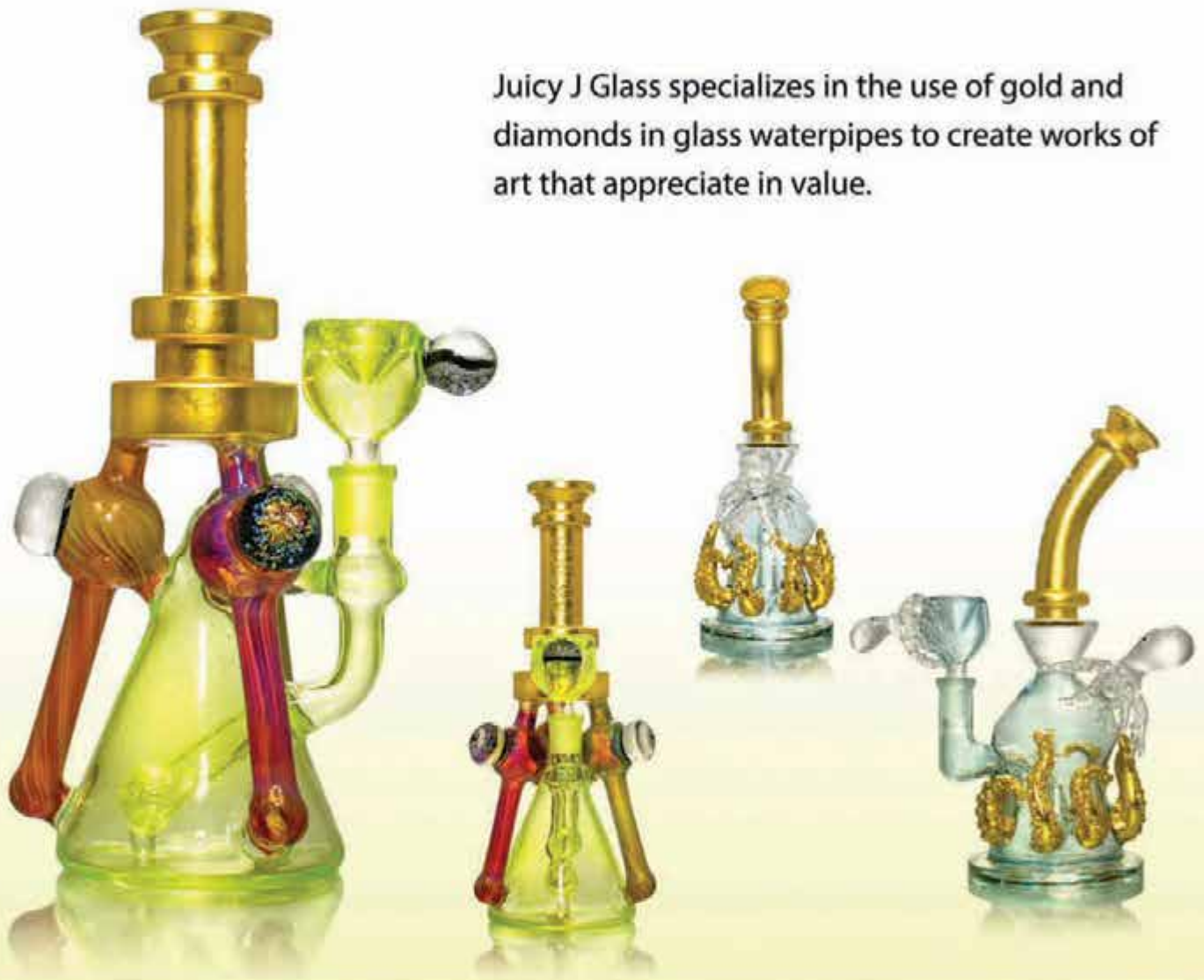


Cup designers Alex and Allyson Grey present the award for pre-rolls.



JUICY J GLASS

Juicy J Glass specializes in the use of gold and diamonds in glass waterpipes to create works of art that appreciate in value.



" I'm happy to present my new glass pieces to all my stoners. This is such a accomplishment for me and I'm happy that I can share something of quality with everyone. " - Juicy J

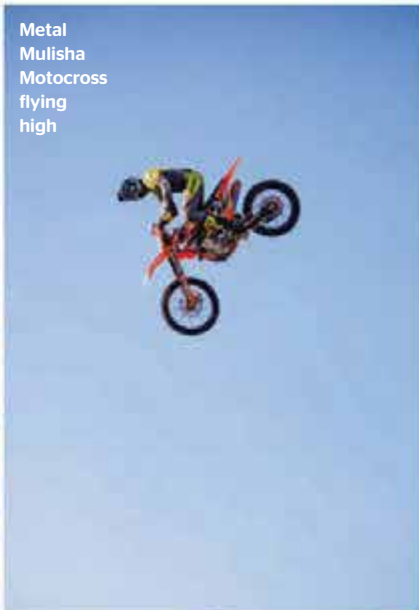
A stylized, handwritten signature of Juicy J in white ink.



Happiness is...



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Nestled next to the seminars stage, the Magical Butter Edibles Village played host to the now-famous Top Cannabis Chef Cook-Off competition. All weekend long, chef Brandon Allen (who won Top Cannabis Chef at the April 2017 SoCal Cup) presided over skilled cooks working to beat the clock, and each other, presenting their best weed-infused dishes to a panel of celeb judges. Chefs battled in a bracket-style competition of eight rounds, getting down to two semifinal rounds on Sunday and then the high-octane, head-to-head final at 4:20 that afternoon. Chef Mike Moya was declared the winner, taking home a beautiful glass trophy—and bragging rights for the rest of his life!

Getting a
noseful of the
dankest nug
s around



Chefs Joey
and Brandon
Allen with Top
Cannabis Chef
winner Mike
Moya

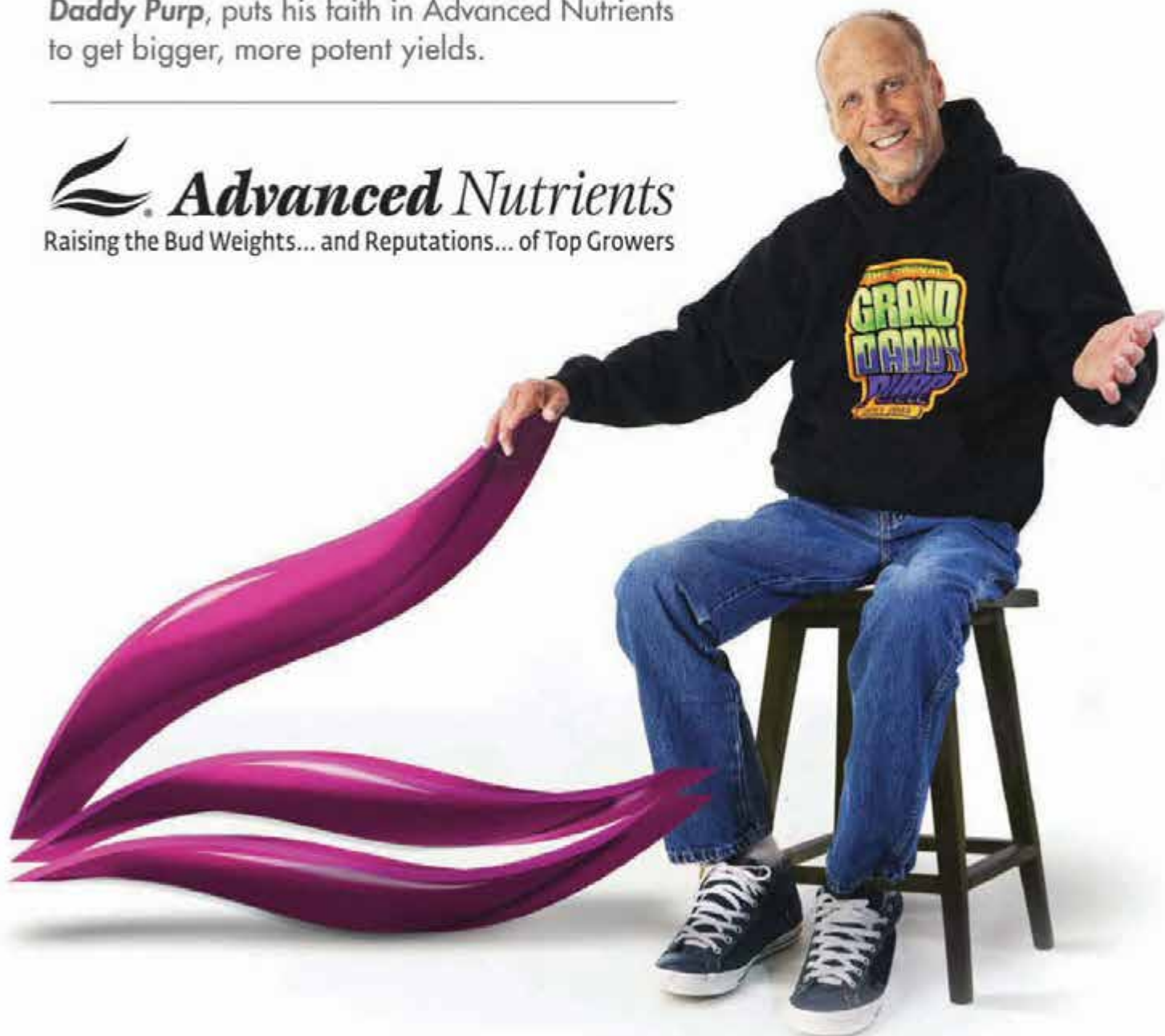


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The Harvest Cup musical lineup drew a massive crowd.



Berner offered up free weed!



Woven throughout the weed-filled weekend were the sounds of what just might be the best lineup at a *High Times* event to date. Bay Area weed rapper Berner sat down with *High Times* before taking the stage to chat about his love for good ganja genetics and what cannabis legalization will mean for his brand, in both buds and beats. The inimitable George Clinton shared his love for marijuana with the crowd, backed by Parliament-Funkadelic taking it to the next level as always. Vin Rock and DJ Kay Gee from Naughty by Nature had us cracking up in their interview on the tour bus before their performance, rapping, "You down with CBD? (Yeah, you know me!)." DMX killed his set like the OG badass he is. Lil Dicky made his first Cannabis Cup appearance, to the delight of many. Ty Dolla \$ign lit up the stage late Saturday night, followed by a blazing set from Yo Gotti—and none other than superstar T.I. closed out the night, sending the crowd off in a happy haze, chanting, "We want smoke."

Sunday's lineup was equally dope. Wyclef fired up the crowd early, jumping down off the stage to mingle and smoke while freestyling like a boss. Bone Thugs-N-Harmony laid down fiery beats in a ruthless set. Aminé was hot on their heels, and then Flo Rida brought the whole weekend home with a glorious performance that felt just right.

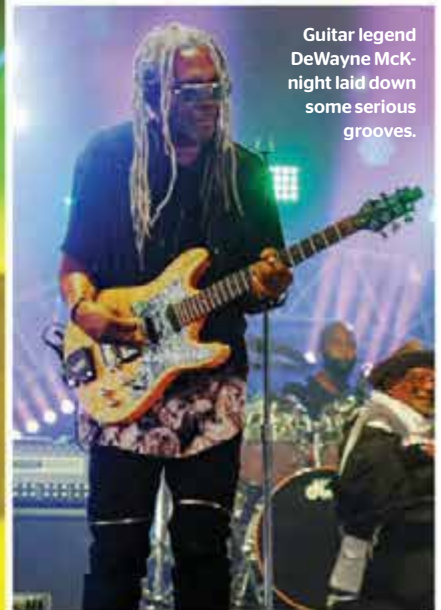
Lil Dicky spit his trademark funny rhymes.



George Clinton fired it up with Parliament-Funkadelic.



Guitar legend DeWayne McKnight laid down some serious grooves.





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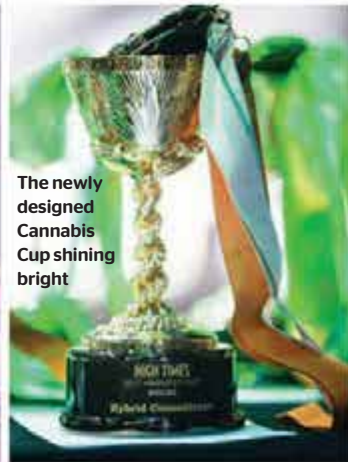
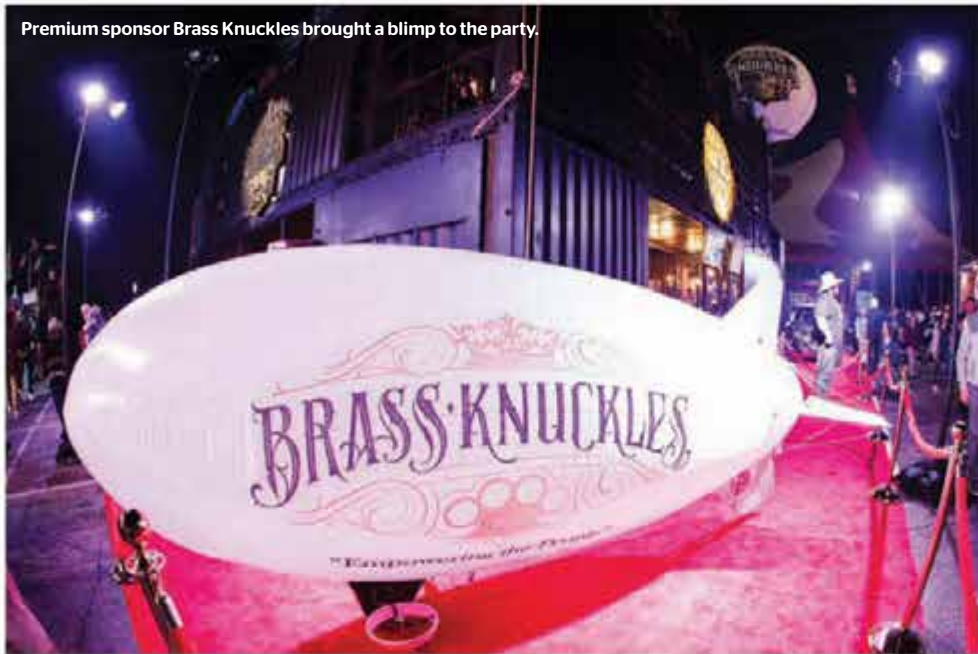
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Premium sponsor Brass Knuckles brought a blimp to the party.



The newly designed Cannabis Cup shining bright

THERE WAS SOMETHING AT THE HARVEST CUP FOR EVERY TYPE OF CANNABIS CONSUMER.

Before the music started on Sunday, the awards show drew an eager crowd of growers, extract artists, and topicals and edibles makers and other marijuana mavens to see who would receive the highest honor in the cannabis industry—the coveted Cup itself. High Times rolled out new categories at the Harvest Cup to include sun-grown flowers

and pre-rolls—see page 90 for a complete list of the winners.

From booths like those of Nameless Genetics, Green Wolf and, of course, Brass Knuckles' multi-story marvel to all of the activations (free massages from Honey Pot Topicals! Bud-trimming demos at THC Design! Rosin pressing at Rosin Tech's Solventless Experience!), there

was something at the Harvest Cup for every type of cannabis consumer. People came together to praise pot and to acknowledge that, no matter how dark and terrible the world may be right now, we can shine a light together by being kind, elevating consciousness with cannabis and working to legitimize the healing herb. Puff, puff, pass. 🌿

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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.

GROWING
EXPOSED

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► Dual Fuel by Green Planet Nutrients

CANNABIS CUP WINNERS

BEST INDICA FLOWER

1st Place: Tina by Exotic Genetics
2nd Place: Lorax OG by Lorax Labs in collaboration with Cannasutra
3rd Place: Crème de la Crème by Team Elite Genetics

BEST SATIVA FLOWER

1st Place: LemonAid by Golden State Greens (Point Loma)
2nd Place: N.T.B. Eastside Sativa by Herbal Solutions/Leaf Dr.
3rd Place: YDK Jack by Lorax Labs in collaboration with Cannasutra

BEST HYBRID FLOWER

1st Place: Cookies & Cream by Exotic Genetics
2nd Place: Sin Mint Cookies by Pearl Pharmacy and Golden State Greens
3rd Place: Peach Ozz by Team Elite Genetics

BEST SUN-GROWN

1st Place: Bananimal by Greenline
2nd Place: Zombie Fields by The Humboldt Cure
3rd Place: Lemon Kush by Wynter Farms

BEST BOOTH

1st Place: Brass Knuckles
2nd Place: California's Finest
3rd Place: THC Design

BEST INDICA CONCENTRATE

1st Place: Snoop Master Kush by Loudpack with Cannabiotix
2nd Place: Urbols OG Kush Sawce by Urbols in collaboration with Ry Pritchard & Kind Bill
3rd Place: TK 91 by Critical Concentrates, CubanGrower, Los Angeles Kush

BEST SATIVA CONCENTRATE

1st Place: Purple Tangie by Critical Concentrates, Zeinstein Gardens, Los Angeles Kush
2nd Place: Lemon Burst by Loudpack with Cannabiotix
3rd Place: Tangie Ghost Train Haze Live Resin Sugar by New Amsterdam Naturals with Gold Nugget Extracts & Crockett Family Farms

BEST HYBRID CONCENTRATE

1st Place: Strawberry Blondie by Critical Concentrates, Farmer Str8Fire, Los Angeles Kush
2nd Place: Sour Blue Candy by Loudpack with Cannabiotix
3rd Place: Mamba OG X Clementine Live Resin Sauce by New Amsterdam Naturals with Gold Nugget Extracts

BEST CBD FLOWER

1st Place: Cannatonic #4 by Herbal Solutions
2nd Place: ACDC Cookies by Brown Dog Cannabis & MedTreeSeeds
3rd Place: Sour Cyclone by Fig Farms

BEST VAPORIZER

1st Place: The 710 Life AquaDabber by 420Life.com

BEST CBD CONCENTRATE

1st Place: Goji D.C. #7 by Moxie710
2nd Place: CBD Crystalline by Ganja Gold
3rd Place: Remedy Whole Plant Live Resin by NUG

BEST EDIBLE

1st Place: Ritual Nighttime Tincture by Elite
2nd Place: Salted Almond Dark Chocolate NUG Bar by NUG
3rd Place: Cookies and Cream Cheesecake by The Huney

BEST TOPICAL

1st Place: CBD Living Freeze by CBD Living
2nd Place: Melt 1:1 Organic Pain Relief Lotion by Kush Queen
3rd Place: Prana 3:1 Nectar Balm by Advesa Wellness

BEST CBD EDIBLE

1st Place: Ritual Anytime Tincture by Elite
2nd Place: 100 mg CBD "Earthling" Green Juice by Mary Jane Juice Co.
3rd Place: Tea Pot Cranberry Orange Rooibos by Honey Pot

BEST PRODUCT

1st Place: Double Barrel Vape - King Pen
2nd Place: Gelato - California's Finest
3rd Place: Natural Leaf Tubes by King Palm

BEST VAPE PEN CARTRIDGES

1st Place: hmbldt bliss dose pen 50 by hmbldt
2nd Place: Pineapple OG Vape Cart by WNTY3
3rd Place: Skywalker OG by STIIIZY

BEST MEDICALLY INFUSED PRODUCT

1st Place: Blondie Plus by Critical Concentrates
2nd Place: Lemon Rock by Got Meds
3rd Place: Sour Banana Sherbet X Garlic Animal Cookies Live Blend by Exclusive Melts X The Humboldt Cure

BEST NON-SOLVENT HASH

1st Place: Candy Nova Flower Rosin by Team Elite Genetics in collaboration with Jonny Proper
2nd Place: Purple Pebbles Live Rosin by Herbal Solutions/Superior Flowers/Loyalty Extracts
3rd Place: Milk & Cookies Dry Sift Rosin Wax by Exotic Genetics

BEST PRE-ROLL

1st Place: OG Story Lift Ticket PreRoll in collaboration with Unregistrd Extracts, powered by Cali Kush Farms, presented by Greenwolf LA
2nd Place: Galaxy Lemon Lime by Kings Coast
3rd Place: The Twax Joint SFV Flower x Blood Orange Kush Live Resin by Emerald Family Farms/Humboldt Standard/She Smokes Joints

BEST GLASS

1st Place: LA Kush
2nd Place: Gold Drop
3rd Place: Rosin Tech



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*Corey Buffkin - Greenman Cannabis Facility
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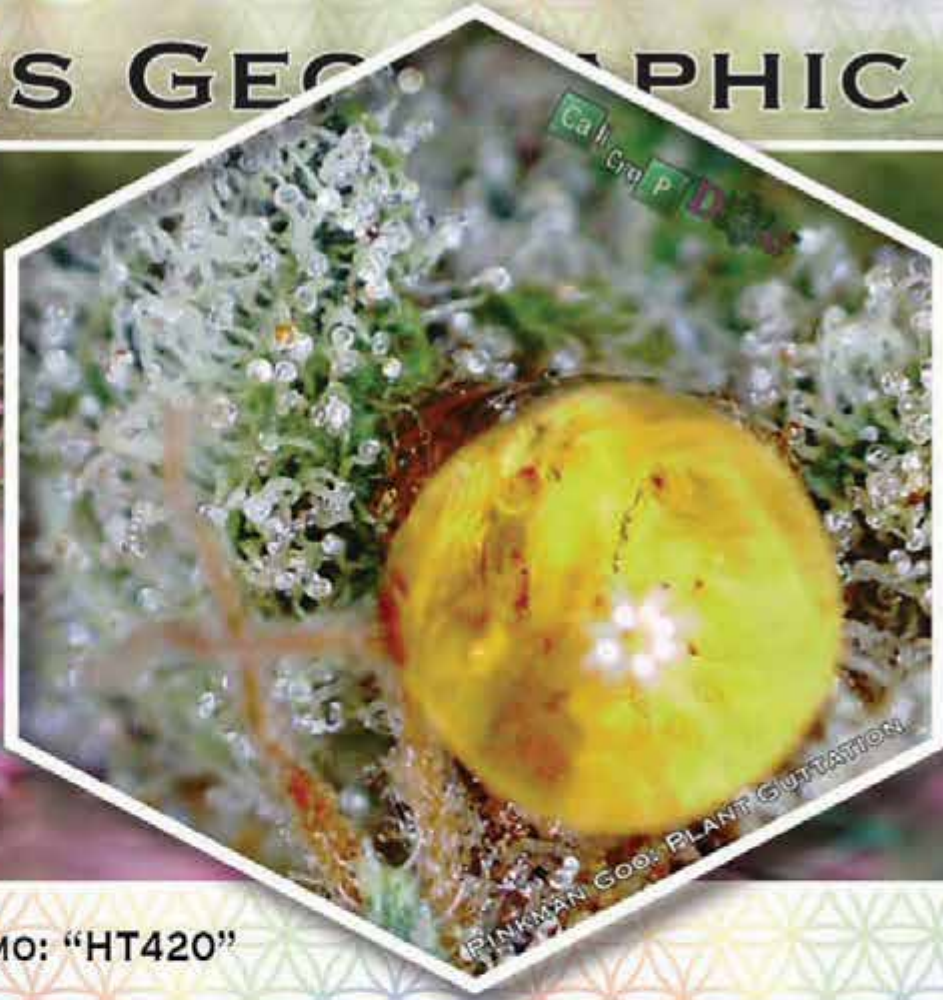
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CANNABIS EQUALITY

THE GREEN REVOLUTION OFFERS A BOUNTY OF OPPORTUNITIES. WILL PEOPLE OF COLOR GET A SEAT AT THE TABLE? BY MIKE DIPAOLA

THE US MARIJUANA industry, despite the forces of evil in Washington that would destroy it, has become a booming, multibillion-dollar player in the economy. Soon, eight states will be fully legalized—not to mention Washington, DC, itself—and there are more on the way. With cannabis production and distribution morphing into a nationwide enterprise, opportunities abound in the green revolution. But before we celebrate, we need to confront a genuine concern: Will people of color and other minorities be left on the outside of the cannabis economy looking in?

It is estimated that only around 1 percent of legal cannabis businesses are owned or operated by minorities. The barriers that prevent inclusion are deeply ingrained—one might say they

are systemic—and overcoming them is a formidable challenge. Fortunately, there are groups dedicated to the proposition that, while all men (and women) are created equal, there is work to be done to truly level the playing field of green that is expanding before our eyes.

The War on Drugs has been a racist enterprise from the beginning, punctuated by a rogues' gallery of creeps from Harry Anslinger to Richard Nixon to Jeff Sessions. Drug-law enforcement has always targeted minorities, even though we've known for a long time that drug usage is fairly equal across ethnic groups. The result has been the rise of a racist carceral state that destroys lives, families and entire communities. It would be a terrible irony if the green revolution does not mature into an inclusive enterprise that redresses, to the extent that it can,

the inequities that defined prohibition.

We sometimes forget that, while the legal weed market creates jobs, it also erases them. "We have to consider the fact we're taking jobs away from these folks on the street who have been arrested," says Kayvan Khalatbari, a Minority Cannabis Business Association (MCBA) board member (and, as it happens, a High Times Holding Corp. shareholder). "They're having trouble with more traditional jobs, employment, housing, things like that. Now we've taken away their jobs of selling cannabis and we're not giving them an opportunity to participate in the regulated industry?"

Because racial biases are so often an emergent property of a free market, affirmative action to address discriminatory practices is usually driven from nonprofit interests, such as the MCBA,

whose mission is “to create equal access and economic empowerment for cannabis businesses, their patients and the communities most affected by the war on drugs.”

Proposition 64, the California initiative that ushered in the adult-use era in the Golden State, at least acknowledges the racial disparities that are attendant to the War on Drugs. While drug use is fairly uniform across racial lines, for *some* reason people of color are arrested and convicted at higher rates than white offenders. Provisions in Prop. 64 are intended to reduce the sentences of pot-law violators retroactively to 1996, when the state made medical pot legal. California cities are developing their own plans to be more inclusive, and less punitive.

Los Angeles, which will soon become the largest recreational-cannabis market in the world, is working on regulations intended to mitigate the blatantly racist effects of the Drug War.

“For so long, people that were black, people that were Latino, we have paid the price for this business,” City Council President Herb Wesson told the *Los Angeles Times* after a recent community forum in Watts. “And as we move this into the legal realm, it is important to us that we have a piece of the action.”

Because local governments in the Golden State are prohibited from giving preferential treatment based on race or ethnicity, mitigation efforts have to be framed as a means to address poverty and to assist the victims of the failed War on Drugs. The proposed LA regulations would help the poor who were convicted of nonviolent cannabis crimes and their families, as well as those who simply live in neighborhoods that had been slammed by marijuana arrests. The city will also dangle incentives in front of well-off cannabis businesses, offering tax rebates when they help out disadvantaged entrepreneurs.

San Francisco is also sorting out its regulations—in particular, a way to incorporate an equity program that will foster inclusion—in anticipation of the recreational market, but it is doubtful they will be codified by January 1, when Prop. 64 takes effect. City Supervisor Jeff Sheehy introduced a legislative proposal in September, and even he said “it needs more work.” The city is looking east, across the bay to Oakland, for guidance.

Oakland politicians looked at a number of possible equity plans before deciding to set aside half of the city’s permits for low-income residents (people who earn less than 80 percent of the local



The Hood Incubator's Lanese Martin

“WITHOUT OUR INTERFERENCE, WITHOUT OUR DISRUPTION, THE LEGALIZATION COULD TURN INTO THE RE-CRIMINALIZATION OF BLACK AND BROWN COMMUNITIES.”

median income) who had been convicted of a minor weed offense or had lived at least 10 years in a neighborhood targeted for drug enforcement. While Oakland is the first in the state to develop an equity plan, San Francisco might build on it to make it even more inclusive—perhaps by using cannabis tax revenue to bolster communities hit by the Drug War, or by requiring every cannabis business to submit equity plans of their own.

Beyond the municipal government initiatives, groups like the Hood Incubator (hoodincubator.org) are dedicated to helping “underground cannabis entrepreneurs” make the transition to legal markets. We caught up with Hood Incubator co-founder and political director Lanese Martin at a recent New West Summit in downtown Oakland. Martin, an intense and energetic woman who does not suffer fools gladly, says disparities in legal cannabis have their roots in a market that was illegal not so long ago.

“Because of the War on Drugs, black folks, unlike white folks, weren’t creating business plans, keeping receipts, putting on suits or going to their elected officials to lobby,” Martin declares. “We were still keeping in the shadows and hoping not to be persecuted and sought out by law enforcement, so we’re a little bit behind in the areas of mature businesses. But we’re not behind in having customers or in innovation in product development, so we need to capture that, and community organizing is key.”

Martin believes that some regulations

within legalized regimes unfairly target people of color. For example, a jurisdiction that bans smoking or vaping in public housing in effect limits safe places for black and brown people to consume. “Without our interference, without our disruption, the legalization could turn into the re-criminalization of black and brown communities,” Martin says. “Or, a sexier way of putting it, the War on Drugs 2.0.”

For many, step one in the transition into the legal marijuana trade is expungement, the erasing of a criminal record in places where the original offense—selling weed without hurting anybody—is no longer considered a crime. The MCBA (minoritycannabis.org) has been conducting expungement clinics across the country—in Seattle, Los Angeles and Portland, OR, with Denver and the East Coast scheduled for their own soon—with help from local law firms. A typical clinic will see a pool of potential applicants prescreened to see if they qualify for expungement, then paired with lawyers to guide them through the paperwork. The legal help is usually free or at reduced rate, and the various fees are paid by sponsors. “A lot of people don’t know they can expunge,” says the MCBA’s Khalatbari, “and it’s very expensive.”

The ideal expungement erases the original “crime,” with associated fines or penalties rescinded, and the expungement itself even expunged. One of the incidental side benefits of the green revolution, done properly, is that it can at least mitigate some of the injustices done in the name of the War on Drugs.

Supernova Women (supernovawomen.wordpress.com) is another East Bay nonprofit dedicated to fostering inclusion in the cannabis industry, or as the group puts it, “to empower our people to become self-sufficient shareholders in the evolving cannabis economy.” Not content merely to take on systemic racism, Supernova battles sexism at every turn as well. Among other things, the group hosts panel discussions that bring people together to explore what the cannabis world is like for people of color, “a safe space for hard conversations.”

“Let’s say you’re a manufacturer or cultivator trying to sell your product,” says Supernova co-founder Amber Senter, “you’re going to be dealing with white buyers, probably a man, and there’s sometimes issues. There’s definitely a good-old-boy network that happens just naturally in every industry, and cannabis is no exception. You’ve got to figure out how to kind of break into that.”

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Senter says such blunt talk does not always sit well with everyone in attendance. “During the Q&A, a white gentleman in the audience stands up and says, ‘You know, you guys gotta lose this us-versus-them mentality. We’re just trying to help.’” Senter shakes her head. “Some people can’t stand hearing what we’re saying because they take it as a personal attack.”

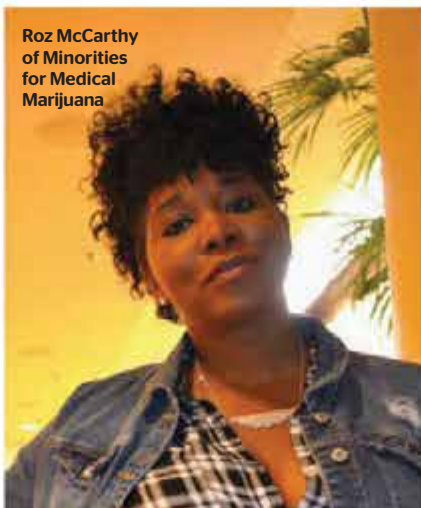
When asked about fostering minority inclusion in the cannabis economy, a white male cannabis business owner in Oakland offered an anonymous response that was indicative of a certain mindset. He thought it was wrong to push for diversity, because affirmative action that favored minorities would distill the talent pool with people who might not be as qualified as those left out. He was not a fan of expunging criminal records of former weed dealers either. “Do we really want criminals in this business?”

There’s a lot of myopia in these sentiments. It is the cannabis-space equivalent of declaring that “all lives matter” as a retort to the harsh reality that people of color are disproportionately the victims of police brutality. The most charitable interpretation one can muster is that such people mean well, perhaps.

Roz McCarthy is the founder and executive director of Minorities for Medical Marijuana (*minorities4medicalmarijuana.org*), an Orlando-based nonprofit that promotes diversity in cannabis through outreach and education. She says the stigma of marijuana in the black community, in particular as it affects her 19-year-old with sickle-cell disease, inspired her to act. “He’s an African-American young man who, if he uses cannabis, could be labeled lazy or a drug offender or something of that nature. He’s not. He’s just a kid who has a medical condition who can benefit from cannabis, and that’s why I founded the organization.”

That stigma is ever-present, even as McCarthy brings a message of economic opportunity to the black community. “One thing we’re trying to teach people of color: You don’t have to touch the plant to thrive in this industry. Those ancillary services—accounting, marketing, what have you—create opportunities. Tap into your passion because there’s a need.”

While advocacy organizations are new to the scene, they are proving to be invaluable, since it is no easy matter to simply legislate our way out of racial disparities in the marketplace. Witness Florida, which earmarked one of its 10 new medical-pot grow licenses



Roz McCarthy
of Minorities
for Medical
Marijuana

“ONE THING WE’RE TRYING TO TEACH PEOPLE OF COLOR: YOU DON’T HAVE TO TOUCH THE PLANT TO THRIVE IN THIS INDUSTRY.”

for an African-American farmer. The state stipulated that the farmer had to be a member of the Black Farmers and Agriculturalists Association, but that restriction has cut out the many unaffiliated growers from contention, including Columbus Smith, a farmer from Panama City, who is suing the state. Per the lawsuit, “There is no rational basis for limiting the opportunity of black farmers to obtain a medical marijuana license to only the few members of that class of black farmers who are also members of a specific private association.”

Other states are grappling with the issue of equity with varying degrees of success. Maryland’s medical-pot rollout promised, by law, to seek “racial, ethnic and geographical diversity” in awarding the first 15 cultivation licenses in 2016, but in the end, none of the approved applications were from African-American owners. The state’s Legislative Black Caucus is pressing the General Assembly to pass a bill that expands the medical-cannabis industry to include African-American firms. A bill prepared by the caucus chairwoman is slated to be introduced on the first day the Assembly reconvenes, January 10.

Ohio requires that at least 15 percent of its licenses go to economically disadvantaged minority groups—blacks, Hispanics, Asians or Native Americans—but it remains to be seen how well these groups are ultimately represented or even whether the requirement itself will withstand legal challenges.

Things do not look great in Pennsylvania,

where black people are arrested for weed violations at about *eight* times the rate that whites are, according to a recent report by that state’s branch of the American Civil Liberties Union. The ACLU is calling for full legalization to address this inequity, and the state’s Democratic Party recently adopted this position on its platform. Presently, the Keystone State has a limited medical-pot program set to launch in early 2018. Twelve firms won permits to grow and, although the state was the first in the nation to include a diversity requirement, African-American-owned grows did not score high enough to win a spot at the table. Since application costs reached as high as \$750,000 each—for fees, attorneys, consultants, architects and so on—one can see how exclusion of disadvantaged groups is baked into the process.

Massachusetts looks to bring people into the nascent legal market who have been disproportionately harmed by drug enforcement. To address financial and other barriers to cannabis business ownership, Boston City Councilwoman Ayanna Pressley has drafted legislation (in collaboration with the MCBA) that would direct 20 percent of unexpended revenue from weed taxes to equity programs. “If you say you are committed to addressing the growing wealth gap and income inequality, we have to ensure equity in enterprise and ownership,” Pressley told Boston Public Radio. “This is an opportunity for us to establish a blueprint.”

One way for consumers to support minority businesses is to buy their products. There are organizations that track black-owned enterprises, such as *shoppeblack.us*, which has featured cannabis professionals worthy of attention and sponsorship. Because of the way information is shared these days, consumers can easily research whom they want to do business with.

There’s another way to be part of the solution. “If you see something, say something,” advises the MCBA’s Khalatbari. In other words, when you attend a cannabis conference or a public panel or any weed-themed gathering, and you notice that the participants or positions of leadership are overwhelmingly, uh, monochromatic, start the conversation.

It is encouraging to see support—from activists, voters and (some) legislators—for a more inclusive cannabis space. There’s no guarantee that a mature industry will be as diverse as it could be (as diverse as the country itself, for example), but with a little oversight and vigilance, we can set the path in that direction. ✨

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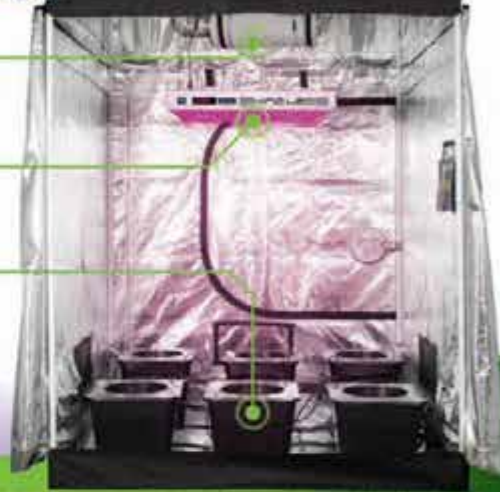
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By KYLE EUSTICE

VIC MENSA

THE HIGHTIMES INTERVIEW

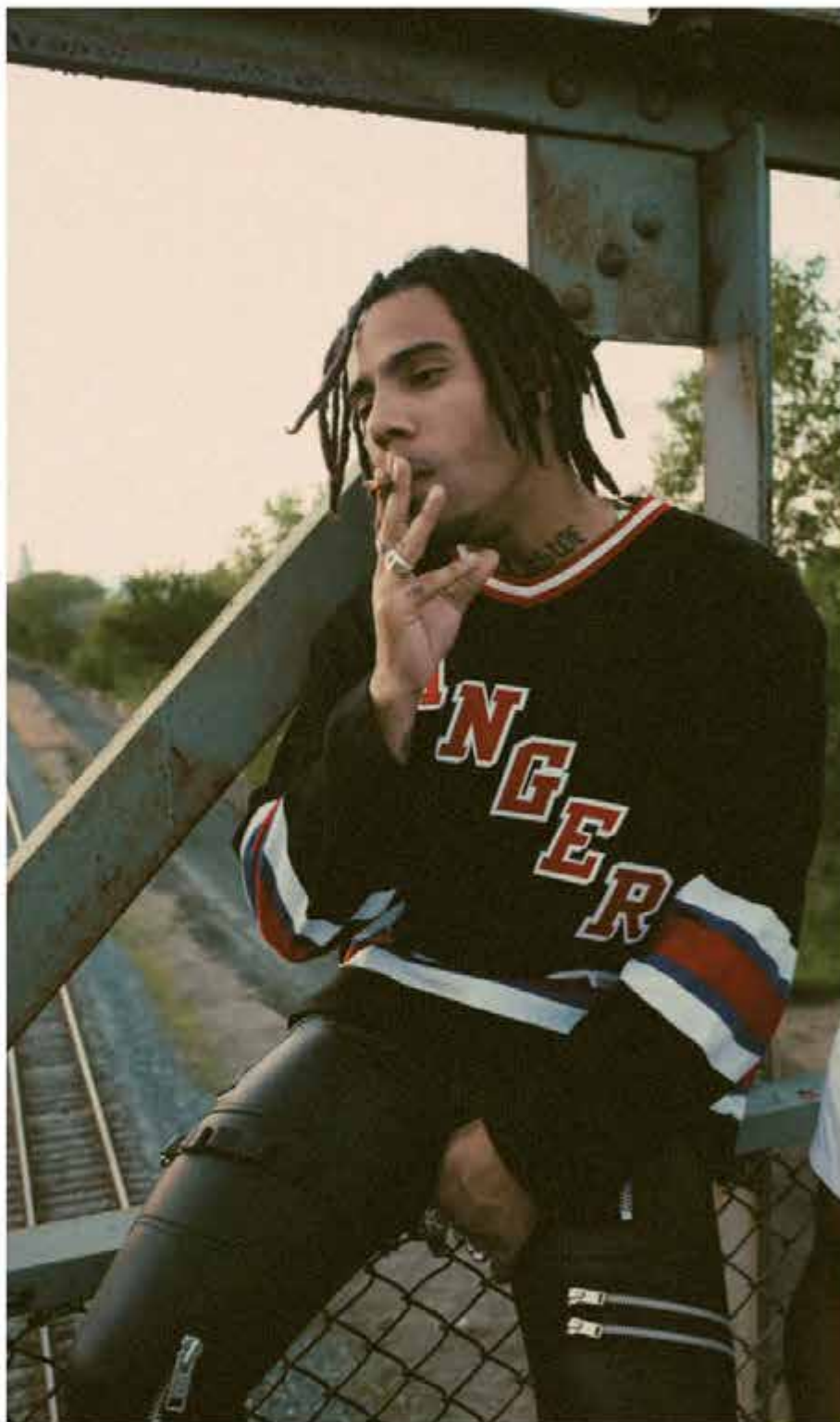
VIC MENSA SOUNDS SLIGHTLY DISAPPOINTED WHEN HE GETS ON THE PHONE. HE'S AT A RANDOM GAS STATION SOMEWHERE IN THE MIDDLE OF FLORIDA, AND ALL HE WANTS IS A DECENT CUP OF COFFEE AND SOME HEALTHY FOOD. BUT THAT'S NOT GOING TO HAPPEN. THE CHICAGO RAPPER, WHO'S CURRENTLY ON TOUR IN SUPPORT OF HIS ROC NATION DEBUT *THE AUTOBIOGRAPHY*, HAS ONE OPTION—FAST FOOD.

THE SMALL SACRIFICES ARE WORTH IT, THOUGH, AND IT'S SAFE TO ASSUME THE INTELLIGENT, POLITICALLY OUTSPOKEN ARTIST KNOWS THESE ARE TEMPORARY FIRST-WORLD PROBLEMS. THE BIRACIAL 24-YEAR-OLD GREW UP ON THE SOUTH SIDE OF CHICAGO IN ONE OF THE MOST RACIALLY DIVERSE AND AFFLUENT (YET UNPREDICTABLE) NEIGHBORHOODS IN THE CITY—HYDE PARK. MENSA'S EXPERIENCED THE COMPLEXITIES OF THE URBAN TRENCHES, WHERE CRIME, VIOLENCE AND POVERTY RUN RAMPANT.

THROUGHOUT HIS MUSICAL CATALOG, WHICH BEGINS WITH 2010'S *STRAIGHT UP* EP, MENSA TACKLES TOPICS THAT TEND TO FALL INTO THE DARK ABYSS OF TRAGEDY, MENTAL ILLNESS AND DRUG ABUSE, SOMETHING HE EXPLORES FURTHER ON *THE AUTOBIOGRAPHY*.

ON ONE OF THE ALBUM'S SINGLES, "ROLLIN' LIKE A STONER," MENSA RAPS, "ROLLIN' LIKE A STONER, I DON'T CARE ABOUT EVERYTHING / OUT OF CONTROL, I FORGOT TO TAKE MY MEDICINE / IF I TAKE THIS PILL, WILL THAT BE DEATH OF ME? / I AM A DISASTER, I DON'T NEED A RECIPE / TRIED TO BE SOBER, THAT DIDN'T WORK FOR ME"—A GLIMPSE INTO THE INNER STRUGGLES HE WRESTLES WITH ON A CONSISTENT BASIS.

LIKE A LOT OF CREATIVE SOULS, MENSA HAS FOUND THAT MUSIC ALWAYS PROVIDES MOMENTARY PERIODS OF RESPITE FROM THE MENTAL CHALLENGES THAT OFTEN ACCOMPANY BEING AN ARTIST. *HIGH TIMES* GOT TO CHOP IT UP WITH MENSA ABOUT HIS COMPLEX RELATIONSHIP WITH DRUGS, RACIAL TENSION IN AMERICA, AND WHY THERAPY IN THE HOOD IS IMPORTANT.



Hi, Vic. How are you doing?

I'm good. I'm on the road right now. I just jumped out of the bed—just now—and I'm about to get some iced coffee at Wendy's. And I don't even fuck with none of that type of shit. I'm not one of these guys, but I don't have too many options, so...

I saw your recent interview with "The Breakfast Club," and you had a Starbucks cup—

Yeah, I definitely fuck with coffee, but not like the fucking canned Starbucks shit out the gas station.

No, you need the real stuff.

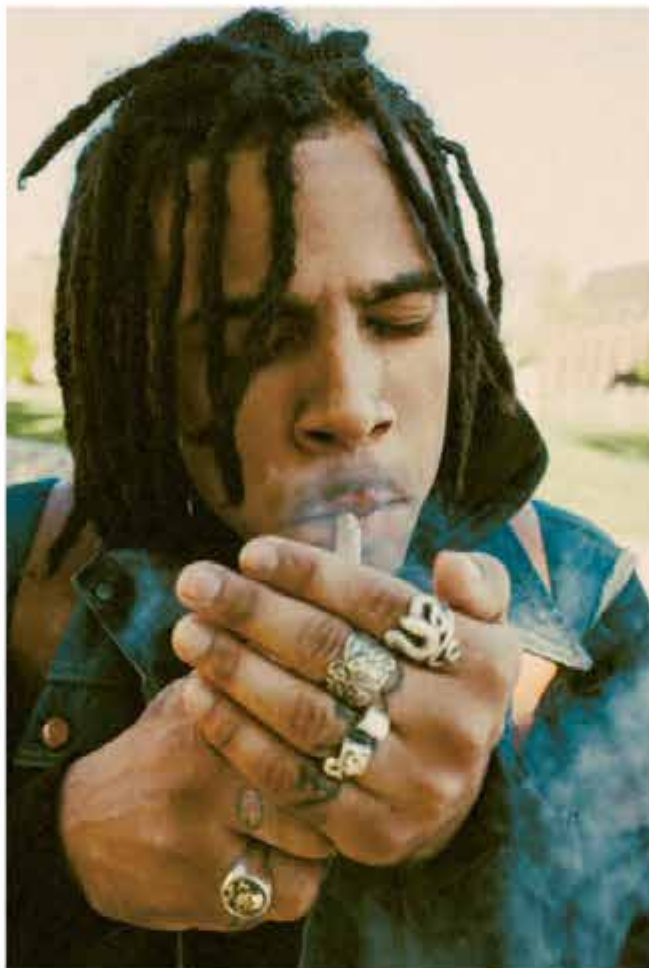
I mean, there's not options over here. This is what it is, though. I'm literally at a gas station connected to a Wendy's.

I was curious about your relationship to drugs and alcohol right now. There's a line in "Rollin' Like a Stoner" where you say, "Tried to be sober, that didn't work for me." Is this something that you've been wrestling with for a long time?

Yeah, you know, I think that I kind of phase in and out. I really was writing that song about a point in time in my life, for the most part. I was fucking with a lot of drugs. I went sober and then I'd do hard drugs some time ago. But I still bounce back sometimes. It's always something that I lean on—whether it's weed or tobacco or alcohol or anything like that, so I took some pills and, you know, some harder drugs. I find that, very often, I could associate heavily with some type of external substance, but I'm working on that.

Do you think that more artists should speak honestly about drugs and alcohol rather than glamorizing it?

I think that'd be a good idea. I mean, considering how the nation is really grappling with this whole opioid situation. I do think that



"AMERICANS ARE DEALING WITH ADDICTION IN A MAJOR WAY AND HAVING TO ADJUST. AND I WANTED TO ADDRESS THAT HONESTLY AND CANDIDLY ON MY ALBUM."

shedding some honest light on drug use is important. I also wanna say that in the media, we see manipulation is a powerful machine. I want to point out how much of a double standard it is that this opioid crisis is considered an epidemic—when crack was wiping out black people in poor communities, there was a war on drugs.

Right, yeah.

Now it's a medical crisis because it's killing more white people. I just wanted to point that out, but I just think that regardless of the inherent race constructions that exist,

Americans, regardless of ethnic backgrounds, are dealing with addiction in a major way and having to adjust... And I wanted to address that honestly and candidly on my album. Because it's a part of my life.

That's essentially why you titled your new album *The Autobiography*, right? It's very personal. In a recent interview you did, you were talking about how people don't just wake up and go, "Everything's great, let me take some Percocet and drink some lean" or whatever.

Right. Like there's this sense of escapism.

So what do you think people are trying to escape from all the time?

Let me take a minute. I got to think about that right quick while I order these chicken tenders. [Laughs] I am thinking, though. Well, I would say that black people in Missouri and inner-city communities, their trauma is endless, and there's a generational conflict. Black people carry the trauma of being ripped from Africa as slaves, and scientifically those anxieties are passed down through generations. I mean, you got a lot of people dealing with PTSD. Like I remember recently, Fredo Santana from Chicago opened up about his drug abuse, and he's been having seizures and been hospitalized a lot recently. He had kidney failure or liver failure—one of those—from drinking so much lean and so much backwoods [blunts] all the time, and he was like, "Yo, I'm like trying to forget about all the things that I did and the things that happened to me in the streets." He's like, "I have PTSD." A lot of people I know, virtually every one of my close friends, the vast majority of them, they all watched one of our friends be stabbed to death in front of them.

Wow.

A lot of people—I won't say most—but a lot of people, a lot of youngins growing up in the hood, they witness death and despair firsthand. People's mothers are strung out on crack, you know? Or people's best friends. And we're losing people to gun violence. We've all lost people—a lot of people—and we're trying to deal with that trauma often through external substances. In addition to the fact that you got the pain of being made to feel less than by society. Black kids are suspended and expelled at a rate that's astronomically higher than those of any other race in schools. You're told from a young age that you're bad and that you're



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"IMAGINE BEING A BLACK PERSON AND WATCHING PHILANDO CASTILE BLEED TO DEATH IN THAT CAR NEXT TO HIS BABY MAMA AND A CHILD... THESE THINGS ARE TRAUMATIC."

an issue. I mean, we're watching people in the streets get shot down by police on a daily basis.

It seems like it's totally out of control.

Okay, think about the need to kind of campaign what's happening online right now with victims of sexual assault and sexual abuse.

Like with Harvey Weinstein? It's crazy.

Women everywhere are being triggered by that, you know? I've spoken to a lot of women and people close to me that kind of have been pushed into the face of mental unwellness. They're really being really triggered by this, just, wave of people coming forward about sexual assault. Imagine being—well, I don't know what imagery you want, but imagine being a black person and watching Philando Castile bleed to death in that car next to his baby mama and a child, or watching Tamir Rice be shot.

Right.

Or watching Laquan McDonald be shot. These things are traumatic. Not only for the person being killed and the

immediate families, but everybody that realizes that this could be me or this could've been someone I loved or maybe this has been someone I love, you know? The trauma is endless is what I'm trying to get at. Especially in the black community, addressing mental health is very taboo for a number of reasons.

One of the primary reasons being that there's a classic archetype of a crazy black man or crazy black woman that has been used to divide and destroy black people. If you read Malcolm X's autobiography, he tells the story of how after his father was killed by the Ku Klux Klan, the social workers ripped apart his family and stripped the children from his mother by labeling her as being crazy. She didn't want them to... or she didn't have them eat pork, so even though they were poor, they were rejecting pork, which the social workers jumped on to say, "She's crazy." And one by one, they stripped the kids from her and she ended up in a mental asylum.

Right. So, because she was struggling financially and refused free food, they thought she was nuts.

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Exactly. So we have these classic categorizations that have been used to demean and dehumanize you, like it's understandable that black people stay away from addressing mental health because nobody wants to be in that box.

It's starting to change, though. I think that stigma is starting to lift, and I've been really encouraged by that too.

I think so too, yeah.

You've addressed depression and things like that in some of your interviews, and it's so important. A lot of fans out there routinely elevate these artists to the status of superhuman, and so when you come down to this vulnerable level, it really helps. It spreads awareness and gets the message out there that it's okay to admit you have a problem.

Yeah, I 100 percent think that the stigma is lessening, but it still needs to be introduced in a major way. You know what I'm saying? We doing Wall Street, and everybody and their family of CEOs sees a therapist. Everybody down to the dog, you know? But I don't know one—not a family, not an individual—not one lady from the hood that sees a therapist.

Damn. I think I see one every week.

I talk to my therapist all the time. But I think this is something that people need to understand. This shit's not free right there. It's not in school. There aren't therapists in public high schools in the inner city of Chicago. I mean, there's not even music teachers.

That's crazy.

There's not even a traveling therapist in a school once a week. It's like there's not one person in the hood that's seeing that. It's not an affordable thing. So I think that addressing mental health should be something that should be subsidized and a part of health care. I think all that shit should be free for Americans, especially when they're seeing how people are escaping through these drugs and destroying their lives.

I also wanted to get your comments on fellow rapper Meek Mill and his recent two-to-four-year prison sentence. The sentence that he got is so insane, and I wanted to get your thoughts on why you think the judge decided to give him such a stiff punishment for probation violations.

The powers that be want Meek Mill

"THAT'S A COMMON FUNCTION OF NEOCOLONIALISM. THE COLONIZED AND THE OPPRESSED WILL BEGIN TO IDENTIFY WITH THE OPPRESSORS."

to be a slave of the state. Point blank, period. Let's not forget that a fat cat in a tall building gets paid off of every inmate in many situations. There are still privatized prisons all over this country. There is prison labor being used to produce everything from Starbucks cups to pens and pencils, you know what I mean? It's slave labor, you know what I'm saying? And they want Meek Mill as a ward of the state, and what's even more convoluted about it is that the judge is a black woman. But it's not new. That's a common function of neocolonialism. The colonized and the oppressed will begin to identify with the oppressors. That's just classic Stockholm-syndrome-type shit, but it is twisted.

They should appeal the conviction and reconsider because it doesn't make any sense.

Yeah, they'll definitely appeal.

I wanted to just touch on your taste in music. You started listening to, like, Prince and Nirvana and rock early on, and then kind of got into hip-hop later?

Yeah, exactly.

And then you got to fill in for Del the Funky Homosapien when performing with Gorillaz. What was that moment like, stepping into that role?

Oh, with the Gorillaz? Yeah, I love the Gorillaz. I think the Gorillaz are one of the best examples of the hip-hop genre bending pop, going major. That was amazing. Damon [Albarn] is a genius.

Was it intimidating working with him at all?

No, he's really cool. After getting to know him, he's interesting.

He's really welcoming of the younger generations. I think it's really awesome that he's kind of open to working with all types of different MCs and stuff.

Yeah, me too. That's cool. ✨

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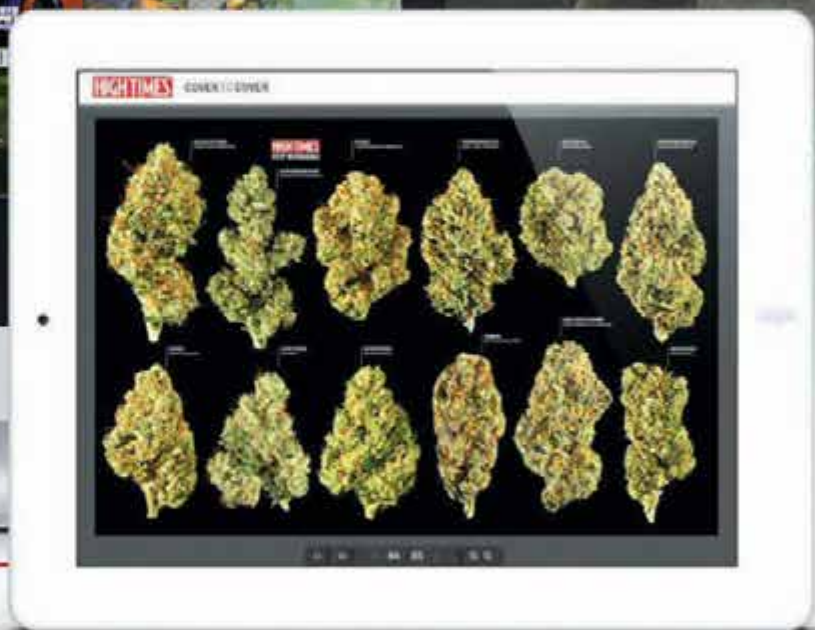
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SUBJECT: **Backyard Growing**

FROM: **Elliot**

🌿 What can you suggest to get a good outdoor backyard grow started and to maximize the yield?

Dear Elliot,

The key to maximizing the yield of an outdoor backyard grow is to plan carefully, start early and make sure the plant gets enough light throughout its life. Planning means making sure your backyard is secure and safe to grow in and won't arouse suspicion or unwanted attention. Stealth is important, even in a legal medical growing situation.

The next step is to start early. Plant seeds indoors under grow lights in mid- to late winter and give them a chance to grow into nice-size vegetative bushes before even placing them outdoors in the spring. This is also the time to prune them in order to keep them short and stocky and produce more branches and tops.

Find a planting spot in your yard that gets plenty of direct sunlight throughout the day and the growing seasons (from spring into summer and ending in the late fall). The tree that isn't in the way right now might reduce your sunlight drastically come autumn.

Dig out as big of a hole as you can and fill it with good store-bought organic soil and whatever amendments you wish to use (I recommend compost, greensand and some seabird guano). Make sure it's light and airy and keep it well watered. Trellising outdoor plants this size is a must, so get yourself some form of framework such as chicken wire. Each fallen branch represents a significant amount of pot, so ensure that they all stay standing.

Danko Tip: If water pools on top of your soil mix, add a drop of natural dish-washing liquid to your nutrient solution for better absorption.



These plants are just beginning their flowering stage.

SUBJECT: **Light, Interrupted**

FROM: **Johnnyfeelgood**

🌱 I'm using a small tent with organic soil and nutrients, compact fluorescent lamps (CFL) for vegetative growing and an LED system for the flowering period. It's my first go at growing indoors, so I opted for lights that produce less heat. On episode 26 of your Free Weed podcast, you talk about light affecting the "off period" of growth. A related question: If the "on period" is interrupted by, say, 6 hours of darkness, will this affect the plants? I want to give you a big "Respect" for the great work you do.

Dear Johnny,
Thanks so much for the kind words. The

important part of the light/dark cycle to not interrupt, under any circumstances, is the dark cycle. If light intrudes upon the "nighttime" rest of the plant, she will become confused and react with abnormalities such as hermaphroditism and twisting leaves. You can use a green-colored light such as the Nitelight from Stealth Grow if you must enter the room when it's dark. The plants can't take in green light and thus won't react to it.

Your plants will recover from the light cycle being interrupted by darkness much more quickly and will tend to not freak out nearly as much, with little to no side effects. One 6-hour abnormality in which the light is interrupted by darkness will be quickly forgotten, so you should be all set.

SUBJECT: **Flowering Transition**

FROM: **Terry H.**

🌱 What nutrients do you water plants with during their first week of budding? I've always wondered if I should keep giving them the vegetative food or switch over to the budding nutes.

Dear Terry,
The transitional period between when you induce flowering and when flowers actually appear is an important growth stage, and many cannabis farmers run into problems during this time. Because buds are only just beginning to form, the plants don't need phosphorous (P) or potassium (K) in the quantities that they'll need in the upcoming weeks. Your best bet is to go mild with your flowering nutrients and keep some nitrogen in the mix as well.

Plants will continue to stretch for several weeks before they really start packing on the buds. Some purer *sativa*s barely show signs of budding at all for over a month after you've switched to the 12/12-hour flowering light cycle. Feed these plants lightly during this period to avoid over-fertilizing them. Go with about a quarter- to half-strength of what's recommended on the bottle. You'll have plenty of time to go bigger with the nutrients during weeks 3-6, when the stretch period is over and flower formation takes priority.

SUBJECT: **Cloning Auto-Flowering Plants**

FROM: **Jon Y.**

🌱 Hey, I'd like to start off by saying I love the [Free Weed podcast] and am very thankful for all the priceless info you are providing. I'm a longtime lover of weed but have only been learning to grow for the last year or so. Is it possible to clone an auto-flowering strain? Would the clone's "clock" reset, so to speak, or would it still be on the mother's time?

Dear Jon,
I don't recommend cloning auto-flowering plants. They will behave the same way as their mother plant, meaning that shortly after they root, they'll begin to flower, regardless of the light cycle. You will wind up with tiny, popsicle-sized plants with small flowers that won't



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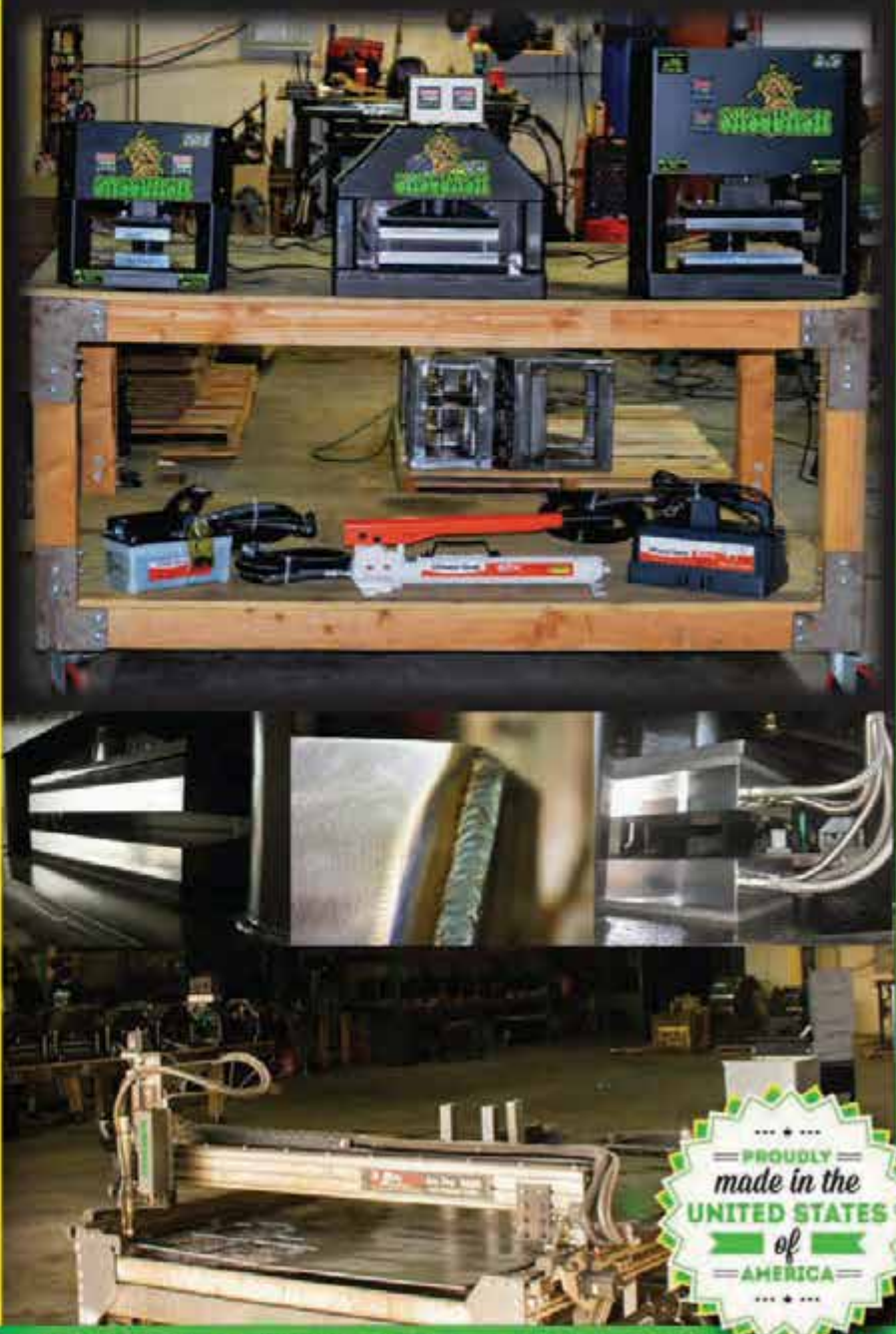
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Danko Tip: Dead leaves and plant debris on floors are a breeding ground for pests. Keep all growroom surfaces clean at all times.

produce much more than an eighth of an ounce or less.

With auto-flowering plants, the advantage is that they will finish in 60-90 days from when they're planted. It's impossible to keep an auto-flowering mother because she will flower no matter what you do. Stick with seeds if you plan to go the auto-flowering route or, better yet, get some regular seeds, grow them out and make yourself a mother plant out of a selected female and keep her in the vegetative state. You can take multiple cuttings anytime you want without having to worry about any unwanted flowering.

A worker at THC Design in Los Angeles removes leaves to keep the room clean.



SUBJECT: **Clean Rooms**

FROM: **Billy's Bro**

🐛 One of my buddies always has bug problems and issues with powdery mildew in his growroom. It's gotten to the point where I won't even go over his place to visit in fear of bringing home any of those unwanted plagues. He thinks he's just unlucky, but I try to tell him that it's a symptom of not keeping his growroom clean. He's got dead leaves on the floor, all kinds of decaying matter laying around and even standing puddles of nutrient solution. And that's nothing compared to his living room and bedroom! Can you straighten out my bro and let him know how a growroom should look?

Dear Billy's Bro,
I can't overemphasize cleanliness enough in the growroom. Most problems arise from not keeping the room clean enough—from pests to molds to you name it. You wouldn't believe how many rooms I've visited that had similar issues to your friend's. It all stems from a lack of initiative. Smart growers know their entire house should be kept in order. Many a neglected houseplant has brought upon its owner a plague of pests. Keep it clean and you'll be a lot luckier!

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Danko Tip: If you constantly have trouble with your tap water, invest in a reverse-osmosis (RO) machine to remove impurities.

SUBJECT: **Leaf Browning**

FROM: **White 11**

🌱 I've been growing medical marijuana for some time. I have three young plants from clones about 10-12 weeks old outdoors in Southern California. They grow in pots in full sunlight. There's no sign of insects, but some of the middle leaves on all three plants are turning brown. At least two or three leaves on each plant exhibit this. Nice-looking buds are forming, but they're not ready for harvest yet. They have a strong odor. Why the discoloration? I've grown before and have not seen this.

Dear White,

It sounds to me like you have a phosphorous (P) or potassium (K) deficiency. These types of problems start in the older leaves and affect the margins between the leaf veins first. As it gets worse, brown rust spots appear and grow from the outside of the leaves inward. Leaves and stems often turn red or purple and then eventually fall off the plants. These deficiencies drastically slow down plant growth and can significantly diminish your yield.

Even if there are phosphorous and potassium in your soil, they could be inaccessible to the plant roots because of salinity (too much fertilizer salt in your mix) or pH fluctuations. Before adding any fertilizer containing potassium, first flush your medium with plenty of plain pH-balanced water. Then slowly introduce some mild NPK-balanced fertilizer and be patient; new growth won't show signs of healthy behavior for several days.

SUBJECT: **Plant Transplant**

FROM: **Greenhorn**

🌱 Let's say I have a handful of strong females between the ages of a month and a month and a half old. They're in shallow 2-gallon buckets, and the roots are covering the bottom of the pots already. Clearly, they need to be transplanted. How long would it take for them to reach the bottom of a 5-gallon bucket? And what's the most efficient way of keeping a 5-gallon bucket moist at the bottom without drowning my girls?

Dear Greenhorn,

Sounds like you definitely need to transplant your plants into larger containers. Water your plants thoroughly first and then gently remove them from their containers. Place them into the larger 5-gallon pots that have been pre-filled with your soil mix. Fill the empty space around your soil ball in with mix until level and then water it again. It will be several weeks before the roots reach the bottom and much longer before the plants become root-bound again. This should leave you plenty of time to finish your harvest without having to transplant again.

You can keep your mix moist by bottom-feeding the plants. This entails watering them from below by allowing the roots to take up what they need. Just make sure they don't sit in standing water for too long (no more than an hour). This also has the added benefit of keeping the top few inches of your soil from becoming oversaturated, which creates a haven for pests and molds. It also helps conserve water as well. Several companies market buckets that have built-in reservoirs for the purpose of watering from below, and most work great. 🌱

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CRISPY ARTICHOKE CAKES WITH HERB AIOLI

GREAT FOR PARTIES, THESE WILL BECOME YOUR FAVORITE NEW MUNCHIE SNACK! BY ELISE MCDONOUGH

THIS SIMPLE APPETIZER will kick off any meal with a pleasing combination of a crunchy exterior and a soft, succulent interior, paired with an herbaceous medicated aioli. The cannabis flavor works nicely with the basil in the rich aioli, heightening flavors while also getting you high!

Using a cannabis-infused sauce as an accompaniment to any meal gives you flexibility in planning, since anyone who doesn't want to get baked can simply lay off the sauce. Similar to crab cakes, these crispy fritters use canned artichokes instead of shellfish, making this a wonderful vegetarian meal. This recipe yields about 30 small cakes.

INGREDIENTS

CAKES:

1 140-oz. can of artichoke hearts, drained and finely chopped
2-3 beaten eggs
4 oz. diced jalapeño peppers
3 tbsp. finely sliced green onions
8 oz. Italian-style breadcrumbs
6 oz. mayonnaise
4 oz. heavy whipping cream
Juice and zest of 1 lemon
1 tbsp. Dijon mustard
1 tsp. kosher salt
1 tbsp. Worcestershire sauce

AIOLI:

¾ cup basil leaves, torn
3 garlic cloves, minced
2 egg yolks (use organic or pasteurized eggs)
1 tbsp. lemon juice
½ tsp. salt
¼ cup cannabis-infused olive oil
½ cup olive oil

DIRECTIONS: Preheat oven to 400°F. Combine chopped and drained artichoke hearts with beaten eggs in a large bowl. Add jalapeño peppers, green onions and bread-crumbs. Fold to combine until well mixed.

In a separate small bowl, whisk together the rest of the cake ingredients and add to the artichoke mixture. Fold to combine and chill for at least 90 minutes or overnight.

After chilling mixture thoroughly, scoop into 1½-inch balls and fry in a well-oiled skillet over medium heat for two minutes per side. Flatten them slightly as they cook. Once they are golden brown and crispy, place them on a greased baking sheet and bake for 10 minutes at 400°F.

While the cakes are baking, make the aioli. Place the basil, garlic, egg yolks, lemon juice and salt in a food processor, and pulse once or twice to roughly combine. Then, with the processor running, slowly pour in the cannabis-infused oil and the regular oil in a thin, steady stream. When a cohesive sauce forms, turn off the processor and scrape the sides before processing again for about one minute.

Serve the cakes hot with the cannabis-infused aioli over mixed greens. ✨

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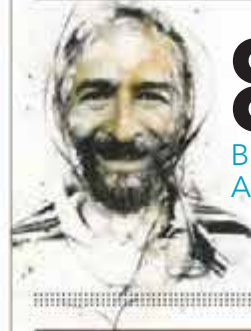
We are proud to welcome Jeffrey Warsh to establish a new cannabis industry practice group. Jeff is an alcoholic beverage and cannabis law attorney and registered governmental affairs agent with over 30 years of experience in highly regulated industries. Our practice group advises entrepreneurs in the 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:

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I know there was research years ago, but I wonder if there are any new data on marijuana and sexual functioning in women.

Curious Georgina

Hi Curious,
Intrepid researchers at St. Louis University confirmed that the majority of women who choose to use the plant before sex report increased sex drive, more pleasurable orgasm and a better sexual experience without much effect on lubrication. These effects might only apply to a subset of women, but nothing turns absolutely everybody on. Those who like it really like it.

There's no way I could work the swing shift as well as I do if it weren't for my vaporizer. Am I alone?

John Henry Marley

Hey Mr. Marley,
New data suggest that cannabis can make adjusting to the night shift easier. Smoking a joint of weak NIDA schwag helped people working an eight-hour shift full of cognitive tests and boring questionnaires feel less miserable

without making them do a terrible job. I'm sure it depends on the kind of work you do and how much skill you have, but I doubt you're the only one adjusting to shift work successfully this way.

I feel like there's still a lot of prejudice against marijuana users. If I wear the wrong T-shirt or happen to let people see my keychain shaped like a leaf, everybody acts like I'm dumb. When is this nonsense going to end?

Enoch Parks

Hello EP,
One of my students published data showing that when people think you're a fan of the plant, they also think you'll have a poor memory. Perhaps all we can do is come out to the world and then do a good job at everything we do. As accomplished, productive folks emphasize that they also use marijuana, the world will learn that the stereotypes are not true. So go out and do some good! ✨

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

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2017: A NORML YEAR IN AMERICA

A LOOK BACK AT A MONUMENTAL YEAR FOR MARIJUANA.

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

IN THE WAKE of landmark cannabis victories in 2016, there was much momentum to build upon when state legislatures opened up at the beginning of 2017. With NORML chapters in nearly all 50 states, activists took the fight to the halls of state capitols and city councils from Florida to Washington State and everywhere in between. In all, lawmakers in 26 states have passed legislation to advance cannabis reform.

Victories include: Nevada expediting the implementation of adult distribution of legal marijuana, becoming the first of the newly legal states to respect the will of their voters and come online in 2017; New Hampshire becoming the 22nd state to decriminalize marijuana, making it so that an individual can be in any state in New England without fear of being arrested for a simple possession charge; West Virginia becoming the 30th state to pass a medical-marijuana program, which will soon serve patients suffering from a range of conditions including cancer, HIV/AIDS and chronic pain; and Ohio passing the Athens Cannabis Ordinance (aptly named TACO), which completely de-penalizes marijuana possession. There were, of course, many other advancements and legislative tweaks around the country as well.

Nationwide, with public support for

THE NATIONAL POLLING OUTFIT GALLUP RECORDED FOR THE FIRST TIME EVER OUTRIGHT MAJORITIES OF DEMOCRATS, REPUBLICANS AND INDEPENDENTS SUPPORTING THE LEGALIZATION OF MARIJUANA.

reforming marijuana laws at an all-time high, Representatives Earl Blumenauer (D-OR), Dana Rohrabacher (R-CA), Jared Polis (D-CO) and Don Young (R-AK) have formed the first-ever Congressional Cannabis Caucus to develop and promote sensible cannabis-policy reform and ease the tension between federal and state governments. As of this writing, 96 members of the House of Representatives, or 22 percent of the legislative body, have either authored or co-sponsored legislation to reform our nation's outdated marijuana laws.

This progress has come as a result of years of organizing and conversations with our fellow citizens about the role of government in relationship to a plant. The tough conversations about the scope of the government's right to stop, search and incarcerate individuals for possessing or consuming marijuana for either personal or medical benefits may not

always be easy, but they are necessary in order to advance reform efforts.

And all said, the public is now strongly with us. The national polling outfit Gallup recorded for the first time ever outright majorities of Democrats, Republicans and independents supporting the legalization of marijuana, representing 64 percent of Americans. For context, in 1969, the year before NORML was founded, only 12 percent of Americans supported legalization.

This year is going to be no different. With over two dozen states on the books with scheduled lobby days and more to come, now is the time to take action. To help increase the likelihood of success for these volunteer-led lobbying efforts, NORML has updated our citizen lobby guide, a comprehensive booklet that assists activists in the planning and execution of a successful lobby day. It also provides organizational checklists and a legislative questionnaire so that marijuana activists, regardless of the state they're located in, will be fully prepared to meet with state lawmakers to discuss meaningful marijuana-law reforms and to most effectively communicate NORML's message of ending the prohibition of marijuana on the local, state and federal level. Visit norml.org to learn more. 🌿

FREEDOM FIGHTER

By Kevin Mahmalji, NORML national outreach coordinator

DOUBLING DOWN ON REFORM

MADISEN SAGLIBENE'S HARD WORK IN LAS VEGAS IS PAYING OFF.

Since its formation in early 2017, Las Vegas NORML has been very active at the local and state level. From volunteering for community gardens across the city and engaging in community-outreach efforts to providing testimony during legislative hearings and meeting with state lawmakers, Madisen Saglibene and her colleagues have

worked hard to be a consistent and unwavering voice for marijuana consumers in the Silver State.

In her role as co-founder and deputy director of Las Vegas NORML, Saglibene oversees outreach and development efforts for the organization. In this capacity, most of her time is spent educating the public about marijuana in an effort to remove the stigma surrounding cannabis use in the greater Las Vegas area and beyond. Her relentless efforts and passion for the plant continue to



inspire others.

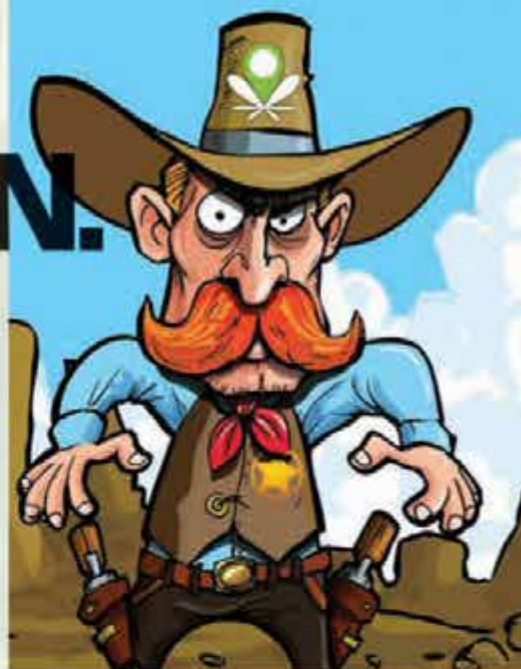
Prior to her work in marijuana policy, Saglibene studied social work and criminology at the University at Buffalo. After relocating out West, the New York native found herself volunteering with the "Yes on 2" campaign—the successful effort to legalize adult-use marijuana in Nevada. In the months ahead, Saglibene will be working with NORML's national office on the development of a new NORML chapter in Rochester, New York, which she believes will play an

integral role in furthering the state's legalization efforts. In her free time, she enjoys volunteering with other community groups, listening to Phish and spending time in the kitchen preparing healthy meals for her family.

"Marijuana legalization is an issue so much bigger than just smoking pot. It's about personal freedoms being violated in an economic, medical and criminal-justice sense," Saglibene says. "The war on marijuana continues to be an outlet for racism and destroys families who need this valuable medicine."

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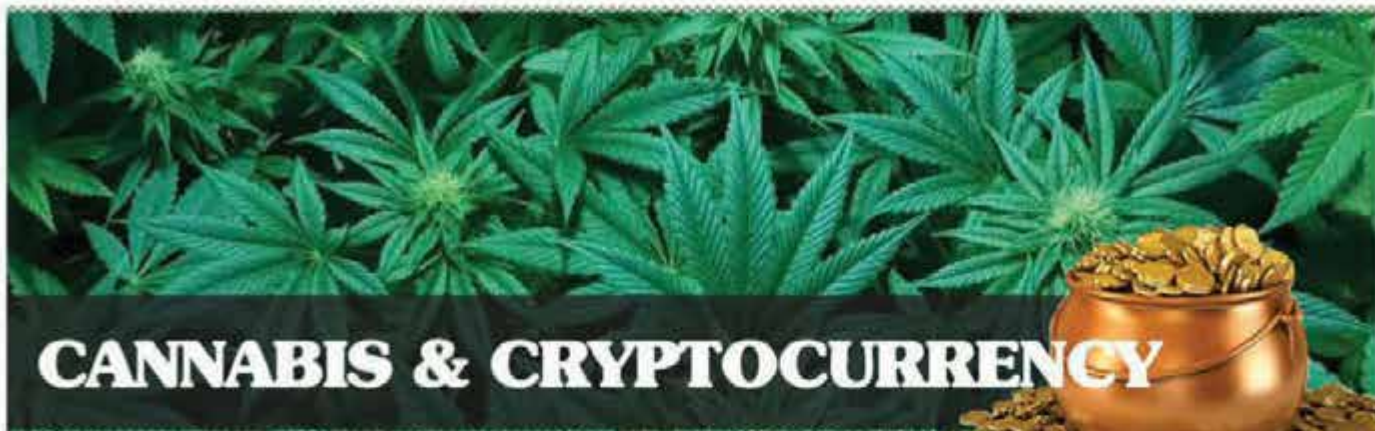
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CANNABIS & CRYPTOCURRENCY

Over time the cannabis industry continues to gain recognition among growth-minded investors, especially those who are focused on emerging opportunities and innovative technologies.

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



The only other investment area with as much buzz as medical cannabis is crypto-currencies, like *Bitcoin* and *Ethereum*. It's no surprise then that Cannabis Companies are exploring opportunities to adapt this technology to the unique needs of the cannabis industry.

Since the beginning of the Internet, computer geeks have been trying to solve the 'double spend' problem behind online payments. Essentially, the challenge is figuring out how currency can change hands online without a third-party-

guaranteed process, via a bank or credit card company.

In the late 2000s, a secretive programmer acting under the pseudonym *Satoshi Nakamoto* launched Bitcoin, solving this problem with a novel idea - Blockchain.

The innovation behind Blockchain was to include a permanent ledger of all the transaction history for each individual trade,

While remaining anonymous, blockchain technology offers an unmatched level of transparency and security in every transaction.

The cannabis industry is interested in this technology, since it is especially important to create a system of payments and transactions with the highest level of security and transparency.

One of the key applications for Cannabis Blockchain technologies involves payments in the United States or involving major American banking and credit card processing companies.

Since there remains some serious disconnection between cannabis regulations at the federal and state level, many American financial institutions

prohibit using their services in cannabis. This spills over into international markets as well despite local laws since many of the world's top institutions are based in the United States.

Companies like *Alternate Health* (CSE:AHG) are actively involved in integrating blockchain technologies into their cannabis operations.

Alternate Health does not produce or distribute marijuana, instead focusing on technologies that ensure a safe, legal and transparent environment for all parties involved in medical marijuana treatments, including doctors, patients and licensed producers.

With medical marijuana available in key markets at the state level and growing internationally, transparency is key for governments to enforce rules on public health, taxation and controlled substance regulation.

Alternate Health's CanaPass Patient Management System is a software suite that manages transactions and feedback between all areas of the medical marijuana environment, including facilitating payment transactions and storing patient information and results.

The company is integrating Blockchain to add another layer of security, transparency and reliability to *CanaPass* as the

company adapts this Canadian software to the American marketplace.

Alternate Health has also partnered with *Support Your Buds, LLC*, to launch the *SYB Token*, a new cannabis-specific Crypto-Currency. The California-based company, *SYB LLC* focuses on supporting and funding business opportunities and start-up companies operating in the cannabis space. By creating its own currency, *SYB* intends on solving the problems associated with a lack of financial support for the cannabis industry.

This new Crypto-Currency will launch in March 2018 through an Initial Coin Offering (ICO), where investors will have the chance to buy in early. This new currency will support payments across the industry, from producers to dispensaries to consumers. As part of the partnership, this new Crypto-Currency will power *Alternate Health's* payment engines in their *CanaPass* software suite.

Blockchain 101

- A blockchain is a continuously growing list of records, called blocks, which are linked and secured using cryptography.

- A cryptocurrency (or crypto-currency) is a digital asset designed to work as a medium of exchange using cryptography to secure the transactions, to control the creation of additional units, and to verify the transfer of assets.

- Bitcoin, created in 2009, was the first decentralized cryptocurrency. Since then, numerous cryptocurrencies have been created. These are frequently called altcoins, as a blend of bitcoin alternative.

- America's cannabis market is predicted to reach a valuation of up to \$50 billion by 2026, and the value of bitcoin reached record highs in November 2016, surpassing 99,975 per coin.

Blockchain Buzz...



Support Your Buds LLC launches SYB Token March, 2018



An International Approach to Cannabis Investing

In the United States, cannabis regulations continue to shift and change, creating both opportunities and uncertainties in the market...

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

This evolution has opened new doors for business in patient care, with innovative new ventures launching across the country. Yet investors ought to consider the global scale of legal cannabis to both capture the greatest returns and avoid the worst risks.

Currently many states are in the process of cannabis legalization for medical and recreational use. However, the federal level legality of marijuana can make the market confusing, or risky, for new investors and businesses alike.

Due to the hurdle of federal prohibition, it can be difficult to secure traditional banking deals. Federal law forbids the shipment of such products across state lines. And for now, big investment banks, large private equity funds, venture capital firms and major U.S. stock exchanges are hesitant to get involved.

Across the border in Canada, medical cannabis is already legal at the federal level and recreational use is set to be legal in Canada within a year. With clear laws and regulation,

In Canada, legal cannabis sales will hit \$3.65-billion USD by 2021, up from \$1.07-billion for medicinal marijuana by 2018,

according to the latest projections from BDS Analytics, a cannabis specialist based in Boulder, CO.

American investors also have access to this market since in Canada companies who deal directly with the cultivation or distribution of marijuana can be traded on major public exchanges.

Many Canadian companies who have been successful in the domestic market are looking to broaden their portfolios, including looking south of the border.

Savvy American investors should be doing the reverse and including a Canadian investment strategy for their investment portfolio. As Derek Peterson, Chief Executive Officer of cannabis agriculture company Terra Tech Corporation, claims:

"Canada looks like what the U.S. would look like if it were more amenable."

Today the largest publicly traded companies on both side of the border are mainly licensed cannabis cultivators. It stands to reason that unless they diversify by developing into other, more valuable aspects of the industry, cultivators will be left behind

in the future as production rises and prices fall.

After all, cannabis is an agricultural commodity, just like lettuce or strawberries.

Investors need to look at companies that are engaged in other parts of the supply chain and diversified across the industry. *Alternate Health Corp* (CSE:AHG;OTC:AHGIF) is a Canadian company that has recognised the importance of multiple arms-length operations within the medical cannabis industry.

Its software solutions, data analytics, and patented delivery systems mean that they are compliant with both Canadian and American Federal legislation and is publically traded in both countries.

Investors who are looking to hitch themselves onto the cannabis bandwagon should be advised on being extremely thorough in their research, as this sector is currently the fastest growing American industry. It is important to develop a diversified investment strategy not only among multiple-sector companies, but also across international borders to capture the collective growth of the cannabis industry.

For more information visit: Alternatehealth.ca



Women In Cannabis

Chanda Macias

Owner | National Holistic Healing Center

Women Grow Market Leader, Washington DC & Maryland

▶▶ How does your business affect the Cannabis industry?

I am the owner of the National Holistic Healing Center, A Medical Cannabis Dispensary, in Dupont Circle Washington DC. We specialize in ailment strain alignment. I have educated our patients on both preventative care, and proactive treatment plans utilizing medical cannabis. My patients have benefited from a profound change in the status of their lives, being able to function productively in the community when treated for physical or mental ailments. National Holistic Healing Center is bringing healthcare consciousness to the industry, and truly focusing medical cannabis as a medicine.

▶▶ Why did you choose a career in this field?

As a Research Scientist (PhD), I have studied cancer and infectious diseases for the past 20 years. It was clearly documented that medical cannabis was an alternative treatment to many diseases and disease states. After reviewing documented research, I decided to embrace the suggested benefits of medical cannabis through a dispensary operation that would treat specific ailments to specific strains, which I refer to as ailment strain alignment. The direct benefits to the patients were remarkable, and the improvement of the quality of life was uncharted. I do believe that this field chose me, and directed my steps to be an agent of change.

▶▶ What is the most convincing argument for the use of cannabis as medicine.

I don't believe in convincing the public about the benefits of medical cannabis. I do believe in educating the community on the medical benefits of medical cannabis, so the patient can make an informed choice. Unfortunately, the negative stigma of medical cannabis has the population to believe that it should be the last option for a healthcare solution. In truth, it should be a primary line of defense for the proactive patient that believes in preventative care versus treatment. Not all medical cannabis is equal in self treatment, but the medicine that is properly aligned, can significantly improve specific health conditions and thus the quality of life.

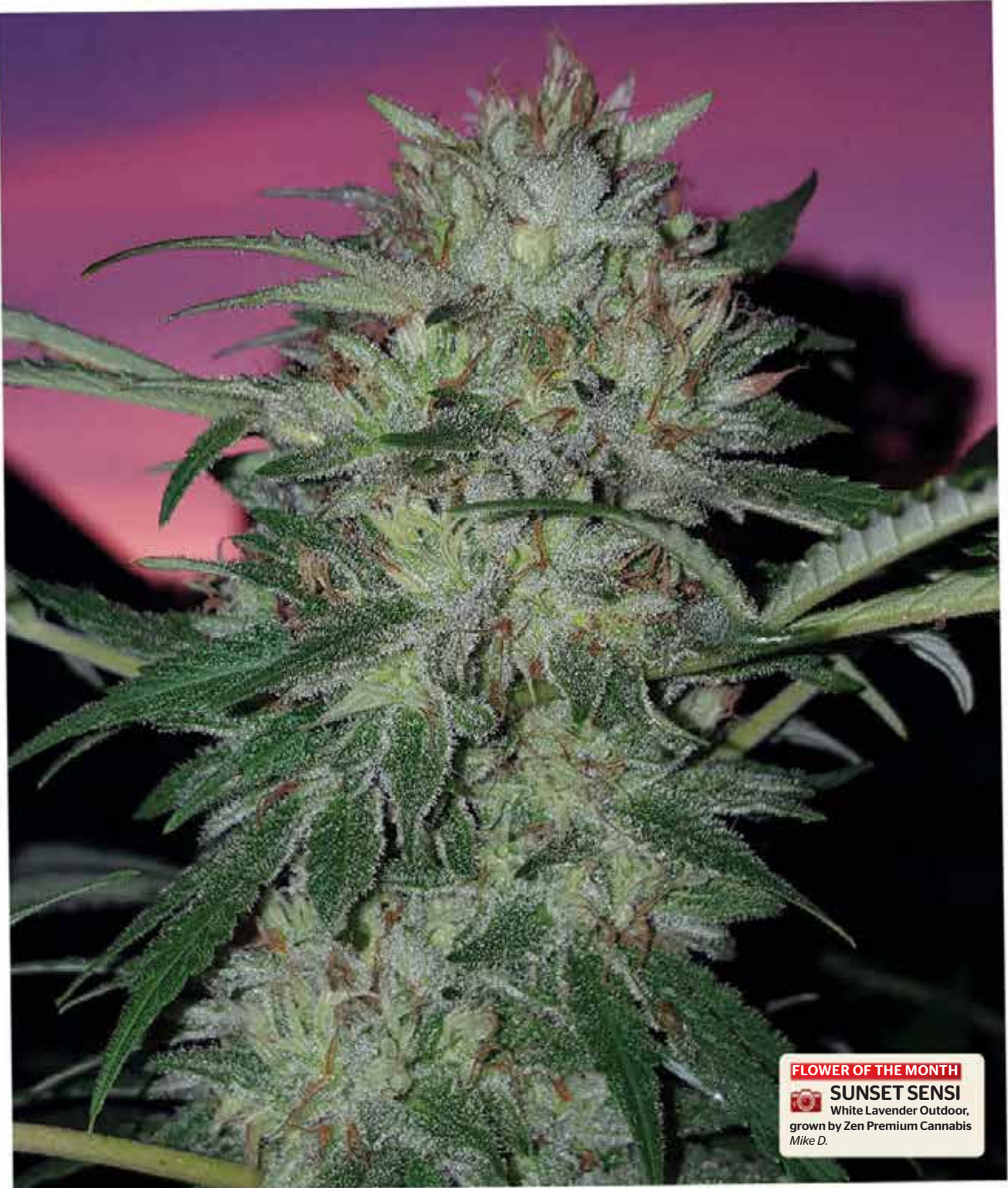
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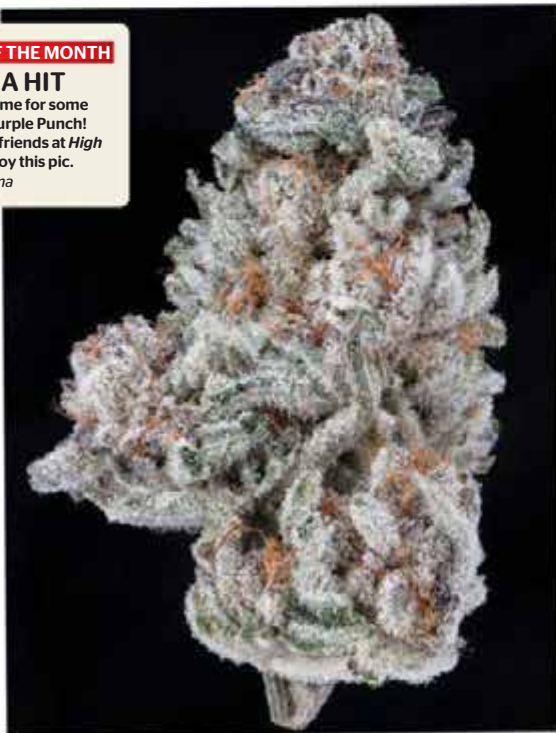
Growing is art. Would be a dream come true to be featured in your magazine. Check me out at @thescrogking Migz



NUG OF THE MONTH

TAKE A HIT

Time for some Purple Punch! Hope my friends at *High Times* enjoy this pic. *Alphacanna*



CLOSE UP OF THE MONTH



TANTALIZING TRICHOME

Hi, I take photos of cannabis that, in my humble opinion, are some of the best you will ever see. I have enjoyed *High Times* since the 70's when my roommate Jonathan Ott was writing articles for you. *djewell*



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▶ CONCENTRATED CANNABIS: PART III

The latest installment of our Concentrated Cannabis series examines how non-dabbing extracts like distillate and crystalline can benefit users. We take a closer look at edibles, capsules and tinctures, topicals, Phoenix tears and more.

▶ GROWING SEATTLE'S BEST STRAINS

Take a tour of a cultivation facility located in the heart of Seattle that caters to true connoisseurs with superb strains grown the right way. Our own Danny Danko reveals how the House of Cultivar team's commitment to producing aficionado-quality marijuana and concentrates on a large-scale results in a superior product beloved by Washington's cannabis consumers.

▶ DRIVING HIGH

Driving stoned is a complex topic as marijuana affects people differently and remains in the system well past the point of intoxication. We're looking into stoned driving and examining the different approaches to enforcement that several legal-pot states are taking on this tricky topic.

▶ HOW TO FIND A POT LAWYER

While marijuana law reform is making great strides, many in this country still face draconian pot laws, including jail time for simple possession. We put together the definitive guide for those busted with pot and looking for help.

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Kodiak Gold X Mango	\$50
Lambsbread	\$125
Love Potion Next Gen	\$75
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Kings Crown X Thai	\$80
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MBA Gorilla Glue	\$100
OG Kush X NH21	\$225
White Widow X	\$100
Vietnamese Silver Leaf	\$80

Master Kush x Train W	\$80
Moose Jaw Madness	\$70
Northern Lights X Skunk	\$80
Old School Indica	\$60
Old School OG	\$100
Pig OG	\$100
Pink Kush	\$80
Roadkill Skunk	\$80
Silverback Gorilla	\$125
Trainwreck X Kush	\$85

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BC Mango X NH21	\$225
Big Bud X C99	\$80
Black Tuna	\$100

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Alpak X Skunk	\$80
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King Regular	\$100
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Orig. Haze x Skunk	\$80
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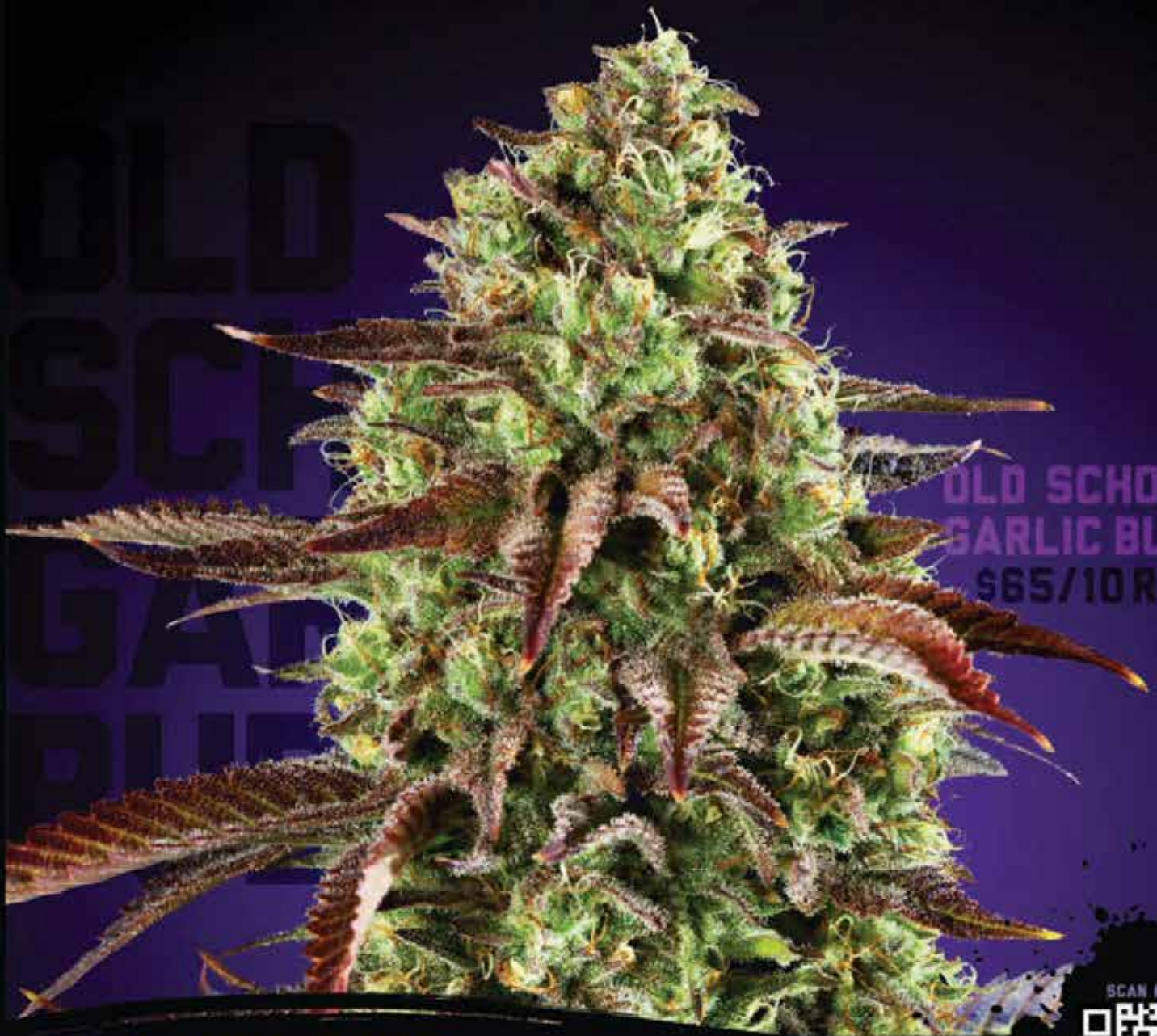
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