

GUIDE TO DRYING & CURING

HIGHTIMES

December 515

TOP 10 STRAINS OF 2018

CRAFT BUDS OF COLORADO

TRAVELING WITH POT

ADVICE FROM LEGAL EXPERTS

VAPE PENS GO GREEN!

LEGENDARY HEADSHOPS

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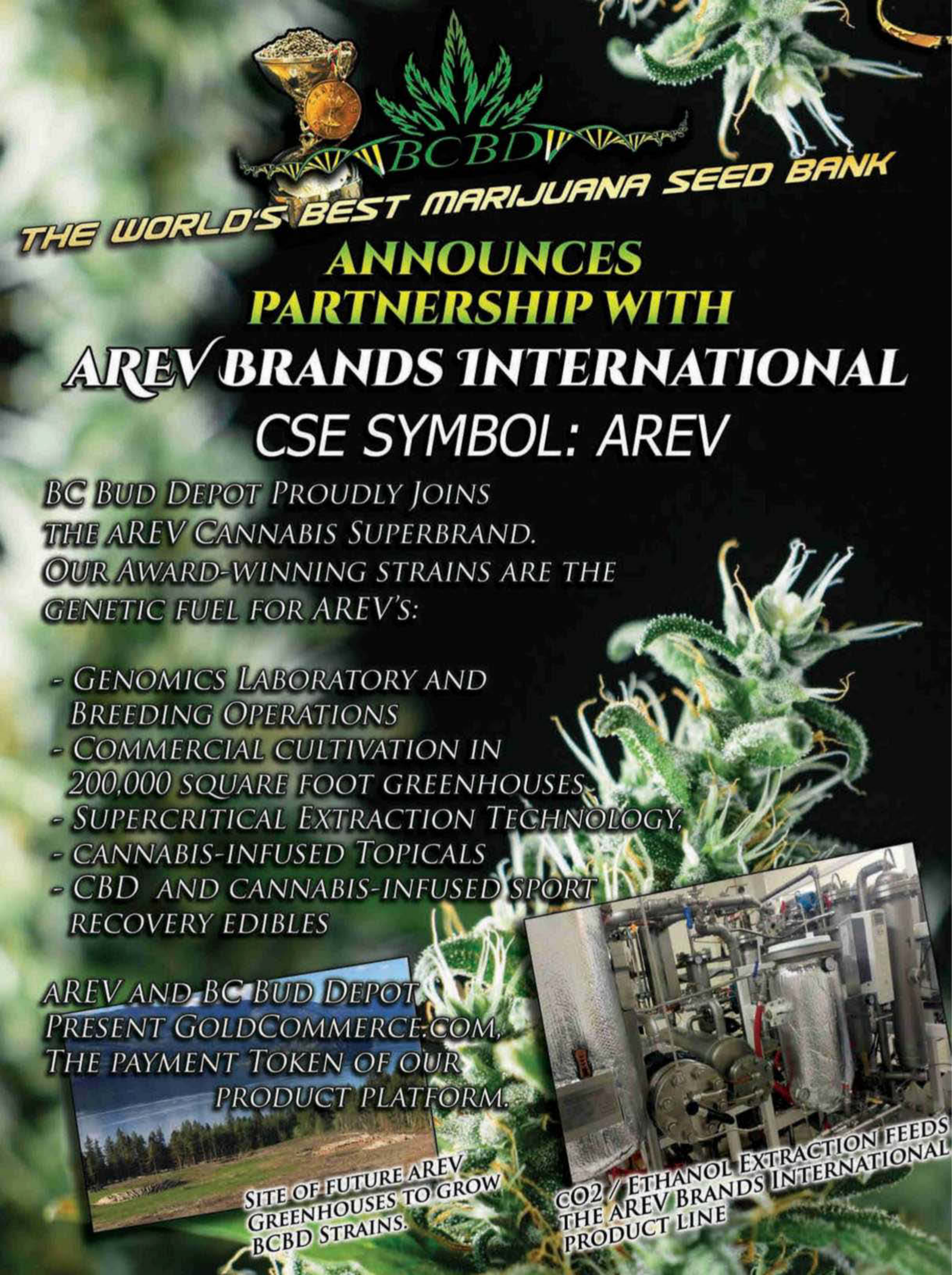
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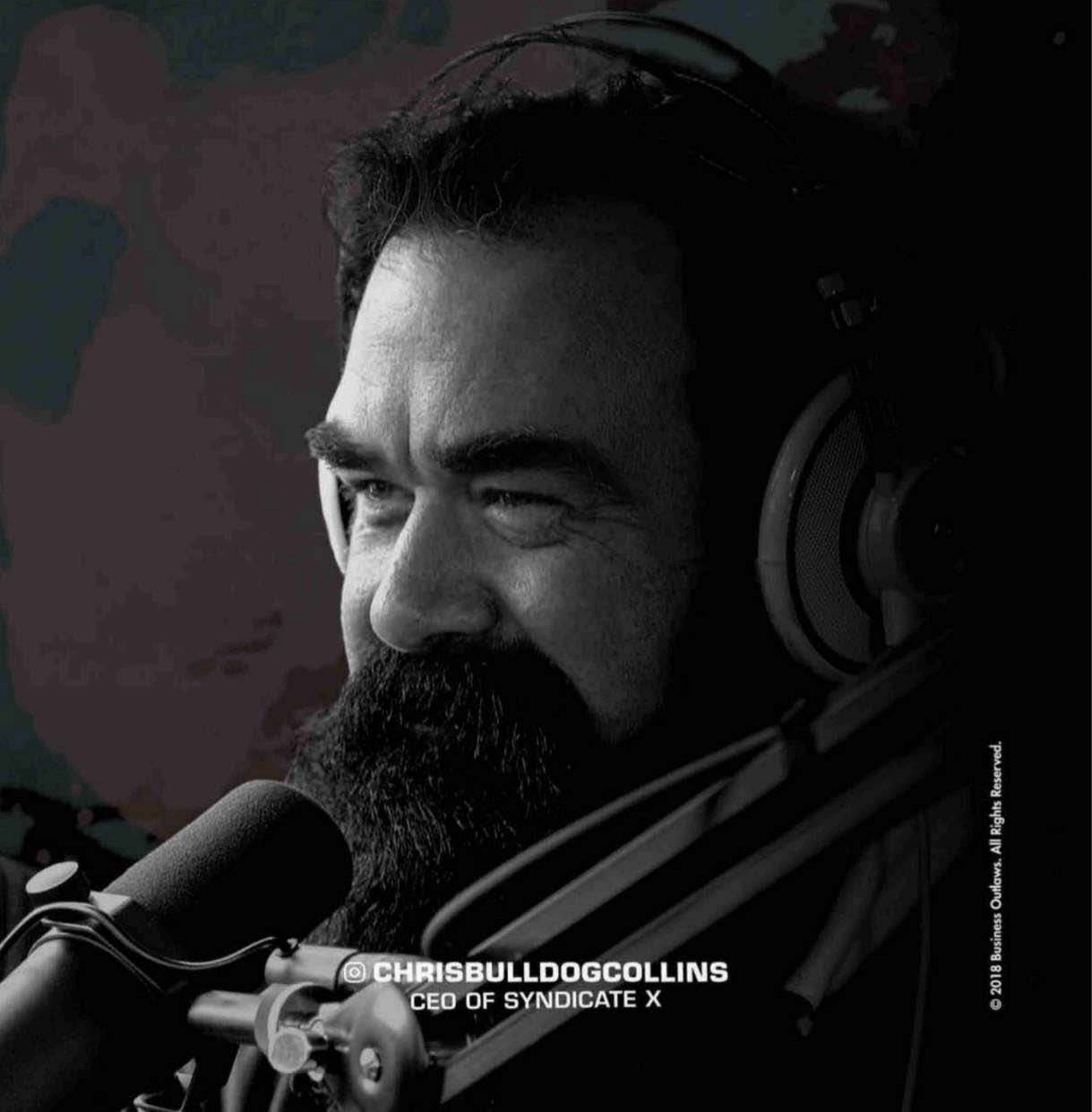
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HIGH TIMES DECEMBER



WITH THE DISPENSARY PHYSICALLY ATTACHED TO THE GROWROOMS, THE GEOGRAPHY CONNECTING THE SEED (OR IN THIS CASE, CLONE) TO THE CONSUMABLE PRODUCT—BUDS, TOPICALS, CONCENTRATES—IS EASILY TRACED. IT ALL HAPPENS RIGHT HERE.

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44 GUIDE TO DRYING AND CURING

Properly drying and curing your crop can be the difference between a superb and subpar final product. In this excerpt from his *Marijuana Harvest* book, grow guru Ed Rosenthal breaks down these all-important cultivation steps. *By Ed Rosenthal & David Downs*

54 THE BEST JOB IN COLORADO

Denver-based dispensary/grow op L'Eagle Services produces award-winning cannabis with eco-friendly, fair labor practices. Learn how the company is changing the industry while creating connoisseur quality cannabis and concentrates. *By Mike DiPaola*

64 TOP 10 STRAINS OF 2018

We've meticulously tested and reported on the best cannabis varieties of 2018, from the raciest *sativas* to the most relaxing *indicas*, from Cannabis Cup winners to the top shelves of the finest dispensaries. *By Danny Danko*

81 OIL CHANGE: CAN VAPE PENS GO GREEN?

The popularity and convenience of disposable vape pens and cartridges also brings with it sustainability challenges for the cannabis industry. Find out what is being done to help make disposable vapes more eco-friendly. *By Nick Kazden*

91 10 LEGENDARY HEADSHOPS

We're highlighting 10 old-school headshops that have left an indelible mark on the communities they serve. These shops have survived and thrived through the years, regardless of pot's legal status. *By Alexandra White*

99 A LEGAL GUIDE TO TRAVELING WITH POT

Differences in local, state and federal law can make traveling with cannabis a stressful situation. Learn what the legal experts recommend in this handy guide to traveling with pot.

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LAB-MADE CANNABINOIDS



By now, most cannabis consumers know about the cannabinoids in their favorite plant. Cultivators go to great lengths to bring out the best in their plants, which produce THC, CBD, terpenes, flavonoids and many other chemical compounds. But what if there were a way to produce all those glorious cannabinoids without actually growing and caring for a cannabis crop? That's exactly what Boston-based Gingko Bioworks Inc. is looking into,

thanks to a new partnership with Cronos Group Inc., a Canadian cannabis company.

It sounds like a sin against nature—and it will face plenty of opposition from purists who prefer to obtain their cannabinoids the old-fashioned way—but Gingko is looking to engineer pot's active compounds, without the pot.

While the drawbacks to eschewing whole-plant medicine are clear, the company points out certain benefits, like producing the little-known and potentially important delta-8-THC (as opposed to the delta-9-THC we're all familiar with). Delta-8-THC offers therapeutic benefits and has shown promise fighting cancer cells. Unfortunately, it is impossible to produce enough of it through cultivation to make an impact on consumers. [Learn more at hightimes.com](https://www.hightimes.com)

ON INSTAGRAM

Who wouldn't want to receive this bouquet! These flowers, from legal Alaskan cannabis retailer AK Frost, are Agent X, a hybrid "derived from the classic Agent Orange strain." According to [@ak.frost](https://www.instagram.com/ak.frost), you can expect uplifting and relaxing effects from their Agent X. So if you're ever in the Anchorage area, pay them a visit. In the meantime, give them a follow and check out some more quality cannabis shots!



13 POWERFUL PEOPLE WHO CHANGED THEIR MINDS ABOUT POT



John Boehner is cashing in on cannabis.

Thanks to the rising popularity of cannabis, we're seeing more prominent people suddenly "evolve" on the issue than ever before. Marijuana advocates have extolled the virtues of cannabis for years and that hard work has paid off in both the legal realm (30 states and DC have medical pot programs and nine have recreational) and in the court of public opinion (a majority of Americans support legalizing cannabis).

Of course, for the movement to ultimately succeed, we need powerful people to embrace the herb and join us in our fight. We're taking a closer look at 13 prominent politicians, businesspeople, investors and celebs who have changed their minds about pot. Whether it's out of greed or a genuine change of heart based on evidence, these powerful people are now on the right side of history. Find out who made our list at [hightimes.com](https://www.hightimes.com).



WE WANT TO HEAR FROM YOU!

Tweet your best high observations and comments our way ([@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag)) for a chance to be featured on this page! And be sure to follow us on Facebook: ([Facebook/HighTimesMag](https://www.facebook.com/HighTimesMag)) and Instagram: ([@hightimesmagazine](https://www.instagram.com/hightimesmagazine)) for all the latest news as it's happening!

@ohhhLifted: [@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag) This is not the direction we should be taking, cannabis isn't meant to be artificial medicine and nobody wants the drug companies to take advantage of this.. that defeats the purpose

@Dntspeedup: I am going to make an investment in [@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag) tonight, I could not be more excited to be a part of their future

@malomedies: [@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag) If they love god so much, why don't they agree with weed?.. Personally I think it's a gift from god and anyone who loves god like they do shouldn't oppose medical weed

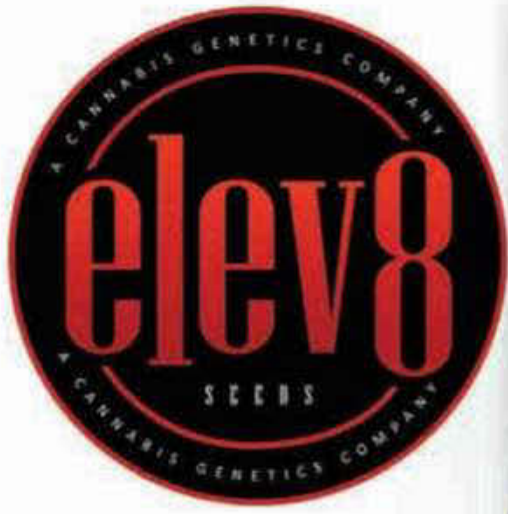
@karoisnothere: [@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag) Blunts, bong, vapes, joints, everything. We don't discriminate in this house

@BuddinBeauty: [@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag) I thought some one put hard drugs in my first dab, because I was so high!

@Mrstigerblood: Attention Michigan Voters, this is our chance, lets not blow it! Lol REGISTER TO VOTE and legalize marijuana in November!

@stevendehan: [@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag) The best cannabis farmers are the ones willing to learn no matter how long they've been growing they never give it the big one and think they know everything they always listen to what people have to say and take from that what ever they think will benefit them....

@HerbnElements: [@HIGH_TIMES_Mag](https://twitter.com/HIGH_TIMES_Mag) I'm telling you: someone's gotta cross the WiFi with Blueberry (or the Bozeman Blue) so we can have a strain called Bluetooth!



DOSI Sherbet

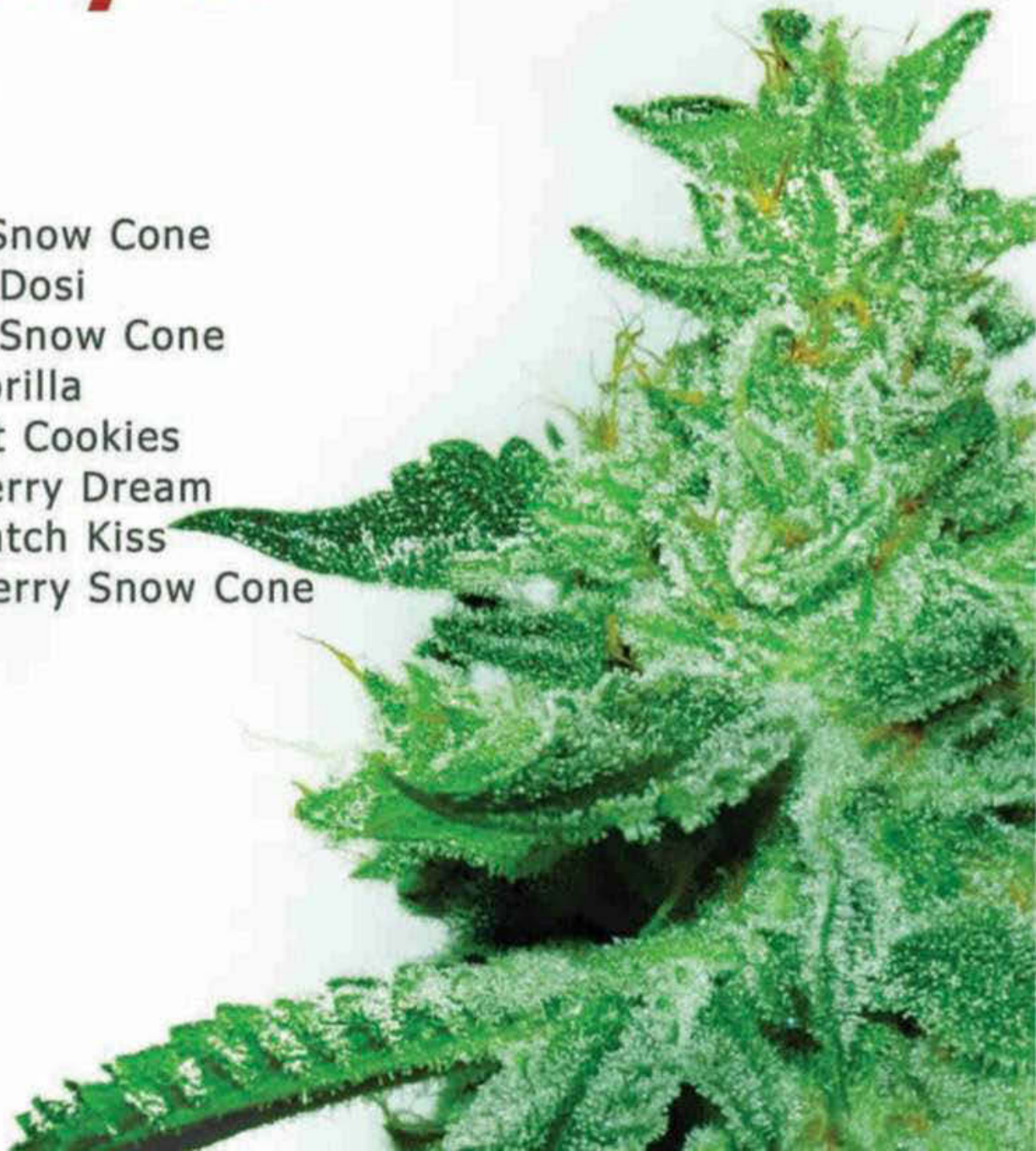
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FIRE OF THE YEAR

*"Just living is not enough," said the butterfly.
"One must have sunshine, freedom, and a little flower."*

—HANS CHRISTIAN ANDERSON

AS 2018 COMES TO AN END, we're letting go of many marijuana misconceptions while we continue to learn about our favorite plant. Companies like Phylos Bioscience are mapping out the genetic heritage of heirloom cannabis varieties, and the long-held distinctions between *indica* and *sativa* have proven to be gross oversimplifications of a complicated interaction between hundreds of different cannabinoids, terpenes and flavonoids.

Indeed, it's this delicate interplay of scents, flavors and potency levels that provides different strains with their unique properties of intoxication. Even with all of the technical and scientific advancements we've seen in recent years, what draws us to a particular pot variety is the intricate way in which the fragrances, tastes and effects please our palates.

To that end, each year in our December issue, we release our illustrious list of the 10 best pot strains on earth. We travel the world in search of the best buds—pinching, sniffing and ultimately smoking puff after puff—in order to report our favorites.

Of course, even the best strains must be dried and cured properly, so we've included a feature excerpt from grow guru Ed Rosenthal's new book on marijuana harvesting. And once you've scored some fire weed, you'll need to know how to travel with it, so we've queried legal experts for their tips on carrying cannabis with caution.

Also in this issue, we examine the sustainability issues arising from the use of disposable vape pens and cartridges and what the industry is doing to make them more eco-friendly. We get a behind-the-scenes look at L'Eagle Services, a Colorado company committed to greener practices in growing pot and creating concentrates. And we shine a spotlight on 10 legendary headshops that have survived and thrived through decades of cannabis prohibition and continue to supply smoking accessories.

So stop and smell the flowers, and while you're at it, break them down, roll them into a joint and fire it up! You're about to begin a journey to new discoveries celebrating sunshine, freedom and flowers.

kindest regards,

Danny Danko
SENIOR CULTIVATION EDITOR

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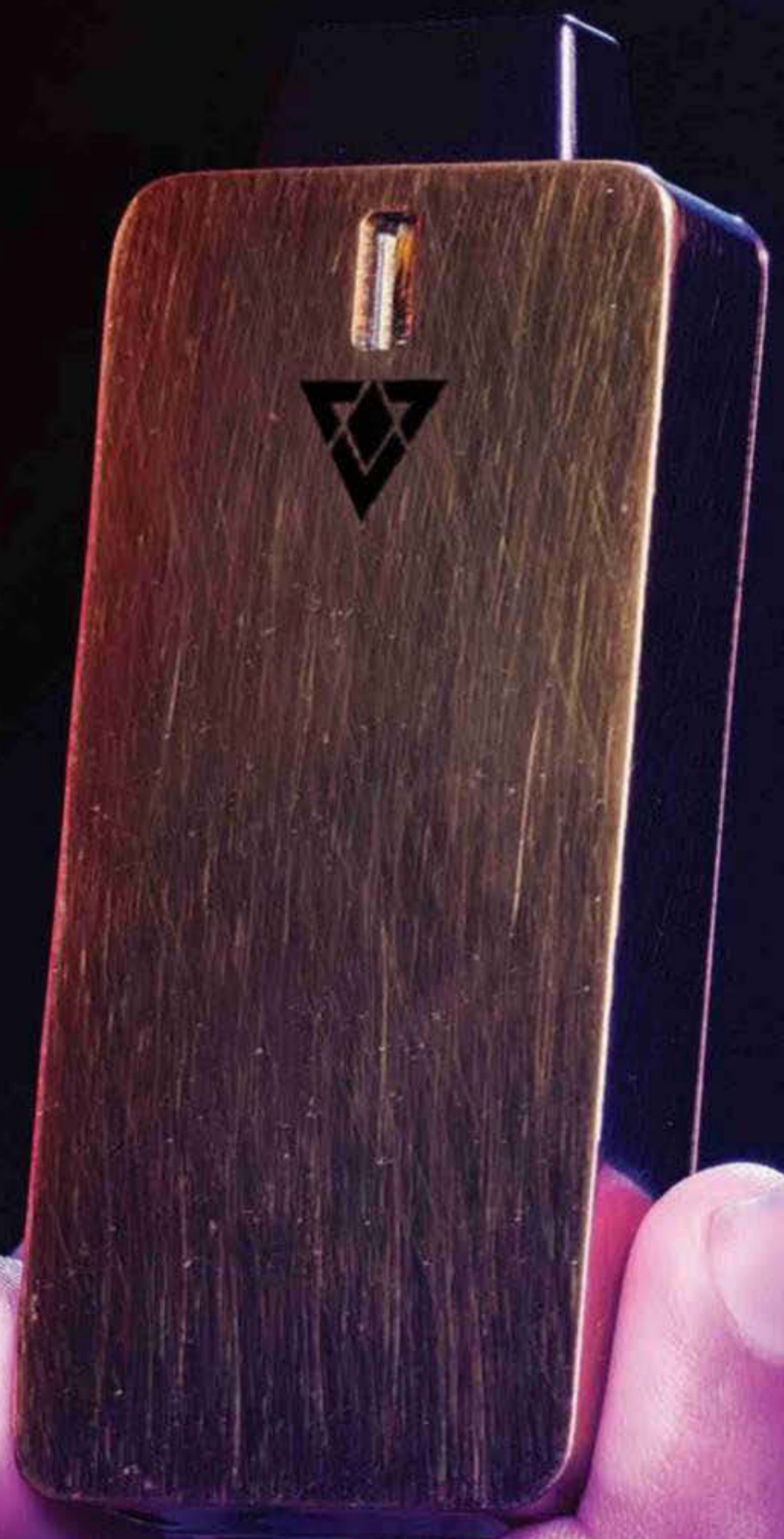
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BORDER BULLIES

Hi there. I wanted to share an experience with you that is a sad indicator of the federal government's current viewpoint on cannabis.

In July, my wife and I were in San Diego for the Comic-Con convention. We decided to spend the night, but hotels were too expensive so we went to Tijuana where a 5-star hotel is \$100. I am a medical marijuana patient in Los Angeles, legitimately prescribed cannabis. Unfortunately, I did not thoroughly go through my backpack and mistakenly left a pipe inside. Upon return to the USA, Customs and Border Protection officers found the pipe via x-ray. They pulled me aside, removed whatever was left inside it and weighed it. They stated I was in possession of 0.1 grams of cannabis.

This cannabis was prescribed legally, purchased legally, taxed and 100 percent in compliance with CA state law. But the CBP still deemed it a schedule I narcotic. This was enough for CBP agents to cuff me and detain me for three hours. In the end I was told I could go if I forfeited my Global Entry card and paid \$500 on the spot, with no option to appeal.

At no time was I read my rights or given an explanation as to what was happening. Instead, I was detained by guards cracking jokes about the detainees around them. They were also disrespectful of my Indian culture, as they ripped a wedding string off my wrist that I'm supposed to wear for six months, saying they were "just following protocol." It was a disgusting firsthand look at how the border works.

I'm now in the CBP system as an international narcotics smuggler, regardless of my compliance with state law. It's insane, given that I travel extensively and will now be subject to secondary inspection. I've never been in trouble with the law. Never tried any other drug save for weed. The punishment for 0.1 grams of cannabis scraped from a pipe—loss of Global Entry, a \$500 fine, and secondary immigration inspection for life—is beyond extreme. It's draconian, and turns regular law-abiding citizens into criminals.

*Anonymous
California*

THE POWER OF CBD

My mom suffers from arthritis in her knees. The pain was worsening and making it really hard for her to walk. I came home one day to see my mom with her leg up and crying. We had taken her to the



I'VE NEVER BEEN IN TROUBLE WITH THE LAW. NEVER TRIED ANY OTHER DRUG SAVE FOR WEED. THE PUNISHMENT FOR 0.1 GRAMS OF CANNABIS SCRAPED FROM A PIPE... IS BEYOND EXTREME. IT'S DRACONIAN, AND TURNS REGULAR LAW-ABIDING CITIZENS INTO CRIMINALS.

chiropractor a month prior and we were thinking of taking her again. However, my sister had taken a holistic class where they taught her about CBD ointments for pain and we decided to make our own.

My mom started rubbing the ointment on her knee daily, and by the end of the week she was walking again with less pain. By the second week, her pain was almost gone so she started taking Zumba classes and hasn't stopped dancing.

Seeing how my mom benefited from the ointment, we wanted to share our product with those in pain, and make it affordable! And that is how Twinz Topicalz came to be.

Jennifer

WE CAN DO IT!

I wanted to congratulate you on your Women of Weed issue (November 2018). It was truly inspiring to learn about the strong women who helped bring about the legal pot industry as well as those who are now shaping it for years to come! It's a highly recommended cover-to-cover read.

*Stephanie
Seattle, WA*

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POT IN JAPAN

Japan has strong historical connections with cannabis, like many other cultures in the world. Cannabis has been cultivated for at least 10,000 years, perhaps from the early Jomon era. In fact cannabis plays a key role in the Japanese Shinto rituals, as a metaphor at times, and as an actual object of worship in others. Cannabis has been used in Japanese tradition to make kimono, rope, and may have even been used widely in shamanistic rituals.

While technically legal, industrial hemp is strictly regulated, and it is very hard to obtain licenses that permit hemp farmers to grow. Medical marijuana is not permitted, because there is a clause in the Cannabis Control Act that prohibits any medical application of cannabis. However, it is important to note that this law was implemented by the occupying forces of the United States shortly after World War II. Until then, Japan had its own medical marijuana, mostly tincture products derived from East Indian marijuana.

Today, the pot scene in Japan is deeply underground, but there are estimates that count one million cannabis consumers in the entire country. It is bigger than most people think, but very well hidden. Strict, lengthy sentences await those who are busted with intent to sell. The same goes for those who get busted more than once. It is not highly recommended to smoke pot or grow it in Japan these days, or to try to smuggle in any cannabis products including seeds.

There is absolutely no sense to the Japanese Cannabis Control Act, which is full of contradictions. Japanese doctors and scholars are prohibited from even studying the medical properties of cannabis.

The Japanese cannabis legalization scene is an extremely small community with limited resources. Most groups are not working together, for one reason or another. It is time for all legalization groups to overcome their personal differences and unite.

Jon

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TOP 10 STRAINS Older shade leaves on French Cookies from T.H.Seeds exhibit deep fall colors such as purple, red and yellow as the plants reach maturity. Find out more delicious details on all of our favorite cannabis varieties in our Top 10 Strains of 2018 on page 64. *Photo by GBI (Green Born Identity)*



**CONTACT
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THE BEST JOB IN COLORADO Denver-based dispensary/grow op L'Eagle Services focuses on socially responsible principles like sustainability and fair labor while producing high-quality cannabis products for its Colorado clientele. Read more on page 54. *Photo by Ian Stout*







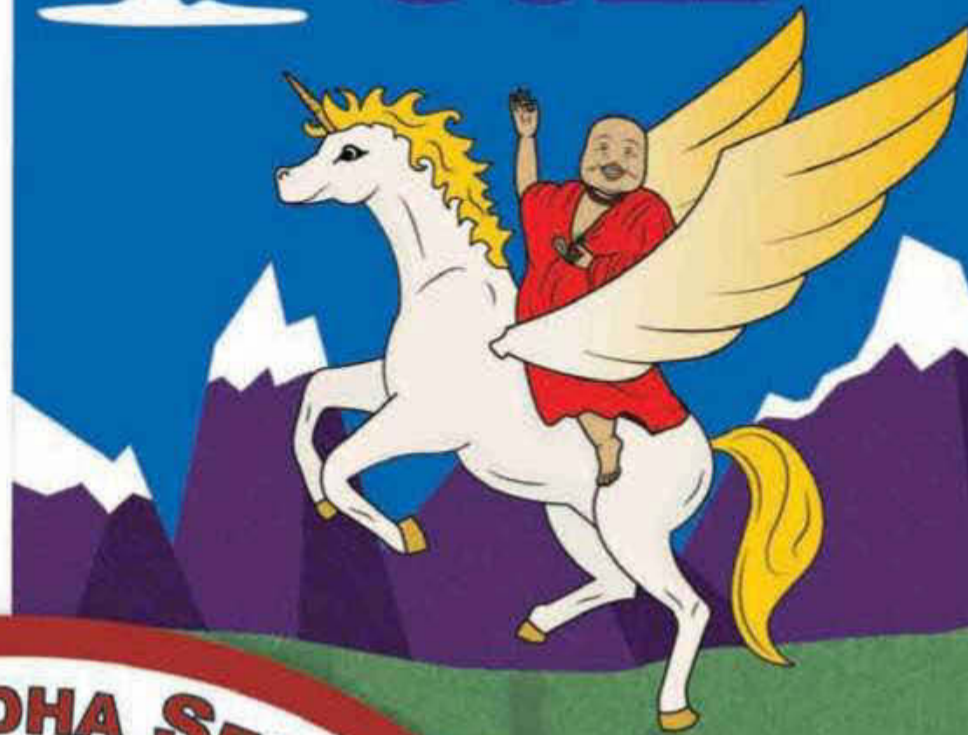


GUIDE TO DRYING AND CURING The final steps of the cultivation process are often overlooked, with calamitous results! Proper drying and curing can ensure your crop is flavorful, safe and potent. Grow guru Ed Rosenthal explains how to dry and cure your buds to get the most out of your harvest. Read more on page 44. *Photo by Gracie Malley*

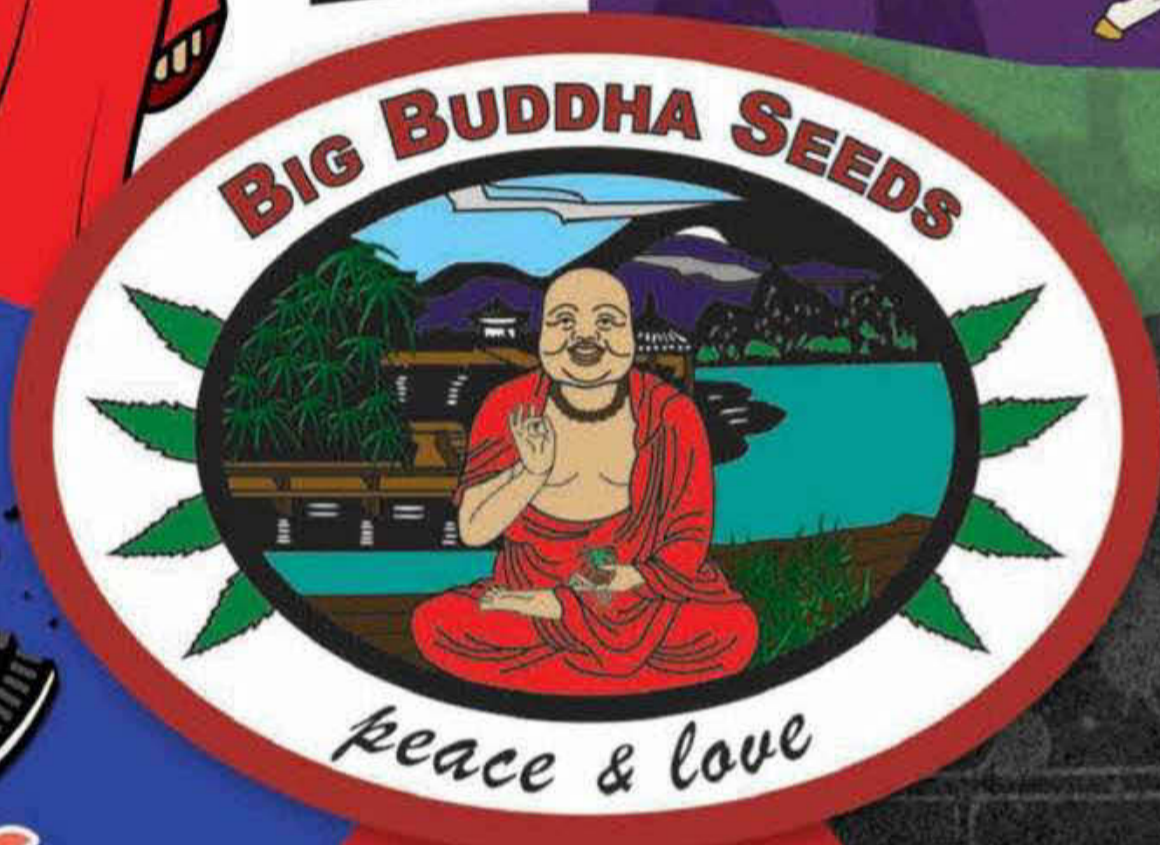


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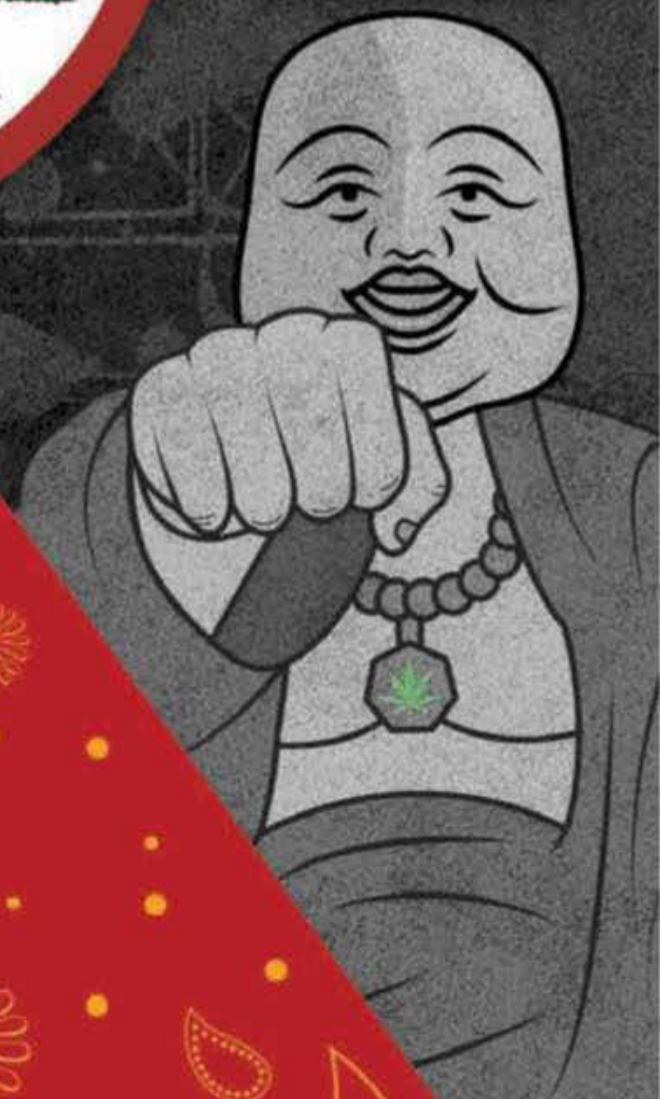
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NEWS

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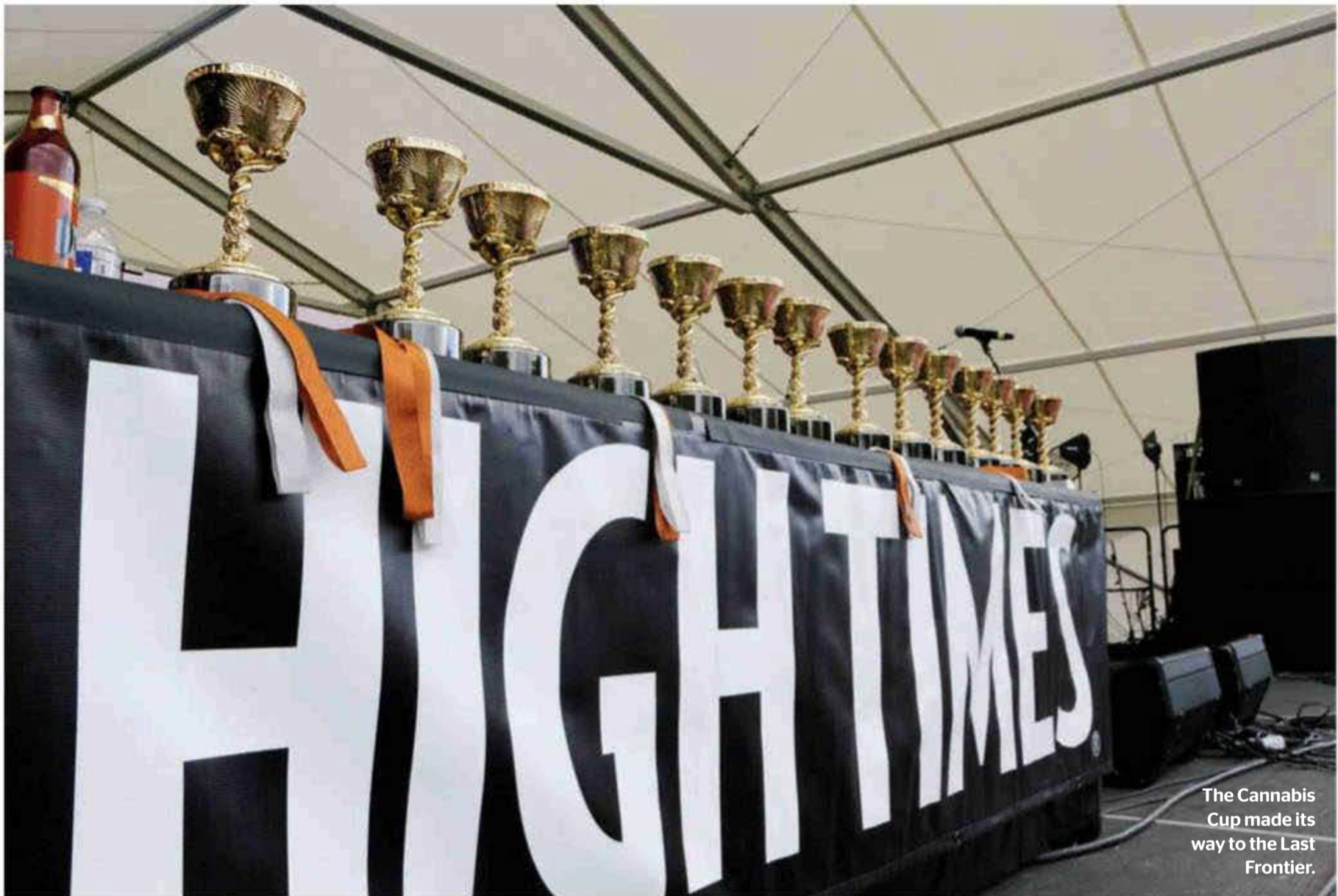
Former president of Mexico Vicente Fox wants to add cannabis to NAFTA like other produce. p.28



ENTERTAINMENT

DOLLARS & SENSE

Ty Dolla \$ign talks to *High Times* about the music business, family life and cannabis. p.34



The Cannabis Cup made its way to the Last Frontier.

ON THE ROAD AGAIN

HIGH TIMES ADDS EVENTS IN ALASKA AND HUMBOLDT COUNTY TO ITS FESTIVAL AND CANNABIS CUP ROSTER. BY SEAN COOLEY

THE FIRST-EVER ALASKA CANNABIS CUP

Surrounded by a surreal landscape of snow-capped mountains and glacial lakes, the inaugural Alaska Cannabis Cup was held on August 11 and 12 at Settlers Bay Golf Course in Wasilla. Much like the effects of the region's famed strain Alaskan Thunderfuck, the warm welcome from cannabis enthusiasts across the Last Frontier was happy, uplifting and euphoric.

"We have such a short summer in

Alaska, it's so incredible to take advantage of the season and be outside enjoying the day," said Caleb Saunders, co-owner of Green Jar, one of the first recreational dispensaries in Mat-Su Valley. "With it being the first [High Times] Cup up here, it's amazing to be part of history."

After a weekend of performances by headliners Arrested Development, Iration and Thievery Corporation, Cup judges took to the stage to announce winners across 14 categories of cannabis products. Denny Aguayo of 2 Bros Growin', winner

of Best *Indica* Flower for his Strawberry Banana strain, gave a rousing acceptance speech. "Tonight, this pavilion is filled with nothing but champions, each and every one of you, because you have a love and passion for this God-given plant that heals," said Aguayo, a veteran who goes by the moniker Alaska Kush Commander.

The festival atmosphere included a dab tent, food trucks, glass-blowing demos, a dunk tank, a raffle for an electroformed gemstone rig from Envy Glass Studios and a gigantic Slip N' Slide that saw more than a few slippery stoners nearly blast through the sandbag back-stop. Festivalgoers partied until the sun went down—around 10:30 p.m. Alaskan daylight works in mysterious ways.

See all the winners from the first-ever Alaska Cannabis Cup at hightimes.com.

HT JOINS REGGAE ON THE RIVER

Residents of Humboldt County had reason to doubt if Reggae on the River would make it to a 34th consecutive summer, as questions surrounded the longtime Northern California institution that had fallen on hard times last year. But the Emerald Triangle is known for its perseverance and unifying spirit, which allowed the community to produce one of the top reggae celebrations in the world once again.

“You’re listening to music about common sufferation; it’s the music of the people who had to endure, and this festival endures too,” said Kevin Jodrey, founder of Wonderland Nursery. “Having Reggae on the River picked up with High Times—continuing to give people this place to relax and see each other on a very human level—it’s a beautiful thing.”

The Mateel Community Center and High Times entered into a joint agreement last March, combining their events expertise and commitment to upholding tradition to keep Reggae on the River alive and well in Humboldt County.

“Reggae on the River has been a treasured part of Northern California’s



Don Carlos takes the Reggae on the River stage, spliff in hand.

cultural scene for decades, and Mateel’s board has been committed to finding a long-term, sustainable partnership to ensure the festival thrives for years to come,” said Garth Epling, the Mateel Community Center board president.

Good vibes permeated the riverside festival as fans lounged around the Mateel concert bowl passing joints,

taking in live painting and enjoying the three-day lineup of music, highlighted by performances from Don Carlos, Morgan Heritage and the Original Wailers. After-parties blurred into after-after-parties as DJs took to the smaller stages by the river.

For upcoming High Times event information, visit cannabiscup.com. 🌿

HIGH FIVE

SPORTS & POT

THESE ATHLETES ARE ATTEMPTING TO CHANGE PERCEPTIONS ABOUT CANNABIS. BY FRANK GREGORY



KYLE TURLEY

A former NFL offensive lineman, Turley has battled painkiller addiction as well as suicidal thoughts. He was diagnosed as symptomatic of chronic traumatic encephalopathy (CTE) and with the early onset of Alzheimer’s disease after his playing career. In 2015, after using marijuana to quit pharmaceutical drugs, Turley founded the Gridiron Cannabis Coalition to advocate for marijuana as a treatment option for NFL players. He credits cannabis with helping him deal with the severe effects of concussions, saying it saved his life.



LEONARD MARSHALL

A former Pro Bowl defensive end who won two Super Bowls with the New York Giants, Marshall was diagnosed with symptoms of CTE in 2013. Marshall additionally suffers from debilitating headaches that he treats with cannabidiol (CBD). Vaporizing CBD has also helped him keep the symptoms of traumatic brain injury at bay. Now Marshall is advocating for the league to change its policy and allow players to use medical cannabis as a safe alternative to harmful and addictive prescription painkillers.



DARREN MCCARTY

McCarty, a 15-year veteran of the NHL and four-time Stanley Cup winner, used cannabis to recover from alcoholism and substance abuse. When he was at his darkest moment, friends pumped him full of Rick Simpson Oil (RSO) for days at a time to wean him off the booze. Now recovering, McCarty believes he’d “be dead without [cannabis].” He’s passionately committed to advocating for medical marijuana and uses his life story to teach other athletes about the benefits of pot.



CLIFF ROBINSON

An 18-year veteran of the NBA, about half of which was with the Portland Trail Blazers, Robinson retired in 2007. He used marijuana during his playing career to recover from injuries and ease anxiety, and now that he’s in his post-sports career, Robinson’s making waves in the cannabis industry. He’s partnered with Portland-based Pistil Point Cannabis to create his line of Uncle Cliffy pre-rolls, and he hopes to advance the cannabis cause by promoting the many benefits of pot for athletes.



STEVE KERR

The Golden State Warriors coach has passionately advocated for medical pot as a treatment option for professional athletes. “I don’t think there’s any question that pot is better for your body than Vicodin,” Kerr said on the Warriors Insider Podcast in 2016. “There’s like this perception in our country that over-the-counter drugs are fine, but pot is bad. Now I think that’s changing. But I would just hope that sports leagues are able to look past the perception.”



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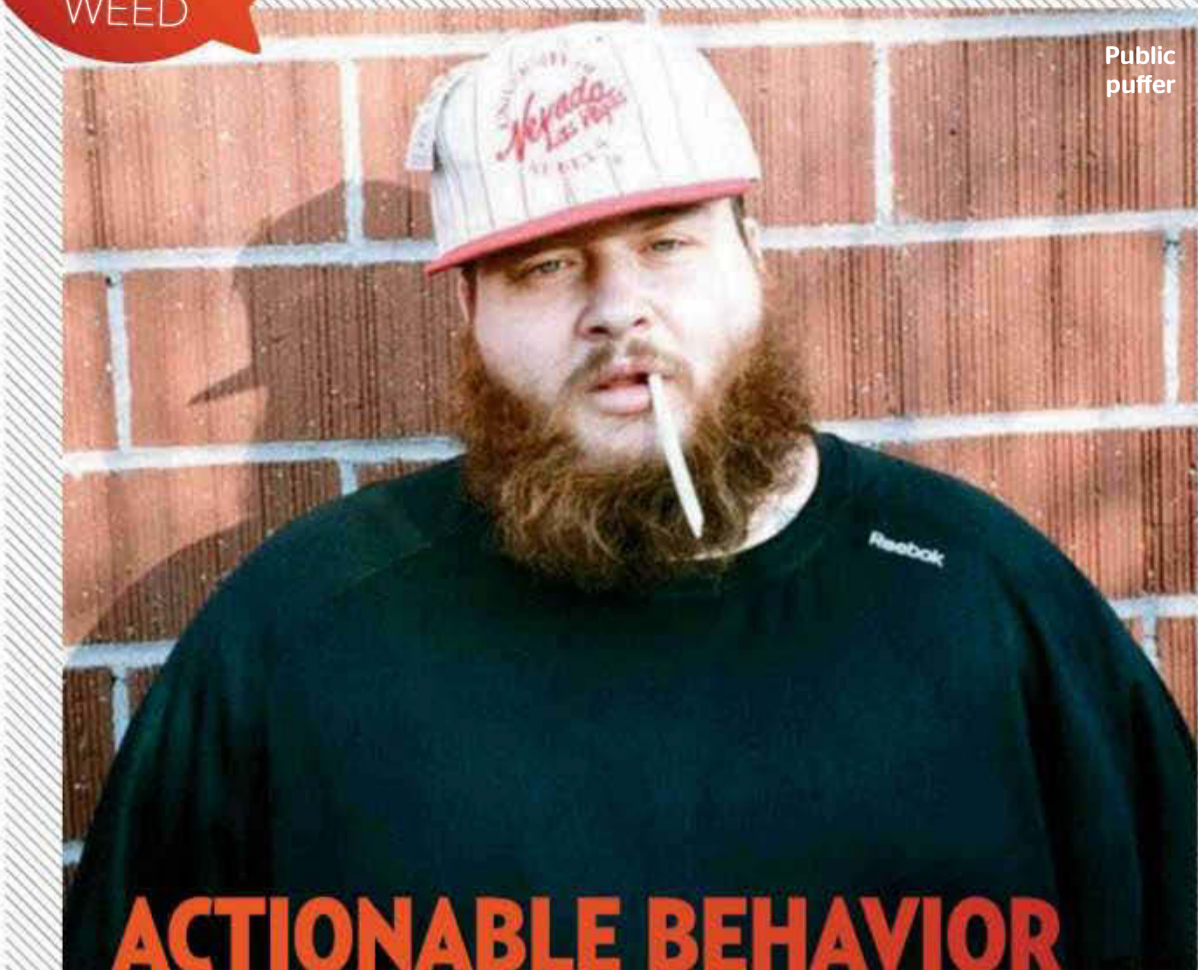
Fake newsman

DERP STATE

It appears that the US government has not quite given up on its failed War on Weed. BuzzFeed News reports that the Trump administration has secretly coordinated a committee of federal agencies in an attempt to counter the ever-growing public support for cannabis. An abomination called the “Marijuana Policy Coordination Committee” has directed 14 federal agencies plus the Drug Enforcement Administration to submit “data demonstrating the most significant negative trends” about weed and the “threats” it poses to the country. In other words, some alternative facts are going to be polluting the discourse around marijuana reform. Of course, the propaganda blitz will be coming right from the top. “This is a terrible political move by the administration,” said John Hudak, a senior fellow at the Brookings Institution. “This is a president who is not serious about states’ rights and regulatory reform in areas like drug policy, and is not serious about telling the truth to the American people or members of Congress from his own party.”

CROOKLYN

Images of dope deals in action occasionally pop up on social media, but none so brazen as the instagram post of a Brooklyn dude executing a weed sale on the back of a police car. The video shows the entrepreneurial fellow placing his digital scale unabashedly atop the squad car’s trunk, weighing product. “You, you want an eighth?” he asks a customer, then generously metes out a bonus tenth of a gram in the transaction. There were no officers on site at the time. The *Daily News* tracked down David Jiminez, who posted the video on the instagram site NewYorkCityUncut “for laughs,” and not to diss the cops. “Someone was killed in the park a few days prior and everyone was uptight about it, so I thought it would be a good way to break the ice,” he claimed. “I wasn’t disrespecting anyone. I appreciate everything the NYPD does for the good of the community.”



Public puffer

ACTIONABLE BEHAVIOR

At a recent concert in Kosovo, rapper Action Bronson did what he usually does onstage and fired up a joint. The Kosovo police were none too pleased however, and they arrested him on the spot. A video posted on instagram shows the zaftig performer sparking one up plain as day, just before launching into his single “Terry.” He then tossed the spliff into the crowd. Bronson either posted bail or reached some other accord with Kosovo police, according to *TMZ*, because he was very quickly released from custody. The 34-year-old Queens rapper has long been a friend of the kind, something he spoke of at length at the 2016 ComplexCon. “I’ve been high for 20 years. It got me through a lot of times. I’m an only child, so I’m very creative. I have to make things up in my life, like a friend here or there. Weed helps. It enhances everything with imagination in life and art and creation.”



Reefer researcher

DRUG ENHANCEMENT ADMINISTRATION

The DEA is calling for more weed. Yes, that DEA, the buzzkillers at the Drug Enforcement Administration. *Forbes* reports that a new Federal Register filing reveals the agency plans to increase the amount of cannabis grown for research by fivefold – from about 1,000 pounds this year to more than 5,400 pounds in 2019. Since 1968, research weed for the nation has been grown on a single University of Mississippi farm, something the Obama administration had tried to expand by directing the National Institute on Drug Abuse

(NIDA) to license more cultivators, a process since stymied by the current narc-in-chief. It’s hard to say whether the new filing is a mark of progress. “While the drastic increase in requested production of marijuana by the DEA is a positive sign,” declared NORML Political Director Justin Strekal, “significant barriers still exist including but not limited to the NIDA monopoly on cultivation and undue hurdles for researchers to qualify for a permit.”

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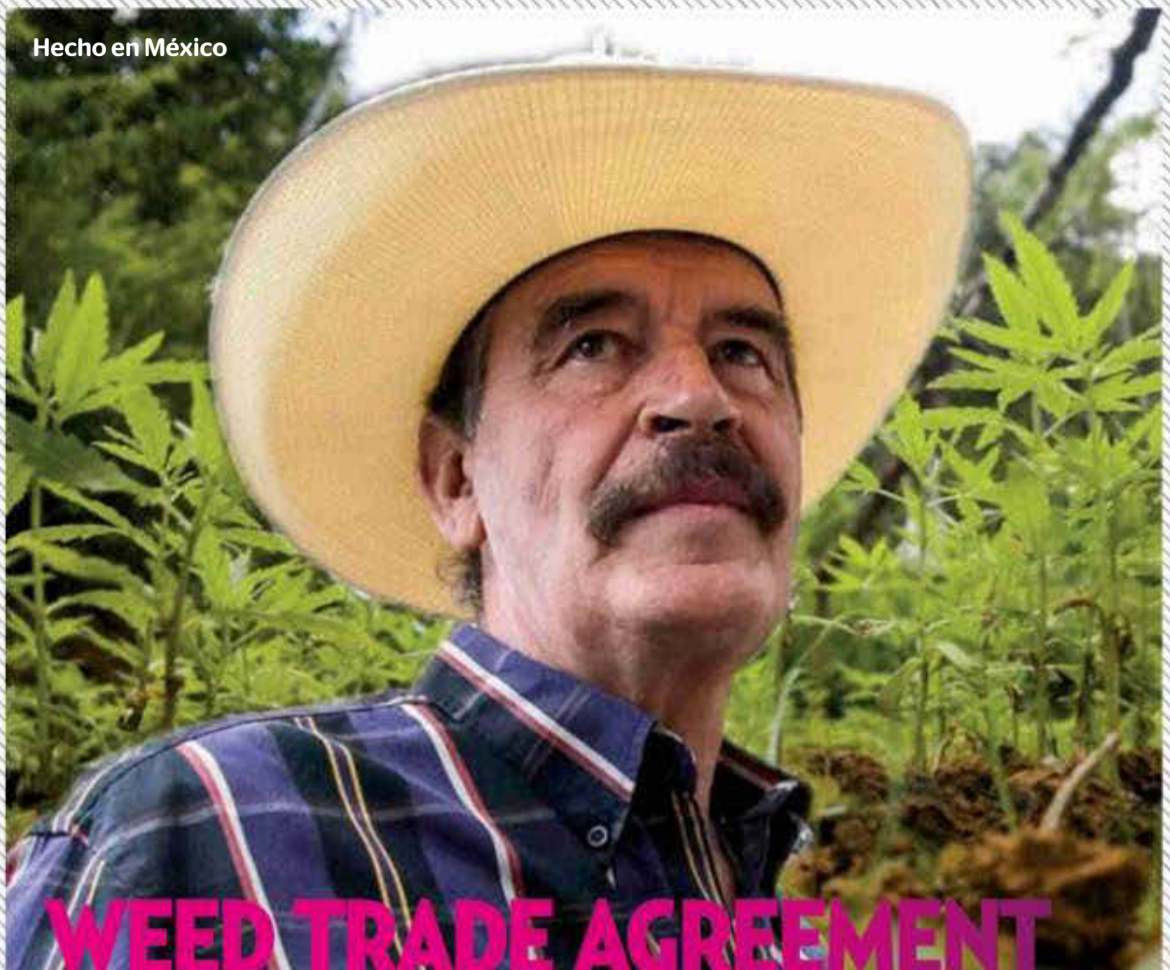


SHADOW BHANGED

Cannabis companies and entrepreneurs find it tough to advertise for their wares and skills, so they rely heavily on social media to get the word out. *Marijuana Business Daily* reports that Facebook is making life even more difficult for these weed workers, as “marijuana-related companies, regulators and trade groups around the globe” no longer appear in Facebook searches. The tech giant appears to be screening out results related to “marijuana” and “cannabis,” a form of shadow-banning that has sent tremors throughout the industry. “While Facebook has held a pretty hard line on advertising, which cannabis companies have been dealing with for years, this is a big hit to cannabis businesses and brands,” observed Rosie Mattio of RMPR, a public relations firm that works with cannabis businesses. “A company’s social pages are as important, if not more important, than their website.” That said, do check out @HighTimesMag, while you still can.

SPICING OUT

More than 70 people in New Haven, CT overdosed on K2 in a single day in August, as dozens of victims were rushed to emergency rooms from the New Haven Green, a downtown park. There were no fatalities, though at least two people suffered life-threatening symptoms from the nasty drug. The overdoses strained the city’s capacity to treat victims, according to Dr. Sandy Bogucki, director of emergency medical services in New Haven. Emergency medical technicians, she told the *New York Times*, were “sprinting from patient to patient in the park.” She said crews were rushing people more quickly than usual “just to turn the cars around and get them back out.” New Haven police arrested two men in connection with the overdoses. DEA agents took a K2 sample to a New York lab for testing, and though the results were not immediately available, the stuff was believed to have been laced with an opioid compound, possibly fentanyl.



WEED TRADE AGREEMENT

Former Mexican president Vicente Fox has a big idea: let’s add cannabis to the North American Free Trade Agreement as if it were any other kind of produce. Vicente, who believes Mexico’s new government will legalize recreational cannabis in the next year or so, has skin in the game as a board member of Vancouver-based medical marijuana producer Khiron Life Sciences Corp. “We can change criminals for businessmen, we can change underground, illegal non-taxpayers into an industry, a sector of the economy,” Fox told Bloomberg. “I think it should be part of NAFTA and that’s what I’m pursuing.” Not everyone is enamored of the idea. Growers in California, who already are up against a gauntlet of regulations in the young US market, would likely be devastated by competition from south of the border. It is unlikely that cannabis will be part of a NAFTA deal so long as weed remains illegal at the federal level in the US.



FLORIDUH

With a brand-new medical-marijuana program taking off in Florida, there will be many job opportunities opening up from seed to sale. Unfortunately, and misguidedly, many good people will be screened from participating in the new market as employers are bypassing folks with cannabis “crimes” in their pasts or those who speak candidly about their current usage. In other words, stoners

need not apply. “We get hundreds of applications for every job opening we have,” Michelle Terrell, spokesman for Curaleaf, which opened a dispensary in south Orlando in early August, told the *Orlando Sentinel*. “And maybe only 10 percent of those are qualified and meet the legal requirements.” Med-pot is expected to generate close to half a billion dollars in sales in 2018, according to Arcview Market Research and BDS Analytics. Cannabis employment is predicted to grow to some 25,000 jobs by 2022. Let’s hope that by then employers will value their workers’ experience in the field.



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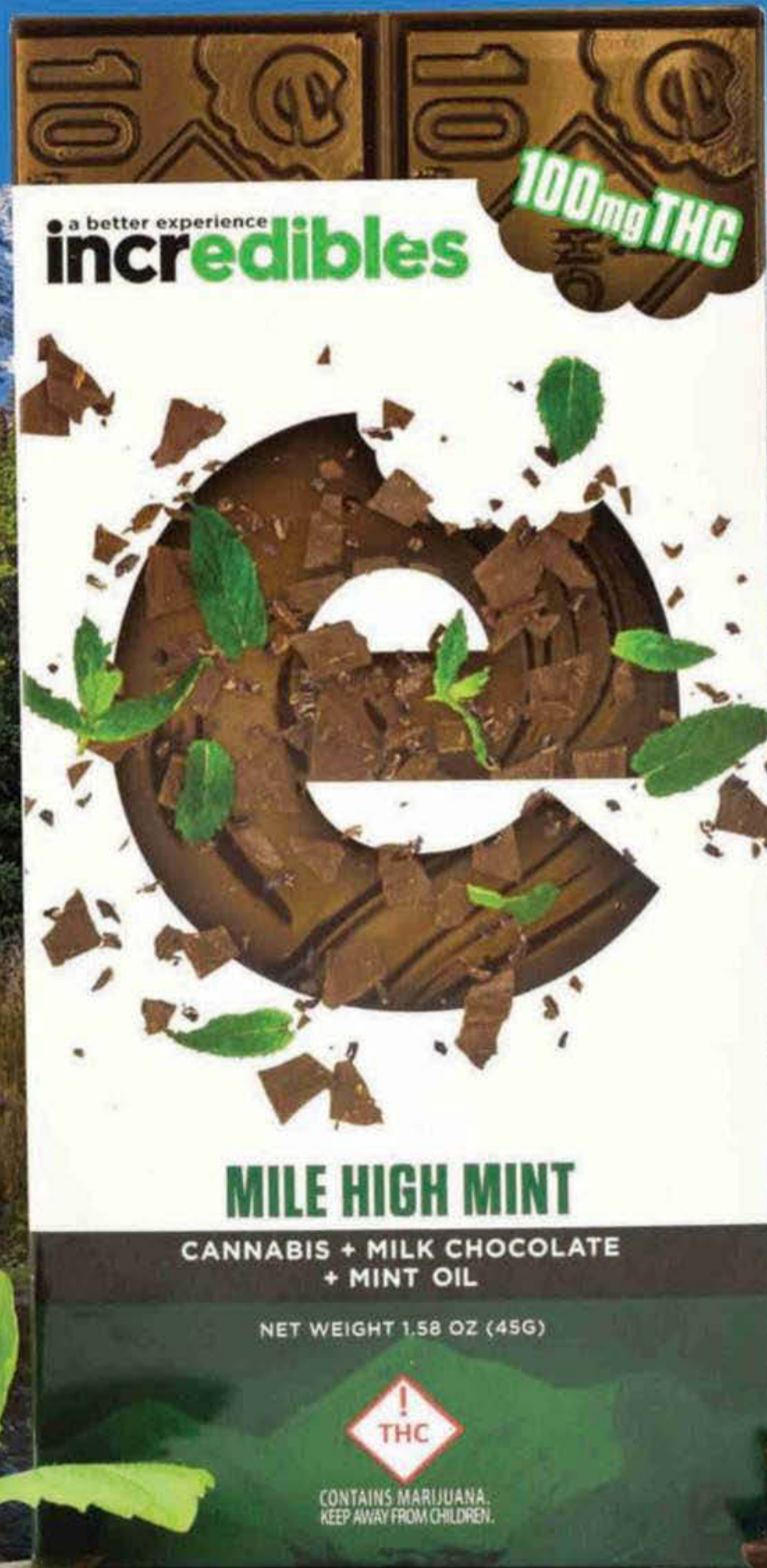


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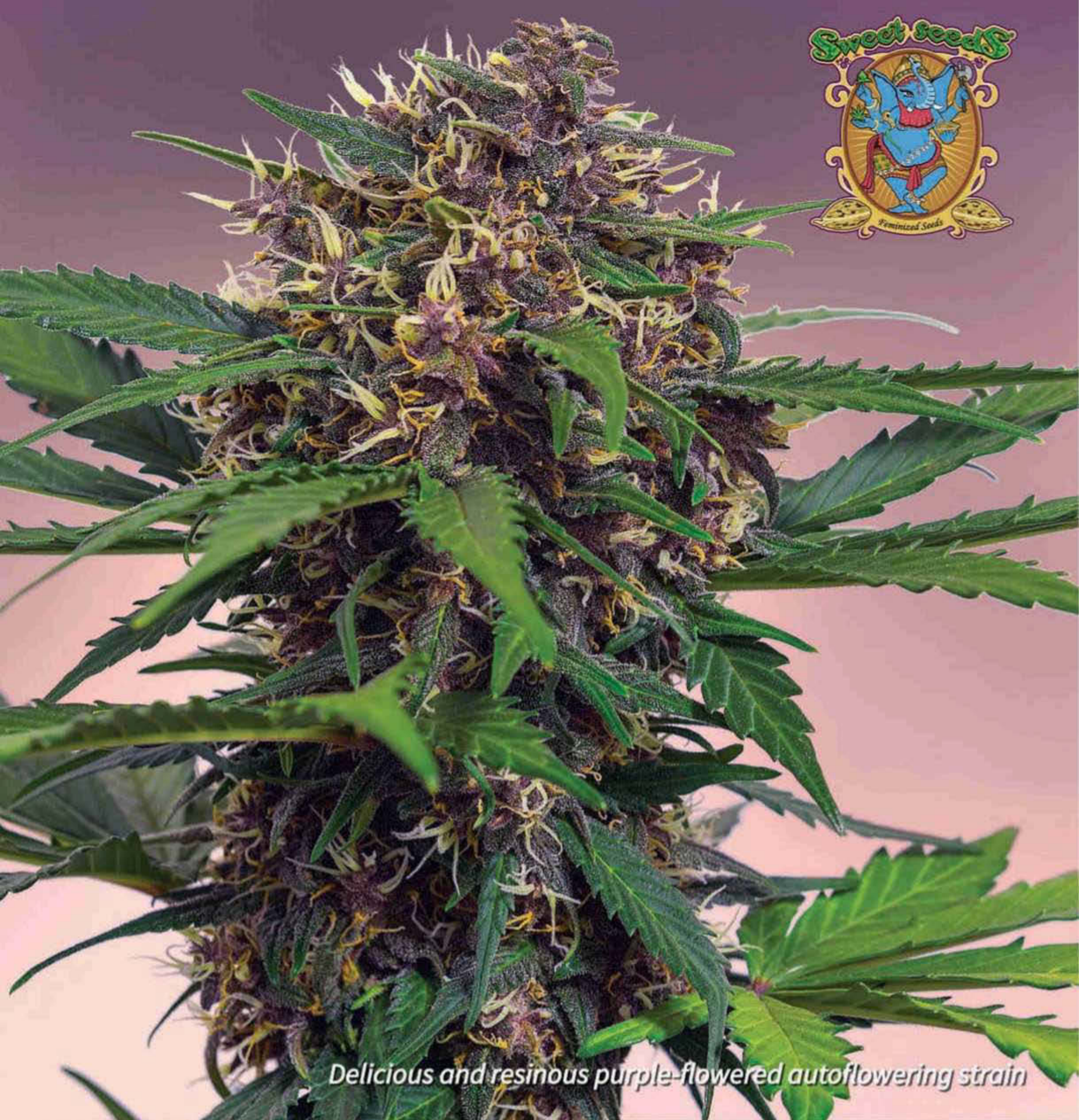
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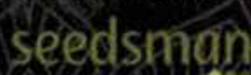
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Interpol's Paul Banks continues to evolve.



TAKE IT TO THE BANKS

INTERPOL'S LEAD SINGER HAS LEARNED TO TUNE IN AND GET OUT OF HIS OWN WAY. BY CHRIS PARKER

CLAD IN BLACK and bearing distant, blank expressions, the members of Interpol look the part of jaded post-punk antecedents like Joy Division and the Chameleons. Daniel Kessler's jagged guitar lines bounce off front man Paul Banks's grim baritone like a force field, creating the moody environs that Banks's lyrics inhabit.

Banks once told *Rolling Stone* he wanted his vocals to "communicate a sense of despair so intense that melody is out of the question." Though Banks's vocals still feature a palpable pall, two decades in the game have softened everyone's hard-boiled exteriors and relaxed some of the mystery, particularly on their sixth album, *Marauder*.

"That was sort of a school of thought we all kind of shared about being a little more distant and a little less revealing as far as allowing the mystery to be in place and kind of cultivate

that," says Banks. "As the world changes—the connectivity of social media and stuff—I feel people just have this expectation to know a little more about artists. We could hold fast to what we were in the beginning, but I think it's good to change with the times."

Though he was born in England, Banks's parents moved to Bloomfield Hills, Michigan, when he was very young. He then spent his adolescence bouncing from New Jersey to Madrid and back, and finally to Mexico City for high school.

"I was going out to the bars and partying while living in the city in Madrid," Banks recalls. "Then I moved back and was in suburban Jersey amid the farmland, and the nightlife took a major turn. I remember going to some house-party kegger. It was horrible."

He wound up attending NYU and had his heart set on

becoming a solo artist when he met Kessler, and he was pulled into what would become Interpol more than two decades ago. He has released a couple solo albums (one under the moniker Julian Plenti) and a recording with Wu-Tang's RZA, 2016's *Anything but Words*. (Banks is a deeply passionate hip-hop fan who spins as DJ Fancy pants.)

Banks's songwriting has evolved thanks to a realization at the pool table (he's something of a pool shark). The breaking point was Interpol's third album, 2007's *Our Love to Admire*, when he practically tore his hair out obsessing over the lyrics. Since then, he's learned to relax a bit

"THERE WAS ONE EARLY SHOW IN OUR CAREER WHERE I SMOKED WITH THE OPENING BAND BEFORE WE WENT ON. I LEARNED YOU CAN'T EVER DO THAT AGAIN."

more and let it flow instead of overthinking it.

"At one time, I was pretty nifty with a pool cue, and one of the epiphanies that I had was that the second you look at the table you knew the angle," Banks explains. "On some deep animal level, you know exactly what angle to shoot the ball, and the process of shooting pool well is about not getting in your own way."

"I always heard other artists talk about how music is sort of outside of you and you tune in to it and it sort of arrives," he continues. "As I've kind of progressed as an artist with my process, I feel like I'm a lot better at being tuned in and just getting out of my own way."

A longtime fan of marijuana, Banks was first exposed to hash during his time in Spain, and then later in Mexico City he became familiar with the local brown ditch weed thick with stems and seeds.

Along the way, he's learned it's best not to partake before the show.

"There was one early show in our career where I smoked with the opening band before we went on. I learned you can't ever do that again," he laughs. "I remember thinking, 'Dude, you're going to forget that you're supposed to be singing the chorus right now because you're just vibing on the guitar and listening to the band.'" ✨



LAYING IT DOWN

When Interpol's original bassist Carlos Dengler left the group, Banks eventually took over bass duties, which influenced his vocals: "Playing bass and singing at the same time, [sometimes] the vocal might form the anchor and the bass complements that."

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DOLLARS & SENSE

TY DOLLA \$IGN EMBRACES HIS STONER SIDE.
BY KYLE EUSTICE

TY DOLLA \$IGN fully admits he's a stoner who "does stoner shit sometimes—like miss interviews." The platinum-selling producer, singer and multi-instrumentalist, who has been on the Endless Summer Tour with G-Eazy, Lil Uzi Vert and Murda Beatz, recently had a day off in his hometown of Los Angeles.

But the night before he was supposed to do this interview, Ty\$ stayed up all night at the studio, smoking weed and working on music. Once he finally fell asleep, he was knocked out so hard his team couldn't wake him up. So he slept, and slept, and slept. The next day, with a renewed sense of vigor, Ty\$ finally gets on the phone.

"How you doing?" he asks.

"I feel like I've been waiting for this moment my entire life," I snidely reply.

But any apologies won't come until later. Ty\$ is someone who seems to ease into a conversation. It's as if he's sizing you up as you talk, and once (or if) he's comfortable, only then will he decide to open up.

This is a man who consistently works with some of the most notable hip-hop artists on the planet, including Kanye West, Wiz Khalifa, YG and Gucci Mane. In fact, 'Ye recruited Ty\$ for a collaboration with Rihanna and Paul McCartney called "FourFive Seconds," which was released in 2017. But despite his close affiliation with music's upper echelon, his humility shines through. It's almost like he's in disbelief that his path has taken him here.

"Talking about those



studio sessions—it was like a movie," Ty\$ explains. "I've worked with a couple icons, [McCartney] being one of the biggest ever in life, and it's always nice to get recognized by icons for what I do.

"For them to even want to collaborate with me, that's incredible," he continues. "I'd just like to say Kanye's a fucking genius, I mean obviously, but shout out to 'Ye for getting me involved with that."

After signing a record deal with Wiz Khalifa's Taylor Gang imprint in 2013, Ty\$'s life has been a whirlwind of unbelievable opportunities, but it's not really that surprising considering his pedigree.

Born Tyrone William Griffin Jr. in 1985, Ty\$'s father—Tyrone Griffin Sr.—was a member of the R&B/soul band Lakeside. Hanging around Earth, Wind & Fire or Prince wasn't a rare occurrence.

Ty\$ remembers the first time

his father realized he was destined to follow in his footsteps.

"He tells me this story all the time," Ty\$ says with a laugh. "I was like 4 and he was playing keys with Jermaine Jackson, like putting together his show. He said he went to the bathroom for a second after trying to figure out this part, and he said I went up to the keyboard and just played that shit by ear. From there, that's when he discovered I had a passion for music. So he started buying me shit like a Casio keyboard and later on he bought me an MPC [drum machine] when I was like 13."

At 33, Ty\$ is now a father to

"SOMETIMES I'LL BE ABOUT TO PASS UP SOME SHIT AND MY DAUGHTER WILL BE LIKE, 'NAH, YOU GOTTA DO THAT ONE.' SOMETIMES I DON'T HEAR IT AND I'VE BEEN WRONG. SOME OF THOSE SONGS ARE BLOWING UP PRETTY BIG. SHE DEFINITELY KNOWS WHAT'S UP."

his own 13-year-old daughter, who often calls the shots when it comes to deciding what projects to take on.

"If I like the music, if I like the song, I'll fuck with it. Period," Ty\$ says. "Straight up, if it makes me feel something, then I'll do it. I pass up the gang of shit though. But sometimes I'll be about to pass up some shit and my daughter will be like, 'Nah, you gotta do that one.' Sometimes I don't hear it and I've been wrong. Some of those songs are blowing up pretty big. She definitely knows what's up."

But when it comes to having weed around her, that's something that's nonnegotiable.

"I don't smoke directly in the room with my daughter for sure," Ty\$ says. "She has a decision to make if she wants to or not when she turns 18... I think this weed thing is not for everybody, but it's definitely for me. If you love it as much as me and you still handle your business and take care of your family, then it's all good."

As the conversation comes to a close, Ty\$ is laughing and his congenial personality is bursting at the seams.

"I'm glad this finally happened. Sorry for the wait," he says. "All love!" 🌿



PSYCHO

Ty\$ collaborated with Post Malone earlier this year on the song "Psycho." It debuted at No. 2 on the Billboard Hot 100 and soared to No. 1 in June. Not only did Ty\$ provide vocals for the track, he also co-wrote the song, once again showcasing his impressive versatility.



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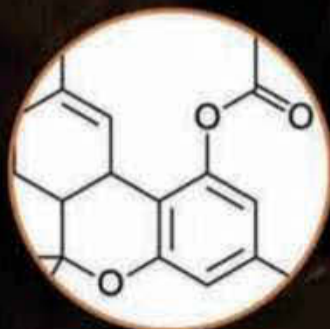
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LEGAL POT TAKES ON BIG ALCOHOL

THIS YEAR, LEGAL CANNABIS READIES ITSELF TO COMPETE AGAINST BIG ALCOHOL FOR HOLIDAY CHEER.



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

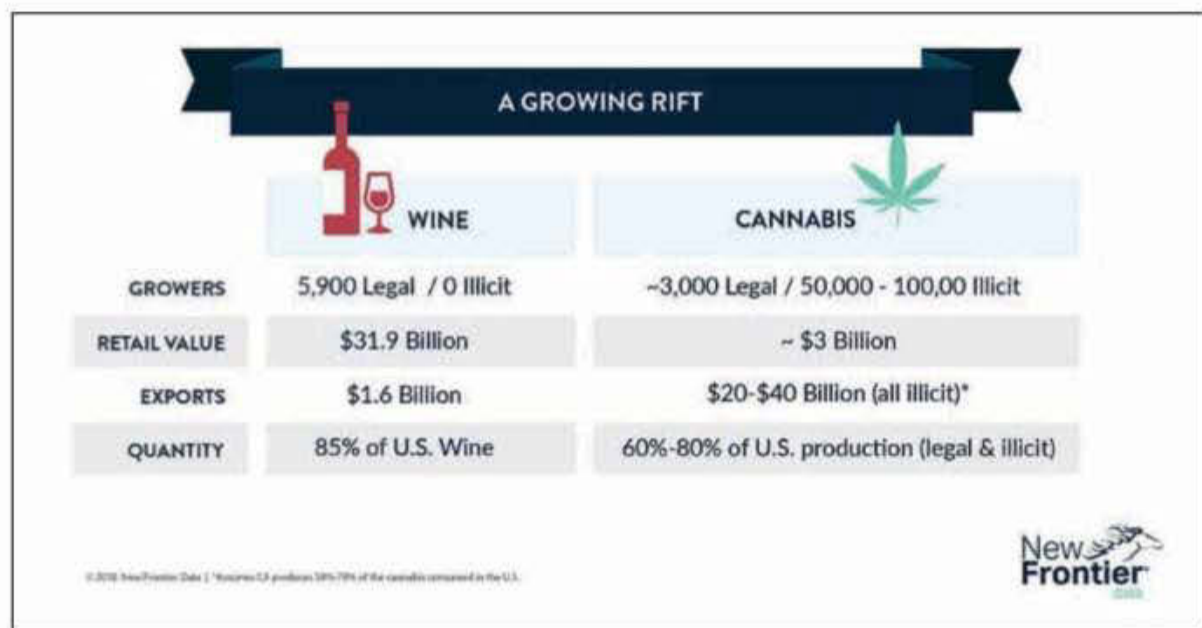
THE TIMES KEEP CHANGING: Holidays and alcohol have been linked in North America since before the Puritans saw fit to ship more beer than water on the *Mayflower*. But with the opening of legalized adult-use cannabis markets in California and nationwide throughout Canada in 2018, the pot industry is ready to take on Big Alcohol as both an alternative to booze and through competition via canna-beverages.

While most industry analysts expect beer sales to be at the greatest risk from the popularity of legal pot, the nine states with adult-use laws also feature demographically disproportionate numbers of potential consumers who are wine drinkers.

After discerning between consumer bases and then actively marketing toward targeted discretionary incomes, health concerns and dietary (e.g., calorie-free) or lifestyle preferences, producers and marketing experts will be very busy watching and wooing consumers this season. Some of the more intoxicating forecasts for the cannabis industry anticipate its claiming nearly 15 to 20 percent of the alcohol market.

According to Nielsen Data, consumers spent \$41.4 billion on wine in 2017, up nearly 3 percent from 2016. Likewise, the California-based beer, wine and spirits consulting firm bw166 reported that 2017 wine shipments were up 1.3 percent from 2016, as both domestic and foreign wine sales reached 403 million cases. Yet alcohol appears likely to see significant disruption from adult-use legalization, whether through sales figures or public-health studies, one of which found that rates of monthly binge drinking decreased by 13 percent in states where cannabis is legal for adult use compared with states where it remains fully prohibited.

Last summer, Colorado released a study by its Department of Public Health and Environment illustrating how the state's cannabis consumers reflected the trends: Among adults, the number



SOME OF THE MORE INTOXICATING FORECASTS FOR THE CANNABIS INDUSTRY ANTICIPATE ITS CLAIMING NEARLY 15 TO 20 PERCENT OF THE ALCOHOL MARKET

of people eating or drinking legalized cannabis products increased from 35.2 percent in 2016 to 40.4 percent in 2017. Meanwhile, Coloradans increasingly seek out edibles and other non-smokable forms for their consumption. When the state's legal sales began in 2014, smokable cannabis known as "flower" comprised 67 percent of all cannabis sales. Today, it's reportedly down to 44 percent, with potent concentrates having doubled to 31 percent of sales.

The trend has not gone unnoticed. New York State-based Constellation Brands owns the Corona, Modelo and Pacifico beer brands, but it also caters to affluent, multicultural and gender-diverse consumers of craft beer (and it also owns the Robert Mondavi wine brand). It became the first publicly traded alcohol company to majorly invest in cannabis, per its \$245 million interest in Canadian producer Canopy Growth. Constellation estimated the size of 2018 cannabis sales, both legal and illicit, at around \$50 billion.

The company has reason for optimism this season, after having reported strong fourth-quarter results and a steep dividend hike in 2017. Last spring, the

company reported that it had recognized \$453 million in total pretax gains from its investment in Canopy. And now North America's first publicly traded cannabis company is developing a line of cannabis-infused cocktails.

Likewise, Toronto beer startup Province Brands is marketing the world's first beer brewed from cannabis. While most canna-beers thus far have been brewed from barley and then infused with CBD oil, Province's beer is brewed from the actual stalks, stems and roots of the plant itself to offer a dry, savory brew roughly equivalent to a single dose of alcohol, averaging about 6.5 milligrams of THC per serving.

These are not the only ones. "We're going to create a platform of products that will be great for a party and in demand globally," Canopy CEO Bruce Linton told CBC News. "We think beverages are going to fit in. They are also socially acceptable, right? If I could have a beverage that actually makes me a bit giddy and doesn't give me any calories, I'm feeling pretty good about that choice of a beverage."

And wouldn't that be a nice way to start the new year? 🌿

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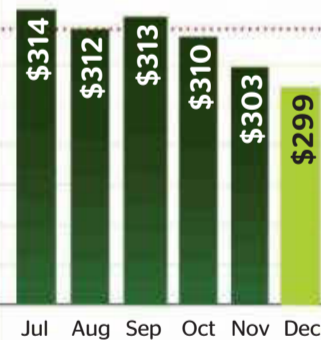
(Gobstopper)
 "Dispensary purchased. Berry-flavored indica-dom strain with tight nugs."
 -Chicago, IL

MARKET ANALYSIS

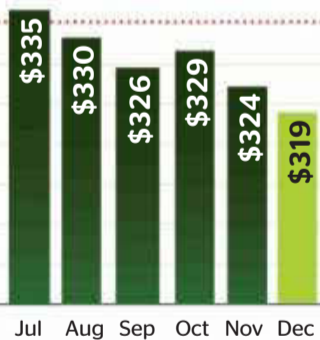
Prices by the ounce

For the second straight month, all indices finished below their previous month's average. Once again the Western Index experienced the biggest drop (-\$6) to reach a year-low average price of \$241 per ounce. The Eastern Index also established a year-low average price this month, while the US Index set a two year low, with its average price of \$299 per ounce.

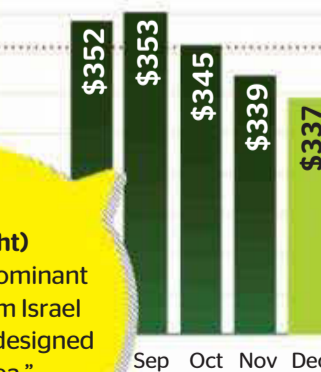
US Price Index
 YTD Average: \$312



Eastern Index
 YTD Average: \$333



Southern Index
 YTD Average: \$345



Western Index
 YTD Average: \$258



(Midnight)
 "This sativa-dominant medicine from Israel was specially designed for nausea."
 -Toledo, OH

TRANS HIGH MARKET QUOTATIONS

STATE	CITY	STRAIN	PRICE
ALABAMA	Enterprise	Gorilla Glue	\$475
ALASKA	Juneau	Homer Haze	278
ARIZONA	Sun City Tucson	Alien Kush Nebula	192 155
CALIFORNIA	Compton Sacramento	Gelato Chocolope	160 280
COLORADO	Aspen Edgewater	Gorilla Glue Blue Dream	200 243
CONNECTICUT	Meriden	OG Kush 420	
DELAWARE	Newark	Sour Diesel	320
FLORIDA	Clearwater Lady Lake	Star Dawg Lemon Tree	360 440
GEORGIA	Atlanta Smyrna	Girl Scout Cookies Blackberry Kush	225 280
HAWAII	Honolulu	Lemon Diesel	420
IDAHO	Pocatello	Alien OG	280
ILLINOIS	Chicago	Gobstopper	400
KANSAS	Wichita	SFV OG	308
KENTUCKY	Louisville	Gorilla Glue	280
LOUISIANA	Shreveport	Gelato	420
MAINE	Portland	Girl Scout Cookies	420
MASSACHUSETTS	Lowell	Dutch Treat	400
MICHIGAN	Ann Arbor Detroit	Mob Boss Skunkberry	230 320
MISSISSIPPI	Starkville	Gelato	280
MONTANA	Missoula	Blue Dream	225
NEVADA	Las Vegas	Deadhead OG	360
NEW HAMPSHIRE	Portsmouth	Maui Wauai	280
NEW JERSEY	Paterson	White Widow	280
NEW MEXICO	Taos	Durban Poison	224
NEW YORK	New York	Strawberry Cough	400
NORTH CAROLINA	Greensboro	Girl Scout Cookies	280
OHIO	Cleveland Toledo	Blue Dream Midnight	300 250
OREGON	Bend Eugene	Sour Diesel Granola Funk	312 210
PENNSYLVANIA	Philadelphia Pittsburgh	Tahoe OG Gorilla Glue	240 420
SOUTH CAROLINA	Beaufort	Blue Diesel	360
SOUTH DAKOTA	Sioux Falls	Black Diamond	340
TENNESSEE	Johnson City	Blue Dream	280
TEXAS	Harlingen	Lemon Tree	420
UTAH	Salt Lake City	Girl Scout Cookies	125
WASHINGTON	Seattle	Animal Cookies	300
WEST VIRGINIA	Morgantown	Blue Dream	280
WISCONSIN	Racine	Banana Kush	320
INTERNATIONAL			
AUSTRALIA	Cranbourne	Trainwreck	AU\$480
CANADA	Toronto	Ghost Train Haze	C\$230
JAPAN	Tokyo	Thai Stick	\$896
SOUTH AFRICA	Cape Town	Wappa	\$280

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A GUIDE TO PROPER

A large indoor cannabis drying rack filled with green cannabis plants hanging from wooden beams. The plants are densely packed and appear to be in the early stages of drying. The rack is made of light-colored wood and is set up in a room with white plastic sheeting on the walls. The plants are hanging from horizontal beams, and there are several vertical supports. The overall scene is a well-organized and professional cannabis cultivation setup.

IN THIS EXCERPT FROM *MARIJUANA HARVEST: MAXIMIZING QUALITY AND YIELD IN YOUR CANNABIS GARDEN*, GROW GURU ED ROSENTHAL EXPLAINS THE ALL-IMPORTANT DRYING AND CURING PROCESS.

BY ED ROSENTHAL
AND DAVID DOWNS

DRYING AND CURING



Hang dry buds in a clean space with proper temperature and humidity levels.



A small room or closet could be the perfect spot to dry your crop.

PROPERLY GROWN, DRIED and cured flowers burn smoothly and taste flavorful. The smell and flavor come from the terpenes and flavonoids in the buds. Terpenes also contribute to the strain's specific effects.

Drying and curing flowers take time and patience, but the finished buds are worth the wait. For buds you'll be proud of, think "low and slow."

"Low" refers to temperature. Terpenes evaporate at different temperatures, and some at slightly below room temperature. When the air is fragrant with flower odors, the buds are losing their terpenes. Improperly dried and cured buds lose terpenes due to evaporation.

For example, the terpene myrcene—found in mango fruit, hops, bay leaves, eucalyptus, lemongrass and cannabis—evaporates at just 68°F (20°C). In addition to contributing to the smell, myrcene has analgesic, antibacterial, anti-inflammatory, antidepressant and anti-anxiety properties, and it helps THC cross the blood-brain barrier. Terpenes are essential to cannabis consumers.

Buds must be dried at low temperatures for the terpenes to be preserved. Drying at low temperatures and moderate humidity takes longer, hence the motto "low and slow."

Keeping your space clean is imperative when slowly drying buds at low temperatures. Do not allow pets in the area because they shed fur and dander that become airborne and catch on sticky buds. Workers should wear gloves. Fungal spores and bacteria are ubiquitous and germinate under favorable conditions: in a moist environment with temperatures between 50 and 70°F (10-21°C) and with an acidic surface on the host.

Buds infected with powdery mildew are considered unfit for smoking but have not been implicated in any human ailments. Buds attacked by bacteria turn brown and crispy. When anaerobic bacteria attack, they emit an acrid ammonia gas that turns buds to mush.

Under cool conditions, the plant's cells stay alive for up to 72 hours after cutting. During the early part of the drying process, the plant consumes some of its store of water and carbohydrates.

OPTIONS FOR SMALL-SCALE DRYING

CLIMATE-CONTROLLED DRYING BOX: Find a climate-controlled drying box such as a grow tent or large appliance box, or construct one using wood and plastic or plasterboard walls. Add a hygrometer connected to a small dehumidifier and a thermostat regulating a heater or air conditioner.

DRYING IN A BAG: A brown paper bag is a simple way to keep humidity higher than the humidity in a room; this slows evaporation. Recirculate humidity by opening or closing the bag. To keep the humidity lower, place only two or three layers of big buds in the bag. Use a hygrometer to measure the moisture level in the bag. If the humidity climbs above 50 percent, use a fan to remove moisture-laden air.

CLOSED, HUMIDITY-NEUTRAL SPACE: A small room or a closet is likely to have the right temperature for drying. If not, adjust the conditions by opening or closing the door and using a fan. For more control, use a heater, air conditioner, humidifier or dehumidifier as needed.

RACK DRYING: The advantage of rack drying is that air flows freely around the buds. Using fans to circulate the air shortens drying time.

WHERE NOT TO DRY

Don't dry buds in a room with growing plants because the conditions required for the two different operations are incompatible. The humidity and temperature in the growing room are likely to be too high for proper drying. The result may be mold attacks and loss of terpenes through evaporation.

Never dry in jars or closed containers. Buds should neither be dried nor cured in an enclosed container such as a closed box, plastic container or jar that traps air. As the buds dry, humidity in the container builds up and water is likely to condense on the walls of the container, increasing the ambient moisture. These are ideal conditions for mildew, mold and bacteria to thrive.

Mold and mildew are likely to attack in closed containers, causing rot (botrytis) and molds. The fungi and aerobic bacteria use up the oxygen, and anaerobic bacteria thrive in a non-oxygen environment. Their telltale sign is the acrid odor of ammonia they emit.

Mold, mildew and bacteria have a devastating effect on terpenes and flavonoids (taste molecules); infected

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Proper drying can last up to three weeks.

marijuana loses its distinctive odors and smells earthier.

None of the conditions created by closed containers are good for buds. The microorganisms can quickly turn a good harvest into waste.

The concept of using a closed container for either drying or curing is an urban myth. People often “burp” (open) the jars during drying to remove excess humidity. However, the humidity is trapped until the burping takes place, encouraging the proliferation of mold.

STEPS TO DRYING

Clean the space to be used for drying. If it has been used for harvests before, wipe it clean with a hydrogen-peroxide solution or just spray the whole space using it. This decreases microorganisms on surfaces. To keep the air free from mold spores, hang a UVC sterilizing light and set up a carbon filter to cleanse the air of odor, particulates and microorganisms.

Use an air conditioner and a heater to maintain a temperature of about 68°F (20°C) in the drying area. Set the humidifier/dehumidifier to maintain humidity at 50 percent. When relative

humidity is higher than 55 percent, the germination and growth of fungi and bacteria on wet material proliferate after about two or three days. Humidity below 45 percent promotes faster drying, but at that humidity level big buds have a tendency to dry on the outside while the inside remains moist.

Turn on oscillating circulation fans to keep air moving throughout the space.

Add buds by hanging them or laying them on screens. Don't flat-dry flower buds or branches on screens if you intend to machine-trim them. Gravity compresses the part of the bud touching the surface. Trimming machines don't work well when fed flat-dried buds.

Monitor the buds during the drying process. This process can last from one to three weeks. Bud size, crop weight, crop moisture, ambient temperature and humidity all affect drying time.

Leave a dim light on throughout the drying process.

WHEN DRYING IS COMPLETE

As the buds dry, they lose color and weight and become more brittle. The green color fades a bit as chlorophyll

degrades, making yellow, brown, red and purple hues more prominent.

The first stage of drying is complete when buds feel dry on the outside but retain moisture inside that keeps them fairly pliable. Take an average-size bud and slowly try to fold it in half. If the bud stem bends, the bud is still too wet. If the bud stem breaks, it's ready to be cured. Another way of subjectively judging readiness is by lighting up a thinly rolled joint. If it doesn't go out between puffs, then it is ready for curing and storing.

Buds on whole plants take longer to dry than on cut branches and trimmed buds because there's more vegetation and thus more water to evaporate. But the slower cure mellows the taste. Big, thick, dense buds take much longer to dry than smaller buds and are more susceptible to mold and powdery mildew.

DRYING OUTDOORS

The main factors that affect outdoor drying are the same as indoors: temperature and humidity. However, dealing with these factors outdoors is more complicated because humidity and temperatures vary over the course of a day. Starting in the morning at sunrise, the day begins to heat, drying any dew that formed during the evening. Heat accumulates until midafternoon, when the temperature drops, increasing relative humidity (RH) and the chance that dew will form. Even in areas with small temperature variations, there may be danger during the hottest part of the day and then again as dew forms on the plants.

Keep plants away from the sun's heating rays using white reflective material that bounces rather than absorbs the light.

IN THE SHADE: Provided the ambient temperature and humidity stay in a moderate range—50-68°F (10-20°C) and 40-55 percent humidity—plants can be dried outdoors. The evening humidity and temperature levels are critical. Moisture from dew promotes infections. An area exposed to dew is unsuitable for drying unless a dehumidifier is used to eliminate the moisture. Another possibility is to maintain temperature at 68° using a heater so that there is no increase in RH.

IN A COVERED AREA WITH NO SIDEWALLS: An outdoor area that is covered and has no sidewalls is suitable for drying, provided the temperature and humidity stay within range. Fans may be needed to remove dew and to cut down on midday heat and morning humidity.



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Drying takes time but is worth the wait.

QUICK DRYING (HOW NOT TO DRY BUDS)

There are several methods to dry marijuana quickly for testing, but none will yield high-quality, well-dried, well-cured buds. However, fast-dried buds are an indication of what to expect once the rest of the harvest is dried. Fast-dried buds retain their minty chlorophyll taste and have a harsh smoke.

- Place the buds in the microwave for 30 seconds or longer so some of the moisture is removed and then lower the power and dry the buds until dry enough to test. Microwaves kill seeds, so buds containing desired seeds should not be microwaved.
- Food dehydrators fast-dry buds, but many of the terpenes evaporate in the elevated temperature. Dehydrators never get very hot, so the THC remains but the flavors dissipate. This method also kills seeds.
- Place a small bud on top of a warm appliance such as a computer or refrigerator.
- Don't try drying marijuana in an oven unless it has a very low setting. Even so, the heat may evaporate the terpenes before the buds are dried. Set the temperature at 100°F (38°C) if possible.

CURING

The first phase of drying is about removing the vast majority of water in the plant, which takes one to three weeks. The second

phase, removing most of the remaining water while retaining the terpenes, is known as curing. It is analogous to the wine-aging process in that it uses a precise climate and time period to bring out the aromas of the plant.

Curing is essential to the taste and experience of the finished buds. Like aged wines, well-cured buds are smooth and flavorful. Uncured buds still “work” but are not nearly as enjoyable or desirable. However, curing does not make buds more potent than they already are.

KEYS TO CURING

Start with mostly dried buds or colas. The bud stems may be just brittle enough to snap after bending a bit.

Set up a climate-controlled environment with a consistent temperature and relative humidity so the buds lose water at a stable, slow pace.

- Temperature: 65-70°F (18-21°C)
- Humidity: 50-55 percent
- Continuous circulation using oscillating and/or ceiling fans on low
- Buds or colas placed loosely on trays, in boxes or hung on lines.

A proper cure takes between 10 and 30 days. Curing buds must sit in low light to total darkness.

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THINK OUTSIDE THE JAR

Cannabis should not be cured in a sealed container. The water condenses on the inside, and bacteria and fungal spores thrive in the enclosed environment. Fungal spores and bacteria are ubiquitous and germinate under favorable conditions: a moist environment with oxygen and temperatures between 50 and 70°F (10-21°C) and acidity.

Usually the first to attack are aerobic molds. They destroy terpenes and chlorophyll, changing the odor to earthy and the color from green to brown. When all the oxygen is used up, anaerobic bacteria start to grow. The acrid smell of ammonia is a telltale sign the bacteria are at work. They leave the buds crumbly.

Why is jar-and-bucket curing so prevalent if room curing is optimal? Largely because of habit and ritual. When growers find a process that works, near-religious rituals start to develop. In the 20th century, cannabis prohibition prevented the creation of dedicated, climate-controlled curing rooms. Personal growers trying to avoid detection couldn't turn their homes into curing rooms. After cannabis was dry enough not to rot, growers had it jarred and stored offsite. Burping became a tedious necessity.



Perfectly dried and cured buds ready to roll up.

CURING MYTH: DON'T BURY BUDS

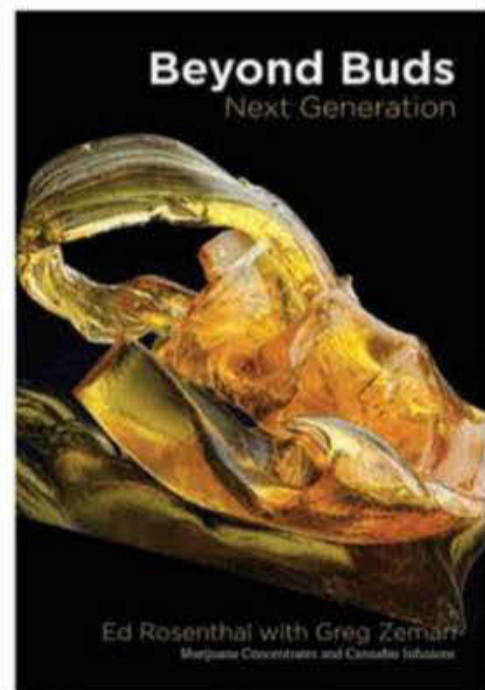
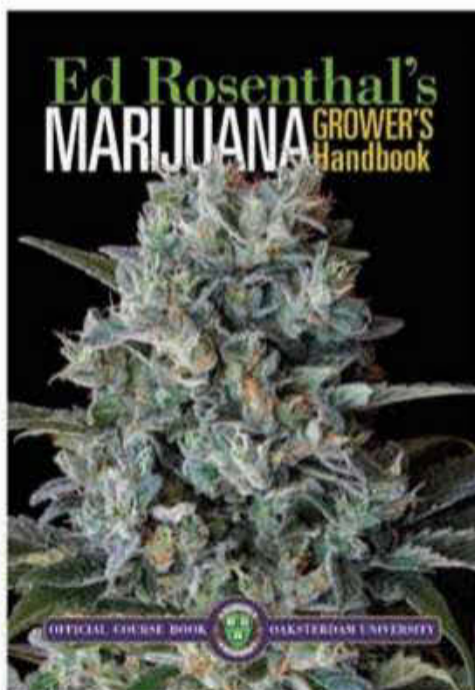
A long-running rumor involves burying buds to encourage certain microbes to eat them and secrete a more euphoric chemical. That's total nonsense. Do not smoke buds with any kind of mold on them. There is no way to boost potency after the plant is cut.

Following these steps to proper drying

and curing can elevate your harvest, producing pot you can be proud of. After a painstaking cultivation and harvesting process, you'll want to ensure your crop is flavorful and safe to smoke with a "low and slow" dry and cure. Learn more about harvesting cannabis in *Marijuana Harvest: Maximizing Quality and Yield in Your Cannabis Garden*. 🌿

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BY MIKE DIPAOLA



The Andries, John and Amy, preside over a very green enterprise.

COLORADO

QUIVAS STREET IN DENVER is a small and bleak stretch of commercial properties where one can purchase such things as electrical supplies, hardware and flooring. Somewhat out of place here is a modest but prominent storefront in orange, its purpose boldly announced by a green cross and promising signage: A DELUXE CANNABIS GALLERY. But it isn't the fact of being a dispensary-cum-grow op

that makes L'Eagle Services an unusual addition to this industrial park; it's the company's dedication to socially responsible principles like sustainability and fair labor.

"We're in a hiding-in-plain-sight location," laughs L'Eagle Services co-owner Amy Andrie. "It's a very odd space. We're right by the city, but we were one of the first businesses to move into a warehouse district, and we're the first licensed facility in Denver that has the dispensary

attached to the cultivation facility. The odd location speaks to our farm-to-table thing."

The farm-to-table thing in the cannabis world is, approximately, the seed-to-sale thing. With the dispensary physically attached to the growrooms, the geography connecting the seed (or in this case, clone) to the consumable product—buds, topicals, concentrates—is easily traced. It all happens right here.

"My husband likes to say that you've got to pass about seven dispensaries on the way here," Amy says of the out-of-the-way locale. L'Eagle has to be something special then, to attract and keep customers. Amy's husband, John, is also co-owner. His background in food and beverage pairs nicely with Amy's in nonprofit management. The couple's complementary experiences are well-suited to the task of producing high-quality weed with a conscience, a combo that is attracting a loyal clientele.

Essentially, the ethic at L'Eagle revolves around a question: "Why not have the same expectation for cannabis that you would for food?" On its face, that's a simple proposition, but consider where it leads. We all expect our food to be clean, of course, and tasty. Many of us also want food grown without toxic chemicals, pesticides or fertilizers. A smaller subset of us look for food that hasn't traveled too far to get to us (thereby limiting the carbon footprint of its production and distribution), and fewer yet might want to be assured our food has not been raised under harsh or unfair labor conditions. Not only has L'Eagle hit the sweet spot with these criteria, but the owners are also on a mission to spread the ethic beyond L'Eagle's own customer base with a verifiable, transparent system for the cannabis industry as a whole.

The master growers here did not, for the most part, learn the craft in underground grow ops. Rather, with degrees in horticulture and experience steeped in organic and sustainable agriculture, they bring priorities to the task that go beyond yield size and profit. The cultivators use OMRI-rated products at every stage of the growth cycle, and the fact that they've placed well in numerous Cannabis Cups tells us that best practices can give us the best weed.

There's about 10,000 square feet of space devoted to growing plants. This isn't tiny, but it's dwarfed by bigger players around the state. Could L'Eagle



Hands-on quality control, from seed to sale

expand without sacrificing the tender care given to individual plants, or is there a threshold at which size undermines the foundational philosophy? “We could get more people,” John supposes. “We’ll see. It could be done, but it sort of defeats the purpose of having small-batch anything.”

The staff clearly has a passion for their product, and, partly because they eschew harmful chemicals in the growrooms, they are more attentive to individual plants than the mega-farms can be. Some facilities may exude the cold sterility of a lab or the uniform drudgery of a factory floor, but L’Eagle is all about the human touch.

A small nursery is home to a verdant sea of young clones, where LED lighting was recently installed to cut back on energy usage. The babies are rooted in two-inch blocks of organic coconut coir and swaddled in compostable bags that are meant to be planted right along with the roots when the time comes. Throughout the growrooms, L’Eagle is installing drip irrigation systems, which save water and are better for the plants.

The growers strive toward zero waste in an effort to keep the company’s footprint small. “We incorporate coco coir cloning collars instead of spun plastic, and use pots made from recycled matter

and that can be recycled again after we use them,” John explains. “Our media oftentimes are used to amend the soil in organic food farms, but when that option is not available, we compost it—we compost all leaf matter and fibrous material. As far as our packaging for retail products is concerned, we spend the extra money on good plastic that is recyclable; we will of course recycle containers for customers.”

L’Eagle opened its doors to medical-cannabis patients in 2010 and expanded to accommodate recreational consumers in 2014. It has quietly been collecting accolades ever since, landing overwhelmingly positive five-star ratings on Yelp and high praise elsewhere. *Leafly* named it Best Overall Dispensary in Colorado in 2017, and *Cannabist* readers named it their favorite dispensary last year as well.

That word-of-mouth popularity is music to the ears of any small business, but just as important to the owners is that L’Eagle has also won recognition from sources that measure the sustainability ethic on which the place was founded. For one, it scored a Clean Green Certification, a third-party seal of approval that requires intensive scrutiny of every stage of production, “from

seed or clone selection, soil, nutrients, pesticides, mold treatments, dust control, and source of electricity, to methods of harvesting and processing.”

When businesses tout “organics,” it’s important to know exactly what the term means. To win the imprimatur of the US government, “organic operations must demonstrate that they are protecting natural resources, conserving biodiversity, and using only approved substances,” according to USDA guidelines. Of course, the USDA stamp of approval is not available to cannabis businesses as long as marijuana is considered illegal at the federal level.

L’Eagle meets (and almost certainly exceeds) USDA standards. The company grows its own flowers in house, then utilizes the resultant trim to produce around 80 percent of its other products. Since the grow operation and dispensary are essentially one entity, L’Eagle can piggyback things like energy expenditures to power both sides of the business. Indoor grows, being energy-intensive as they are, do tend to have enormous carbon footprints, so minimizing electricity use to the greatest reasonable extent is key.

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SOME FACILITIES MAY EXUDE THE COLD STERILITY OF A LAB OR THE UNIFORM DRUDGERY OF A FACTORY FLOOR, BUT L'EAGLE IS ALL ABOUT THE HUMAN TOUCH.

a sweatshop. But we're not making the same decisions, not following the same patterns as consumers [of cannabis]."

The Andrles believe their way of doing business can influence the whole industry, and they aim to spread the good news of customer-based activism. In May of this year, that aspiration was realized when Amy launched *#WhatsInMyWeed* (*whatsinmyweed.com*), a campaign with a rallying cry for like-minded growers and retail shops to create and preserve an industry with a heart: "By reminding customers that they insist on organic, fair trade, cage-free, grass fed and more when it comes to what they eat, we urge them to demand the same transparency and quality of their cannabis."

The campaign's pledge lays out the mission:

"We, the undersigned, pledge to provide transparency to customers regarding the origin, inputs, production method, harvest and processing of all of our cannabis goods to the best of our ability. More, we will seek to operate with as much efficiency as possible regarding: water, power, packaging and how we operate our business. Further, we pledge to treat our employees fairly and provide them a safe and supportive working environment. Finally, we pledge to continuously improve our business to adhere to this pledge and drive best practices. Doing these things makes the cannabis industry stronger and will help the consumer connect with businesses that reflect their values."

What these ganjapreneurs are pushing here is empowerment, along with the radical notion that you need to give customers what they want. It may take some cajoling because, before legalization, all of us were getting our weed from black-market dealers, and such niceties as sustainability and pesticide-free flowers were not top priorities in the transaction. "The power needs to shift," Amy declares. "Consumers need to remember that their dollars demand that *they* decide what we're going to carry in our store."

Amy is optimistic about where this is

love, the plant is still considered a tasty delicacy by pests. L'Eagle cultivators, no surprise, discourage the hungry hordes with safe neem-oil treatments and garlic spray, but do not apply even these once the buds appear. They also deploy beneficial pests such as nematodes to safeguard the crops, as evinced by the Bio-Boxes affixed to the plant stalks that house the predatory bugs.

The dispensary side of the business is a small, bustling space. Amy reckons that the average customer spends around 45 minutes in the store, so customer service is crucial to L'Eagle's success. The vibe is warm and welcoming, but also abuzz with activity. Part of that is because my visit happened to be on the morning of a high holy day, April 20, so it's a bit like visiting Macy's on Christmas Eve, with last-minute shoppers seeking that perfect magical gift.

It is nice to see a mom-and-pop concern that is run by an actual mom and pop (the Andrles have a young daughter). But the pop, John, bristles slightly at the prospect of being pigeonholed as just another cool boutique-shop owner. "I want to put more into my energy than [that]," he declares. "We want to be recognized as thought leaders. We're trying to [stave off] the madness in the direction the industry is heading."

That madness, John believes, begins when a state establishes its regulations. Newcomers to the industry are instituting dumb rules that he believes do the industry—the craft—of cannabis production a disservice. "With 20 million people in New York, the [state] decided on five licenses. How in the world are five licenses going to be able to provide for 20 million residents?"

Other new players on the scene aren't much better at setting up regulatory frameworks. "There's 22 million people in Florida, and they come up with a cockamamie plan to allow *seven* ornamental-farmer operations?" John asks, incredulously. Such monopolies inevitably put out inferior product. "They create a system where buds are processed, possibly synthesized, and then processed again," he growls in disgust. "The best part of marijuana is in its unprocessed state, just like vegetables!"

Colorado, though, has wisely made space for mom and pop. And yet the Andrles are essentially providing for a need that consumers have not been asking for, at least not in great numbers. "We think about where our veggies come from, whether something is genetically modified," Amy points out. "We think about the ingredients that go into our food or [whether] our clothes come from

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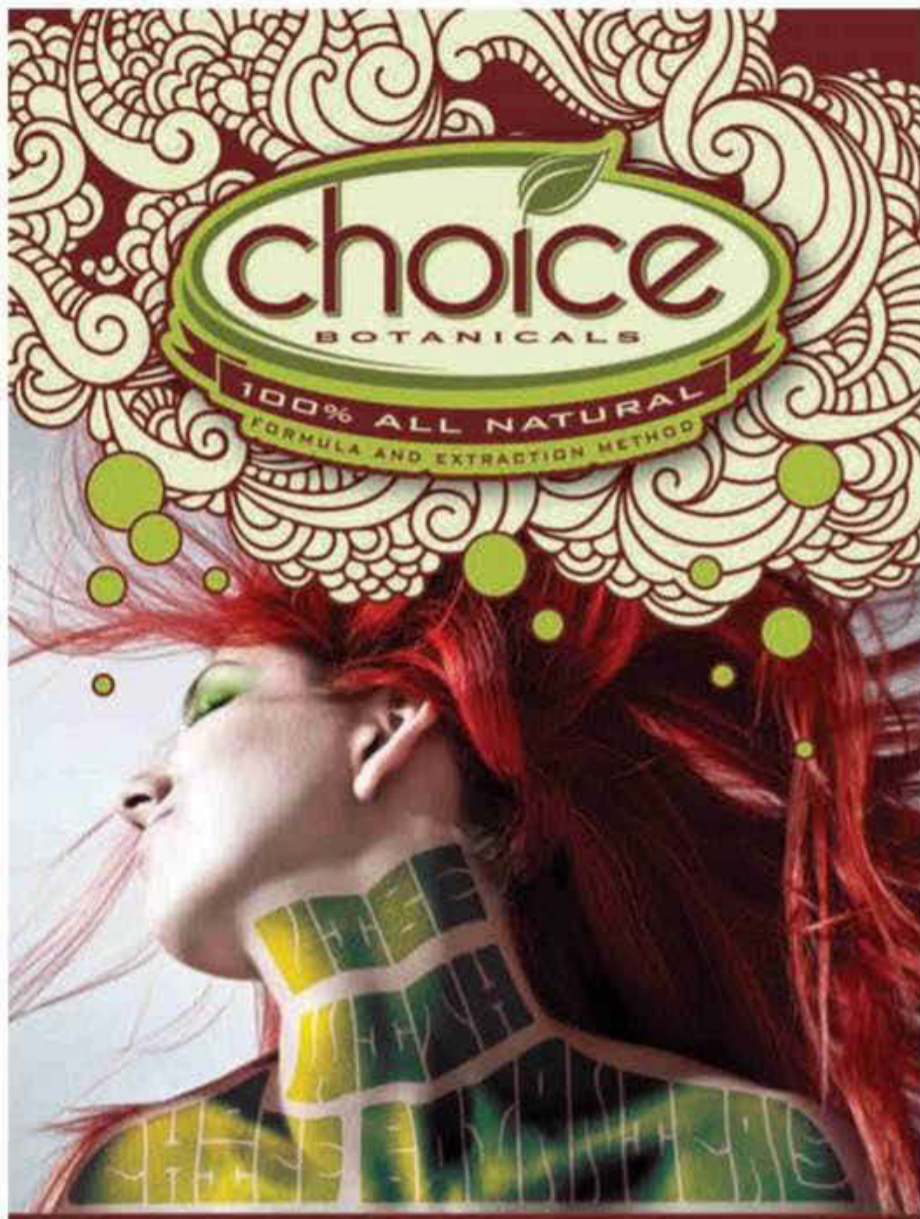
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headed. "Slowly, the customers are starting to realize that they can have a choice about where they shop," she says. "They can have a choice about what products they buy."

Some of the great products on offer here come out of a press. "This is the PurePressure," says Robert Hamman, a.k.a. "Rosin Rob," referring to a stout rosin press. "It's got 10,000 pounds per square inch and it can be set at any temp for any time you want." This morning, he's pressing out Durban Dream, a *sativa*-dominant marriage of Durban Poison and Blue Dream, harvested two weeks ago.

While Rob squeezes out some fresh product, he remarks on the fact that he works solo in this small space. "We have smaller batches than other places, but I don't mind because I like the craft-type small batch—we care about every single gram that goes out there, and I feel like it's just way better that way," he enthuses.

Rob also shows me the latest batch of caviar, Girl Scout Cookies nuggets dipped in GSC kief, then treated with rosin. (Since my visit, L'Eagle has been branding the stuff Completely Clean Caviar to highlight its purity.) "GSC is great because the nuggets are dense and small and really allow kief to coat it," Rob says, proudly describing the pungent delicacies in his hands and reminding me that one of life's pleasures is to be in the company of a master craftsman in his domain. Here's one guy who will never be alienated from the product of his labor. "So yeah, man, I pretty much got the best job in Colorado," he adds.

I'll later sample a press of Bruce Banner, a strain touted by the company as "some of the highest THC content L'Eagle has ever produced," a factor endearing the strain to med patients especially. It skews *sativa*, with OG Kush, Strawberry Diesel and Cough

laying the foundation of this potent hybrid.

The 26 full-time and 15 part-time staff members are indeed treated well. The starting wage for trimmers is \$15 per hour; wages for salespeople and cultivators average around \$20 per hour.

Behind the public-relations appeal of social responsibility is the idea that an organically grown plant will produce a clean, quality smoke in the pipe, pen or joint. It's one thing to draw in customers who wish to leave a minimal ecological footprint, but it is the superior smoking experience that will keep them coming back.

Besides the clean upbringing that all these lovely plants enjoy, there is another step in the process that teases out the very best flavors: a patient cure. Buds at L'Eagle are cured for a minimum of three months, with some strains taking up to a year to cure before consumption. This unhurried approach leads to a purer, more potent product with a cleaner taste.

Mindful that the evidence is anecdotal, Amy tells me that the buzz she hears from customers is that L'Eagle's products generate a "longer-lasting high." I'd like to believe that's true, but I can only vouch for the taste. The signature strain, L'Eagle Eagle, is a Candy Haze and Skunk #6 blend, and it burns sweet and smooth.

This mom-and-pop shop is a treasure for its customers, but the philosophy that centers it—and which informs campaigns like *#WhatsInMyWeed*—is good for everybody. As the cannabis industry matures, capitalism is going to do what it does and edge out smaller players in favor of profit-chasing giants. If consumers feel empowered to influence the direction we take, then sustainable, labor-friendly businesses like this one can thrive. As well they should. ✨

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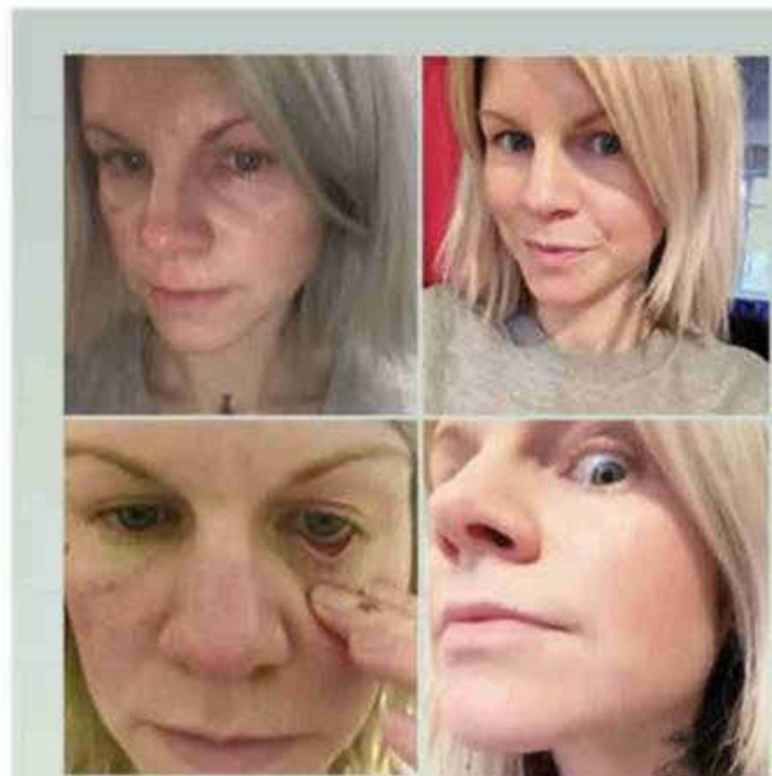
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TOP 10 STRAINS OF 2018

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BY DANNY DANKO

MEGA QUESO

NAMELESS GENETICS

namelessgenetics.com

Flowering time: 9 weeks

LA's Happy Leaf Collective won the 2016 SoCal Cannabis Cup for First Place *Sativa* Flower with this powerhouse Nameless Genetics strain. From the illustrious creators of Mega Wellness OG, the frosty Mega Queso packs a powerful punch. The dense and sticky nuggets produce incredible concentrates, including a fantastic live resin with an intense terpene profile and appetite-stimulating potency. This *sativa*-dominant hybrid combines the best of both worlds for an overall buzz that's both calming and uplifting at the same time.

Mega Queso
from Nameless
Genetics shines
bright like a
diamond.





GREEN CRACK CBD

HUMBOLDT SEED ORGANIZATION

humboldtseeds.net

Flowering time: 8-9 weeks

The medicinal benefits of CBD (cannabidiol) are well-known, but are there also recreational benefits from achieving a milder psychoactive effect? The Humboldt Seed Organization breeds CBD-rich versions of classic NorCal strains, and its Green Crack CBD tests at over 12 percent CBD and 6 percent THC for a two-to-one CBD/THC ratio. The effects are euphoric—a lasting happy feeling of well-being, perfect for daytime use or for patients with a lower tolerance seeking relief from migraines or anxiety.

FRENCH COOKIES

T.H.SEEDS

thseeds.com

Flowering time: 9-10 weeks

Like many other amazing strains, this one was born from a seed that the T.H.Seeds crew found in a sack of some Legendary Platinum Cookies during a road trip in Cali. The phenotype they popped and selfed turned out to be one-of-a-kind kind bud. Brightly glistening flowers are contrasted by dark-colored purple leaves, some looking almost black in appearance. French Cookies tastes spicy with a hint of grape and yields well for a Cookie strain. The high feels euphoric and inspirational—swelling with each puff without a “ceiling.”

KUSH MOUNTAINS

CANNABIOTIX

cbiotix.com

Flowering time: 9-10 weeks

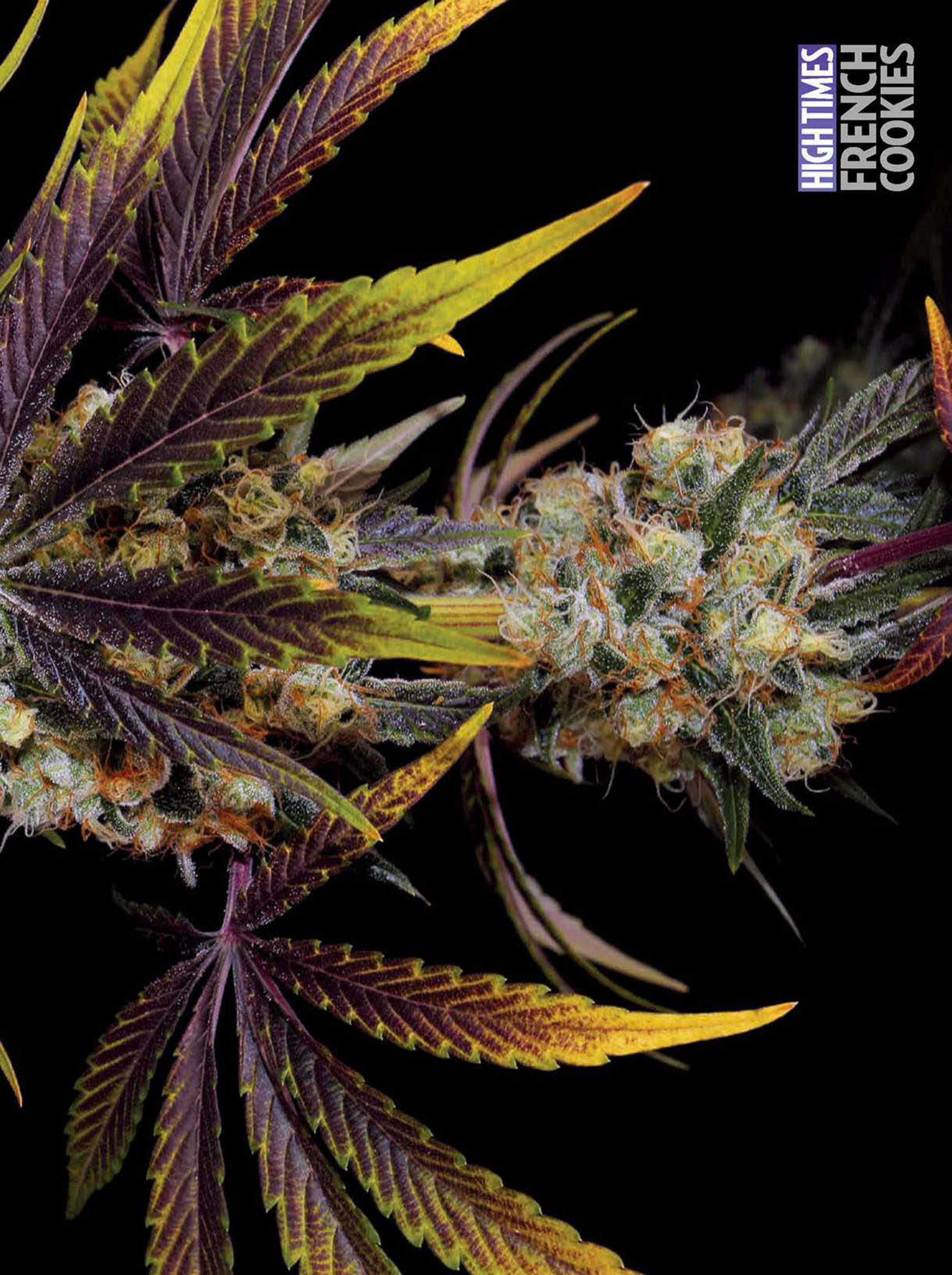
Bred by CEO and co-founder JB, Kush Mountains won our prestigious 2018 World Cannabis Cup First Place Hybrid Flower award, defeating other Cup winners for the best of the best OG. She’s a cross between the super-frosty White Walker OG and another Cannabiotix exclusive, Blue Flame OG. JB pheno-hunted through thousands of offspring to find the keeper that, he tells me, “has the tendency to ‘golf ball’ all the way up the plant, but will chunk out with a cool environment and smart feeding schedule.”

KUSH MOUNTAINS





HIGH TIMES
FRENCH
COOKIES



GREEN CRACK CBD





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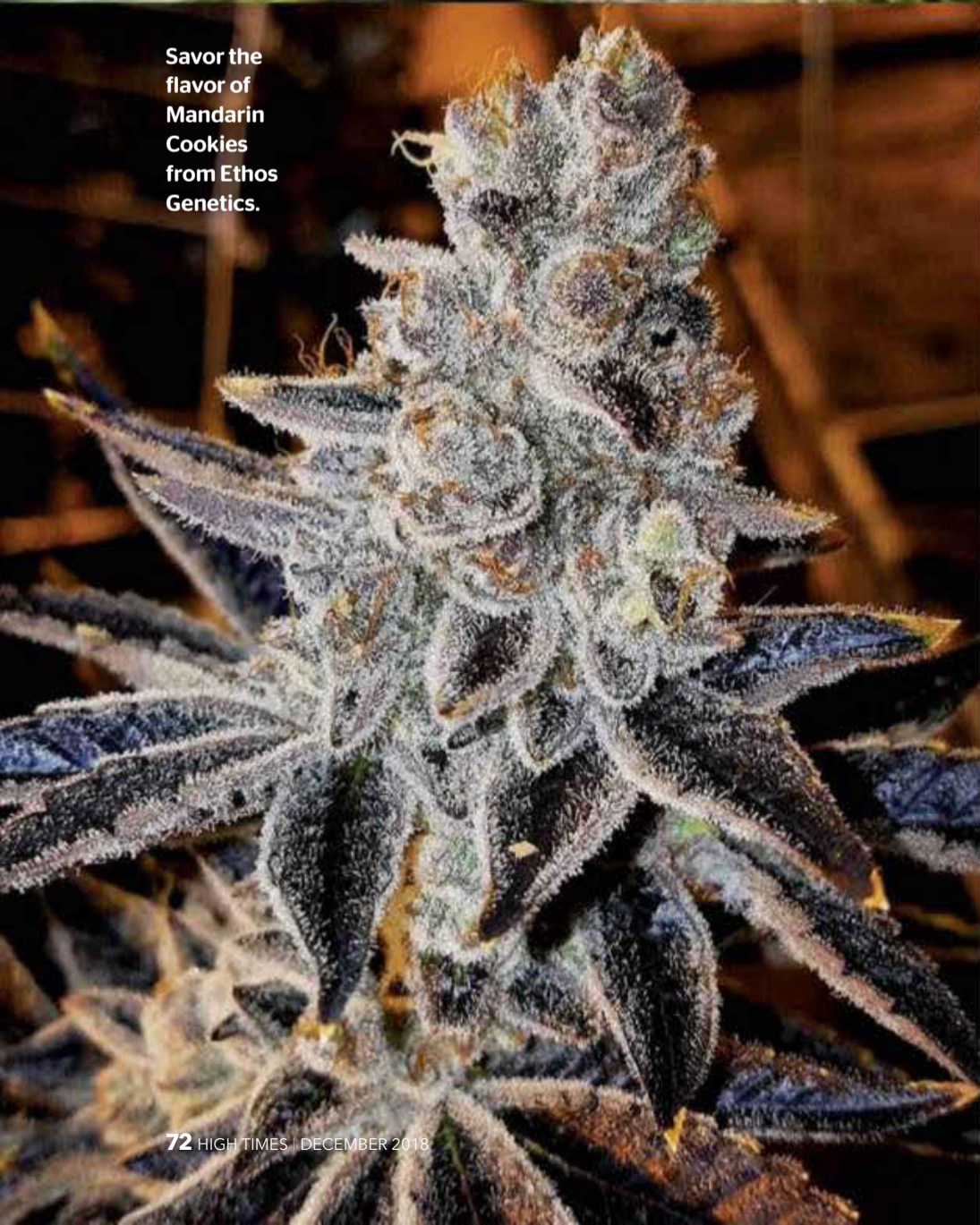
DormGrow.com

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TIMES



Rosetta Stone XX from Brothers Grimm fills out nicely as it flowers.



Savor the flavor of Mandarin Cookies from Ethos Genetics.

ROSETTA STONE XX

BROTHERS GRIMM SEEDS

brothersgrimmseeds.com

Flowering time: 9-10 weeks

Legendary cannabis breeding outfit Brothers Grimm, revived in 2015, returns to the sensi stage with its take on a classic. By pollinating Jack Herer with reversed female pollen from his Cinderella 99 signature strain, Brothers Grimm's Mr. Soul retained the beloved spicy sandalwood aroma and musky flavor of the Jack, but added resin production, stability and yield while reducing flowering time. Unlike some poorly produced feminized seeds, these beans pop 100 percent female and grow into heavy plants that need extra support or trellising.

MANDARIN COOKIES

ETHOS GENETICS

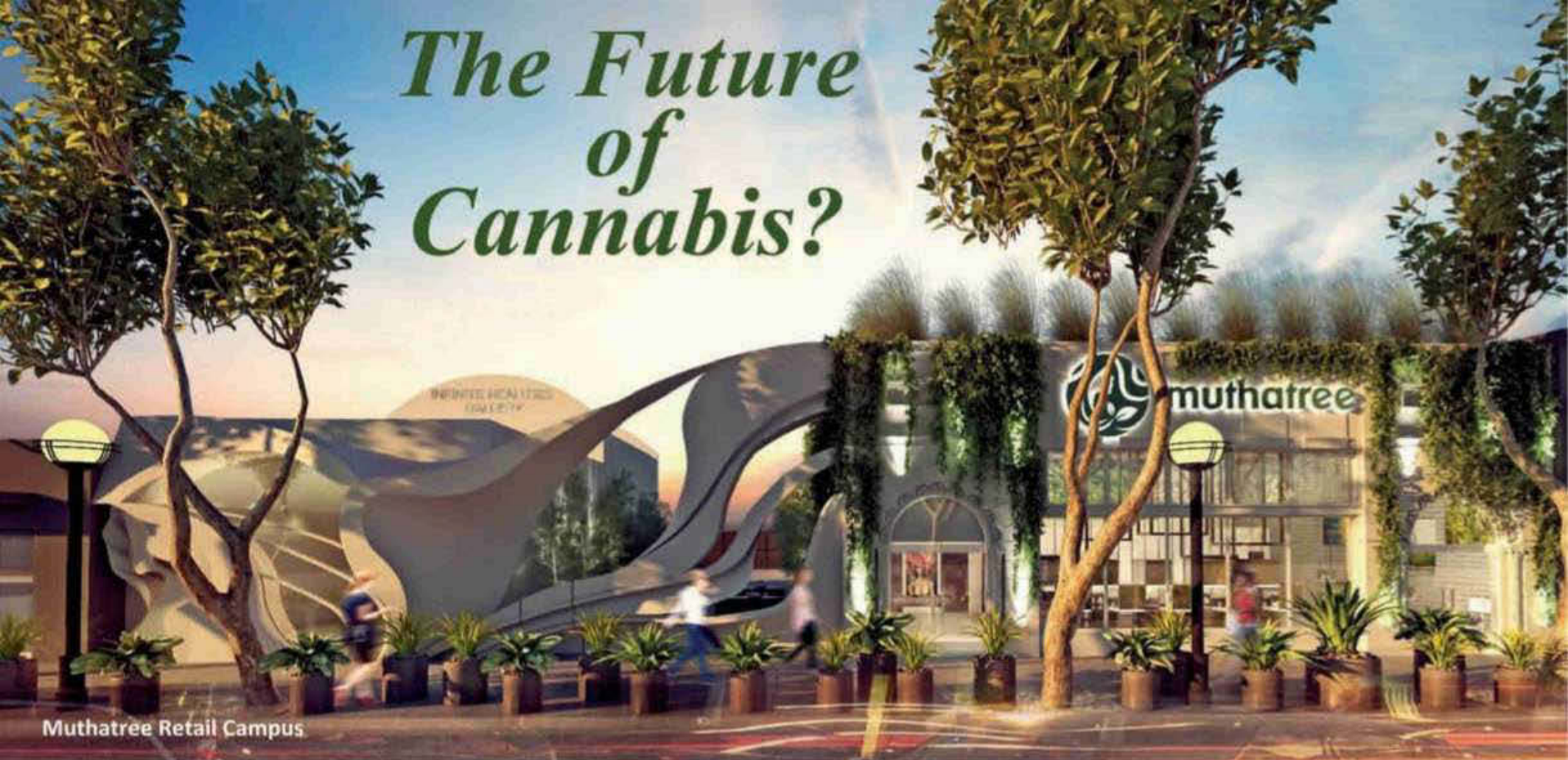
ethosgenetics.com

Flowering time: 8-9 weeks

Colin Gordon and his crew at Ethos Genetics continue to innovate the cannabis-breeding industry with strain after strain of stable and cerebral varieties that perform exactly as advertised. His *indica*-dominant feminized Mandarin Cookies, a cross between Mandarin Sunset and Forum Cut Cookies, tastes like a Creamsicle and tests out at over 30 percent THC! Growers love the short flowering time and high calyx-to-leaf ratio, while connoisseurs appreciate the grapefruit citrus terps combined with the rich and earthy undertones.

RICKY CAMP, THAT GUY

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AUTO CRITICAL ORANGE PUNCH

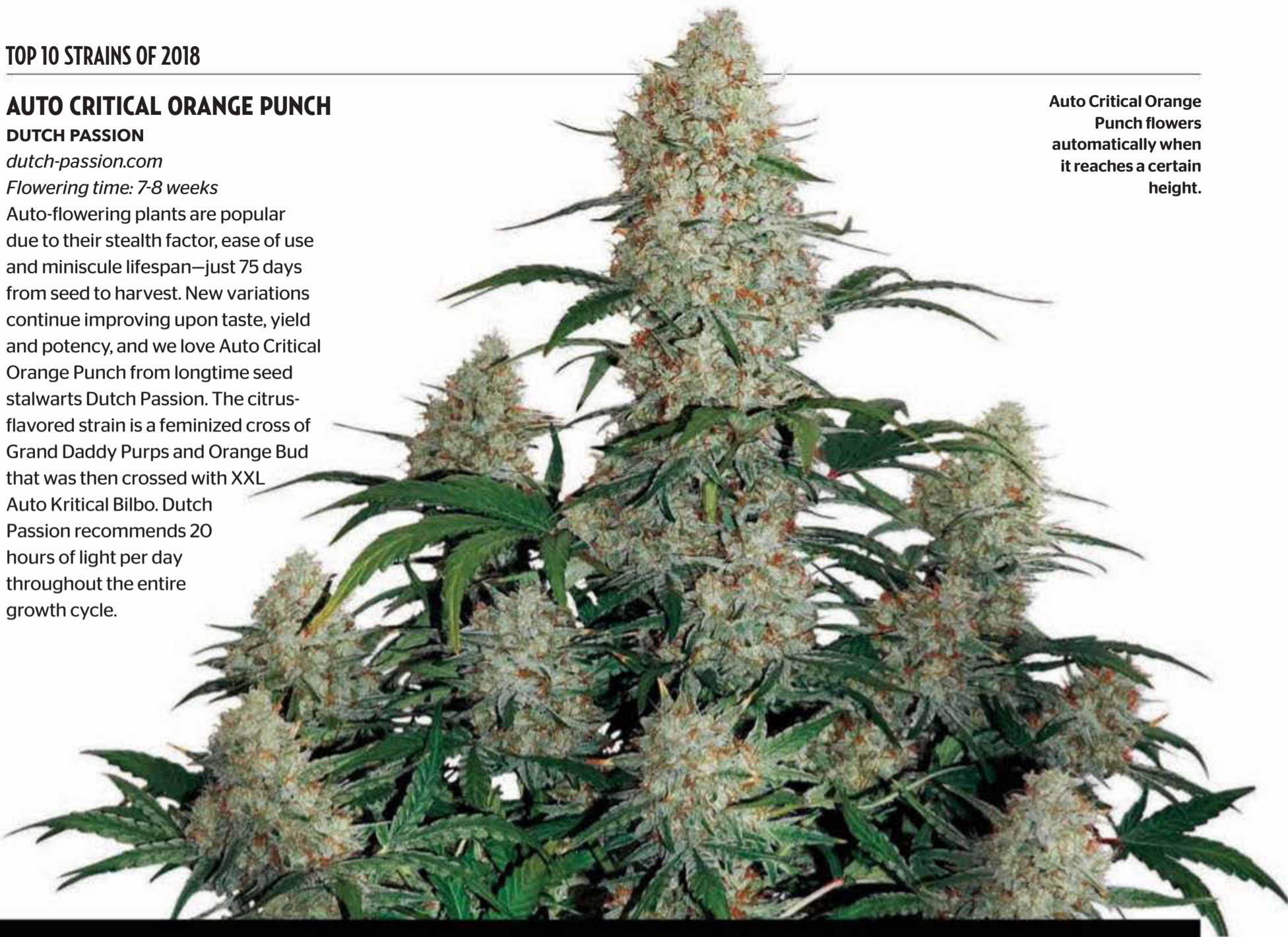
DUTCH PASSION

dutch-passion.com

Flowering time: 7-8 weeks

Auto-flowering plants are popular due to their stealth factor, ease of use and miniscule lifespan—just 75 days from seed to harvest. New variations continue improving upon taste, yield and potency, and we love Auto Critical Orange Punch from longtime seed stalwarts Dutch Passion. The citrus-flavored strain is a feminized cross of Grand Daddy Purps and Orange Bud that was then crossed with XXL Auto Kritical Bilbo. Dutch Passion recommends 20 hours of light per day throughout the entire growth cycle.

Auto Critical Orange Punch flowers automatically when it reaches a certain height.



Franco's Lemon Cheese honors a fallen warrior for cannabis freedom.

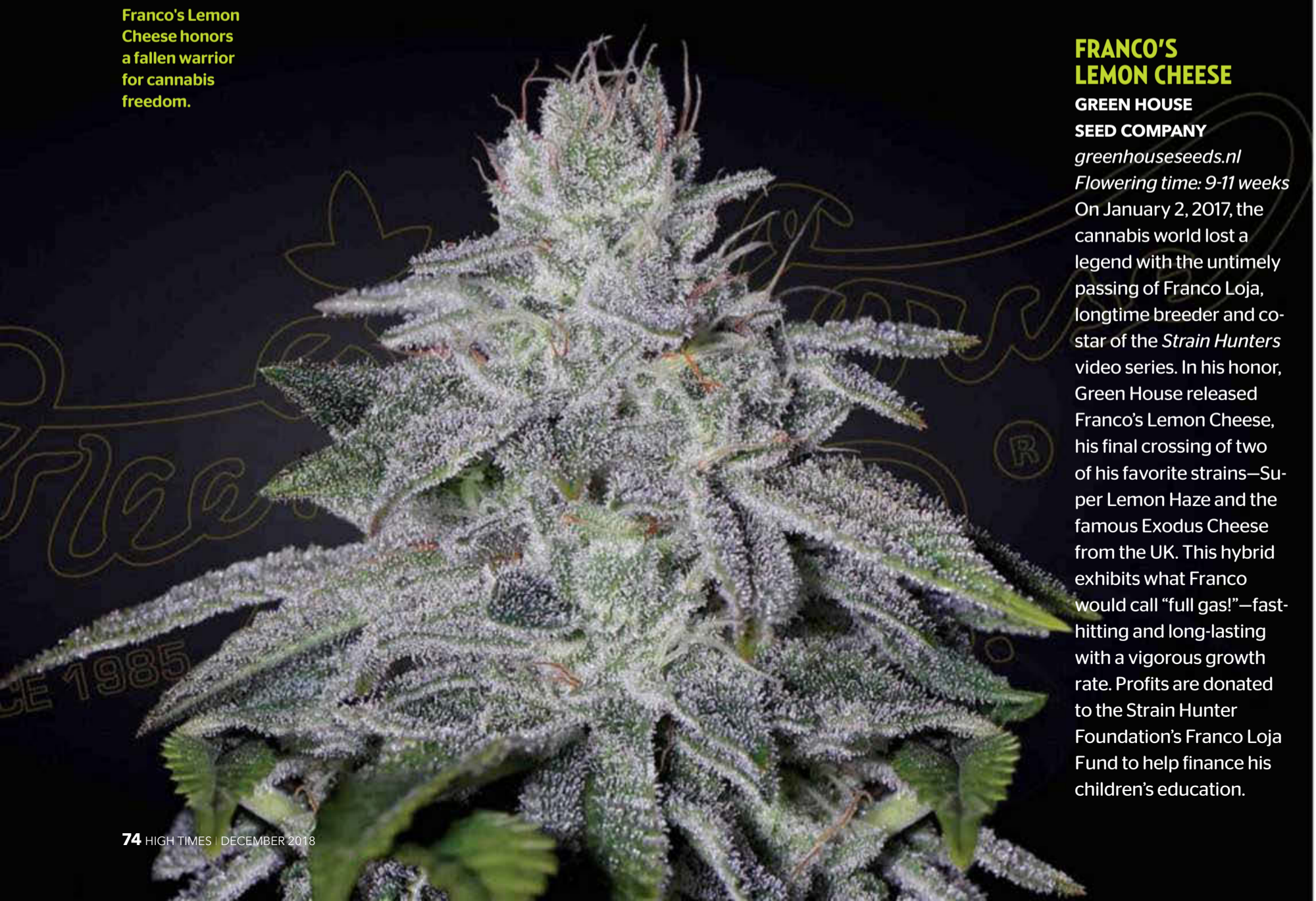
FRANCO'S LEMON CHEESE

GREEN HOUSE SEED COMPANY

greenhouseseeds.nl

Flowering time: 9-11 weeks

On January 2, 2017, the cannabis world lost a legend with the untimely passing of Franco Loja, longtime breeder and co-star of the *Strain Hunters* video series. In his honor, Green House released Franco's Lemon Cheese, his final crossing of two of his favorite strains—Super Lemon Haze and the famous Exodus Cheese from the UK. This hybrid exhibits what Franco would call “full gas!”—fast-hitting and long-lasting with a vigorous growth rate. Profits are donated to the Strain Hunter Foundation's Franco Loja Fund to help finance his children's education.





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CHEM SCOUT

IC COLLECTIVE

iccollective.net

Flowering time: 8 weeks

Founded in 2009, IC Collective represents a West Coast branch of the Chem Dog family, creating boutique strains blessed with some of the best genetics on earth. IC's Chem Scout, a cross between the original Chem 91 and Thin Mint Cookies, earned the First Place *Indica* Flower award at the 2014 NorCal Cannabis Cup with a well-balanced combination of euphoric and narcotic effects. Great for treating insomnia and body pain, Chem Scout proves to be a unique *indica*-dominant variety that honors its roots while remaining contemporary.

DOSI SHERBET

ELEV8 SEEDS

elev8seeds.com

Flowering time: 9 weeks

Elev8 specializes in preserving elite clone-only strains and reproducing them in stabilized seed form through backcrossing and meticulous selection from a large gene pool. Its Dosi Sherbet, a cross between 2 Scoops (Grape Sherbet x Orange Sherbet) and Dosidos, represents some of the frostiest flowers available anywhere with terpenes that smell and taste like sweet candy and fruity ice cream. These are regular seeds, stable and perfect for growing out a chosen mother plant from which to take and root clones for many future harvests. ✨

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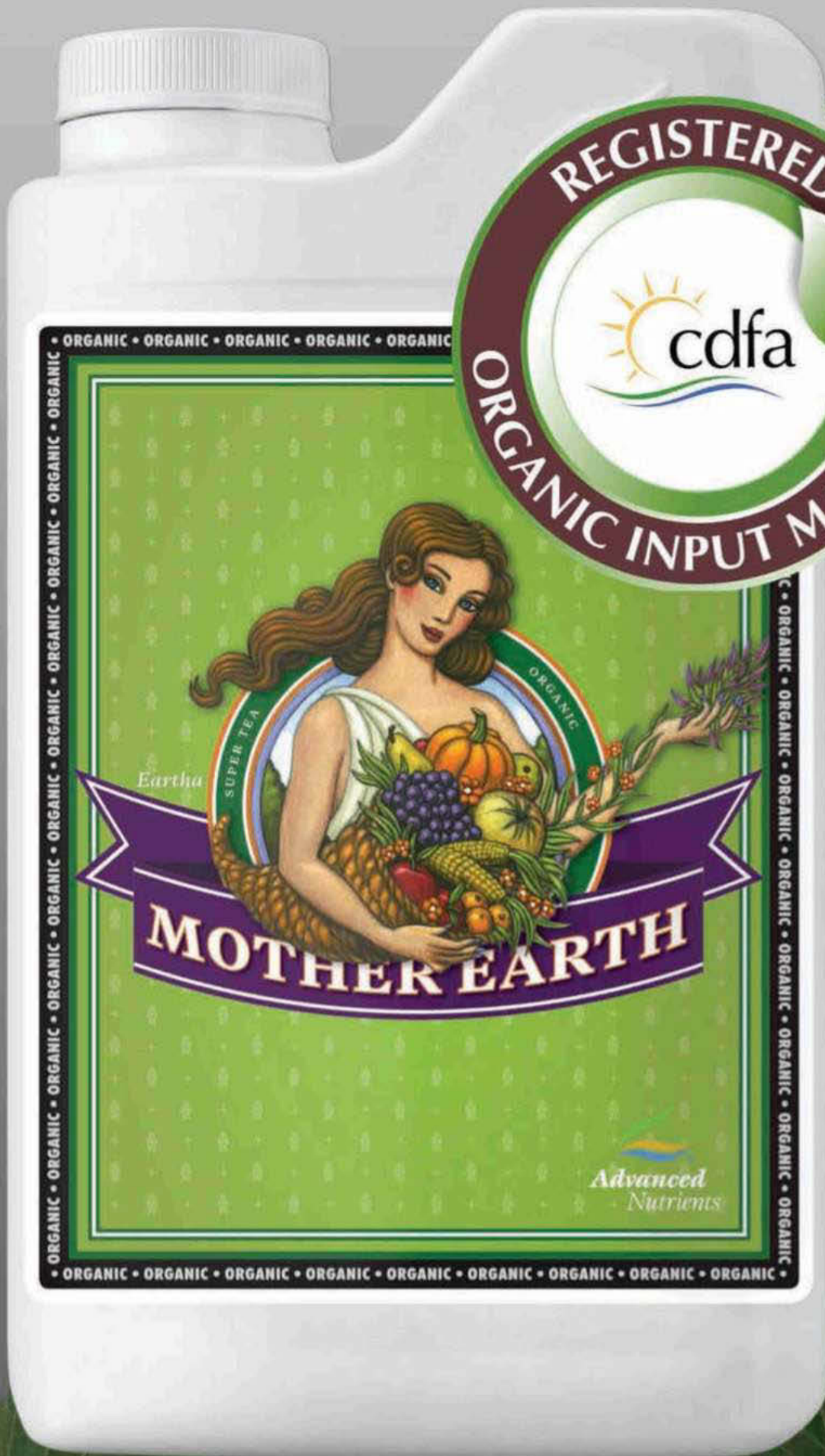
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OIL CHANGE

CAN VAPE PENS GO GREEN?

DISPOSABLE VAPES AND CARTRIDGES MAKE SMOKING CANNABIS MORE CONVENIENT AND DISCREET, BUT THEY ALSO OPEN UP THE INDUSTRY TO A HOST OF NEW SUSTAINABILITY CHALLENGES.

BY NICK KAZDEN

RECREATIONALLY LEGAL in nine states and medically available in 30 (plus the District of Columbia), cannabis products are in demand more than ever. Policy changes have resulted in headaches for business owners and farmers, but the slow erosion of barriers preventing consumers from purchasing cannabis has allowed the industry to boom and new technologies to emerge.

One of the biggest changes has been the introduction and incredible success of disposable vaporizers and oil cartridges. These devices are convenient and relatively odorless, making them a hit with consumers. But they also create a host of sustainability issues akin to Keurig disposable pods, which revolutionized coffee drinking while injecting massive amounts of waste into landfills.

Flower may still be the first thing many nonsmokers picture when they think about cannabis, but the manager at BARC, a Los Angeles collective near Beverly Hills, estimates that 75-80 percent of the store's sales comprise vape pens and cartridges. On the lower end of the spectrum, Jay Handal, a manager at the Erba Collective in West LA, told *High Times* that vaping-related products comprise 36 percent of his store's sales.

Bloom is one of the numerous companies competing for market share in this growing sector of the cannabis industry. Founded in 2013, Bloom had a breakout year in 2016, according to chief revenue officer Casey Ly. At the beginning of that year, the company had roughly 25 retail accounts, but by year's end its products were available in nearly 150 dispensaries across California, New Mexico and Washington.

The company makes



Vape pen recycling plans are becoming more common.

EVEN IF CONSCIENTIOUS STONERS PLACE FINISHED CARTRIDGES IN THEIR BLUE BINS, THEY'RE MORE LIKELY TO END UP IN A LANDFILL THAN A RECYCLING PLANT.

ready-to-use disposable vapes, but Ly said that half- and full-gram cartridges pre-loaded with concentrates to use with a rechargeable battery are Bloom's best sellers.

Bloom performs its extractions and loads the cartridges with concentrate at its warehouse in Northern California, but the company relies on Chinese manufacturers to develop and produce the various device components. Ly conceded that there are "very few... high-quality

manufacturers."

"There's maybe one or two innovators and then a lot of replicators," Ly said. "So there are a couple companies that make advancement in terms of the technology, but then a lot of other manufacturers basically take whatever advancement the other companies made and replicate it."

There are factories throughout China, but 95 percent of the world's e-cigarettes (which are refashioned into vapes for the cannabis industry) are produced in Shenzhen, a major metropolitan

area that links Hong Kong to the rest of mainland China in Guangdong Province. Chief among them is Shenzhen Smoore Technology Limited, which claims on its website that it dedicates 15 percent of its annual revenue to research and development in order to "maintain the leadership position" it has in the market. Ly said Bloom and many other prominent vape brands rely on Smoore to manufacture their cartridges, batteries and disposable units.

The exterior casing of these vapes is typically made of easily recycled materials like plastic, glass or ceramic, but if there's residual cannabis material inside they are legally prohibited from being included in traditional recycling facilities. Even if conscientious stoners place finished cartridges in their blue bins, they're more likely to end up in a landfill than a recycling plant.

One potential solution is to place recycling boxes inside cannabis retail locations for consumers to dispose of their finished products. Vape companies like Dosist already offer these services, and Ly said that Bloom is preparing to launch its own program in the upcoming months.

Ever since Bloom switched to ethanol-based extraction processes, the company has a massive amount of alcohol it can use to properly clean used cartridges. The plan is to launch a collection program in which cartridges from various brands will be gathered and eventually transported to Bloom's Northern California facility to be purged of residual cannabis material through an ethanol wash. After all that work (something recycling facilities won't do), the cartridges are clean enough to go through state-run recycling programs.

But no matter how far companies are willing to go to ensure their products are recycled, it still falls on consumers to actually bring their



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used cartridges in, something that many of them seem hesitant to do.

The BARC manager voiced this sentiment, explaining that people rarely use the recycling boxes in the shop—provided to BARC by Dosist—and that they only get picked up once every few months despite how many cartridges the store sells.

To reward customers who do utilize the recycling boxes, the Erba Collective has a credit program with various vendors. If someone brings back cartridges from brands like Select or Pure Extracts, Handal said the store will credit the consumer with \$1 off the purchase of their next cartridge from the same brand. (Returned Dosist cartridges score a \$5 credit toward the consumer's next purchase.)

Unfortunately, even if the cartridges are collected and cleaned so that cannabis waste cannot be detected, making it acceptable for recycling, there's a chance the materials still won't be properly disposed of. After China's announcement last July that the state would no longer import materials like paper and plastic to recycle as the state tries to improve health and environmental conditions, the United States and other countries are scrambling to figure out what to do with their waste.

In 2016, China imported 7.35 million metric tons of plastic from the world market, and a recent *Science Advances* study estimates that "111 million metric tons of plastic waste will be displaced by 2030" as a result of the change.

According to another *Science Advances* study published the same month China announced the changes, only 9 percent of the 8.3 billion metric tons of plastic produced over the last six decades has been recycled. In 2014 alone, only 3.17 million



NO MATTER HOW FAR COMPANIES ARE WILLING TO GO TO ENSURE THEIR PRODUCTS ARE RECYCLED, IT STILL FALLS ON CONSUMERS TO ACTUALLY BRING THEIR USED CARTRIDGES IN, SOMETHING THAT MANY OF THEM SEEM HESITANT TO DO.

tons of the 33.25 million tons of plastic generated were recycled. Most plastic, which usually takes over 400 years to break down, sits in landfills or spills out into the environment, and that doesn't even include the eight million tons that are added to the ocean every year. The study also found that half of all plastic becomes trash less than a year after being manufactured, meaning most disposable plastic items aren't being recycled.

SinglePoint is hoping to make things a bit easier. A tech company that primarily develops mobile payment systems, SinglePoint started purchasing ancillary cannabis businesses in 2014. Wil Ralston, the company's president, said they were "looking at doing some 'Uberization' of trash" when they realized just how much waste there was in the cannabis industry. Instead of being recycled, reusable components like aluminum

and glass were being thrown away, and Ralston saw an opportunity to develop a solution.

To come up with a fix for the problem, SinglePoint turned to Circonomy Solutions, a consulting firm located in Phoenix, AZ, dedicated to establishing sustainable practices and circular markets. John Trujillo and David Hertzberg, co-founders of Circonomy, both have useful experience in waste management. Hertzberg is the founder of Sonora Waste, a company that focused on waste diversion away from landfills and which was bought out by Waste Management in 2017, while Trujillo was Phoenix's public-works director, focusing on landfill diversion and "developing solutions other than waste disposal."

In order to confront the challenge, Trujillo and Hertzberg had to become better acquainted with the

scope of the issue. Medical marijuana has only been legal in Arizona since 2010, and a state law even restricted access to medical cannabis on college campuses until May 2018, when the state's Supreme Court ruled the law unconstitutional.

Upon doing more research, Hertzberg realized just how multifaceted the problem is. Since most of these delivery devices have electrical components and lithium batteries, it's also an e-waste issue because most of these pieces end up in landfills instead of facilities equipped to recycle electronics.

"One of the things that we don't want to do is create an entire new process," said Hertzberg. "The best way you can create an effective recycling program is to weave it into existing models and existing processes."

Numerous parts of vapes can be recycled, but the trace amounts of scrap metals like stainless steel, copper and iron are likely the most valuable. Since each device only has minuscule amounts of each metal, it's unfeasible and unsustainable for a facility to break them down by hand. Instead, Trujillo and Hertzberg think a system that incorporates either grinding or smelting is the best way to ensure that the metals are included in traditional recycling programs.

"We can't continue down this path," Trujillo insisted. "Resources are going to become scarce, so we're trying to figure out ways to utilize these resources over and over again as much as possible so we don't have to impact the natural resources that we haven't utilized at this point."

Even if Circonomy does figure out a way to reuse the scrap metal produced by vape devices, that still leaves out the plastic and glass with leftover cannabis residue on it.

"In the beginning, most likely that won't be recycled,"

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Hertzberg said. “But if we can get the stainless [steel], the lithium battery, the coil, we’re going to do pretty good... and then we can start working on these minute amounts [of cannabis residue].”

The devices themselves are just one part of the problem—there’s also an excessive amount of packaging that accompanies each product. To comply with child-resistant-packaging laws, companies often have to include more materials, typically plastic of some kind, to ensure the product is not easily accessible.

For Matt Lee, co-founder and president of Jetty Extracts, a California-based company that was acquired for \$30 million in April, the child-resistant-packaging laws are a “huge hit to sustainable packaging.” Even though the company uses biodegradable plastics in its packaging, Lee believes the regulations result in an increase of “unnecessary waste.”

Lee has a potential solution in mind. Instead of mandating restrictive, typically plastic-heavy packaging for each item, he would like to see a requirement for customers to secure their purchases inside reusable, child-resistant exit bags that keep cannabis away from children and decrease the overall amount of plastic required to sell these products.

George Meding, co-founder and current director of product development for Sun Grown Packaging, said it was in the company’s original mission statement not to include plastic or plastic laminate in its products. Instead, the company uses pulp-based materials like corrugated paperboard to ensure that its packaging is compostable and recyclable.

“It’s difficult to have a sustainability aspect to your packaging, but the best way to look at it is if the product’s going to last a month and the

packaging is going to last 10 years, that’s not very good packaging for the planet,” Meding said.

Certain companies may be confronting the environmental challenges, but Katie Stone, a marijuana activist who started as a member of Students for Sensible Drug Policy, points to consumer awareness as a key component of the problem.

“What we really need to talk about is the bigger picture, which is our poor consumer habits and our need to have easy, convenient products because that’s more important for us in the moment than the planet in the long-term,” Stone said.

To better educate consumers, whom Stone refers to as “the biggest investor in any company,” she is launching the Kind Guide through her company Green B. Consulting. A play on *goodguide.com*, a web service that informs consumers about harmful ingredients in various products to help them make more conscious decisions, the Kind Guide will include information about cannabis businesses to make it easier for customers to support companies focused on reducing their environmental impact.

“If we can train and educate consumers to consistently go and purchase products from companies that are practicing sustainability or trying to practice sustainability, even if they’re economically disadvantaged, then they’ll be the guys who win out in the end,” Stone said.

Keurig may have spawned a sustainability crisis when the company first introduced its K-Cups, but it has since found a solution. Back in 2014, Keurig committed to having all of its North American pods be completely recyclable by 2020, and the company is on track to meet those goals. Perhaps a similar outcome is on the horizon for the cannabis industry. ✨

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PATIENTS

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

Your Journey with MARIJUANADOCTORS.COM

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

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



Find a QUALIFIED PHYSICIAN

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

Fill Your Recommendation CLOSE TO HOME

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

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

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Marijuana Doctors: One-Stop Portal

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

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

PHYSICIANS

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

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

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

At Your Fingertips TELEMEDICINE

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



New Functionality BUDTENDERS & DISPENSARY OWNERS

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

MarijuanaDoctors.com gives producers the

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

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

Producers will now share the

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

ABOUT



patients to have their medical marijuana needs met in one location. In order to best serve our patients, we will provide information about medical marijuana laws, availability of physicians in patients' areas, on-demand access to physicians and pharmacists,

Marijuana Doctors seeks to educate patients in states where medical marijuana is legal. Our goal is to be one-stop resource for

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

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



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10 LEGENDARY HEADSHOPS

WE'RE SPOTLIGHTING 10 OLD-SCHOOL HEADSHOPS THAT HAVE SURVIVED AND THRIVED THROUGH THE YEARS, REGARDLESS OF POT'S LEGAL STATUS. BY ALEXANDRA WHITE

BURNING INCENSE FILLS THE AIR, tie-dye shirts sway on racks and counters full of colorful glass catch the light. Headshops are an all-American story of underground entrepreneurship, creativity, faith and passion. Born from an era of counterculture and protest, many of these

relics survive today as reminders to let your freak flag fly. We honor these these old-school headshops that prevailed through the decades and continue to be the best joints in their towns. So take a toke and check out these legendary purveyors of all things irie!



KALEIDOSCOPE

Springfield, MO

Established 1972

A closer look at the vintage photograph of owners Tom and Pam behind their shop counter reveals the December 1975 issue of *High Times* next to the mood-ring display. These lovebirds originally opened a record store but then started selling a lot of rolling papers, and the rest is history. Now Kaleidoscope is a 6,000-square-foot alternative-lifestyle mall next door to the original location, which was a humble storefront with an apartment upstairs. In Tom's words: "No matter how much money you make, there's nothing more valuable than being the captain of your own ship."

COURTESY OF KALEIDOSCOPE

The modern world moves fast but these headshops are around for the long-haul.



THE CUPBOARD

Cincinnati, OH

Established 1965

Now operated by the third generation of its founding family, the Cupboard started as a five-and-dime store following World War II, then was transformed into a headshop by husband and wife team Phil and Nancy in 1965. Considered the oldest surviving headshop in America, this psychedelic bazaar is so full of antiques and counterculture merchandise that you “have to check in your umbrella at the door or you might knock something over.” The owners launched the career of legendary glass artist Bob Snodgrass back when you could barely buy a metal or wood pipe in the state of Ohio.



MOTHER MURPHY'S

Normal, IL

Established 1968

Just a few blocks from Illinois State University is one of the oldest headshops in the country. Mother Murphy's iconic logo depicts a grandma smoking a corn cob pipe in honor of its founders, Betty and Charlotte, who opened this legendary store in 1968. They sold turquoise jewelry and leather goods to hippies, which evolved into black-light posters, tapestries and—you guessed it—bowls and water pipes. Employee-turned-owner Michael has run the shop since the 1970s with his wife, Becky, adding skateboard gear to the mix in 1992. Their simple goal is “to make everybody feel like they're at home.”



PYPE'S PALACE

Portland, OR

Established 1976

“What happens at Pype's stays at Pype's,” says Pype's Palace owner Patty, who opened a waterbed store in Iowa in 1973, then this Portland shop in 1976. It's the oldest in the state of Oregon, and carries on the long, trippy tradition of great local headshops. Patty served as the first-ever female judge for a *High Times* Cannabis Cup, and she's ushered in thousands of customers over the years. Now that pot is legal recreationally in Oregon, the secret's out. Pype's Palace is still around to service a new generation of cannabis consumers.

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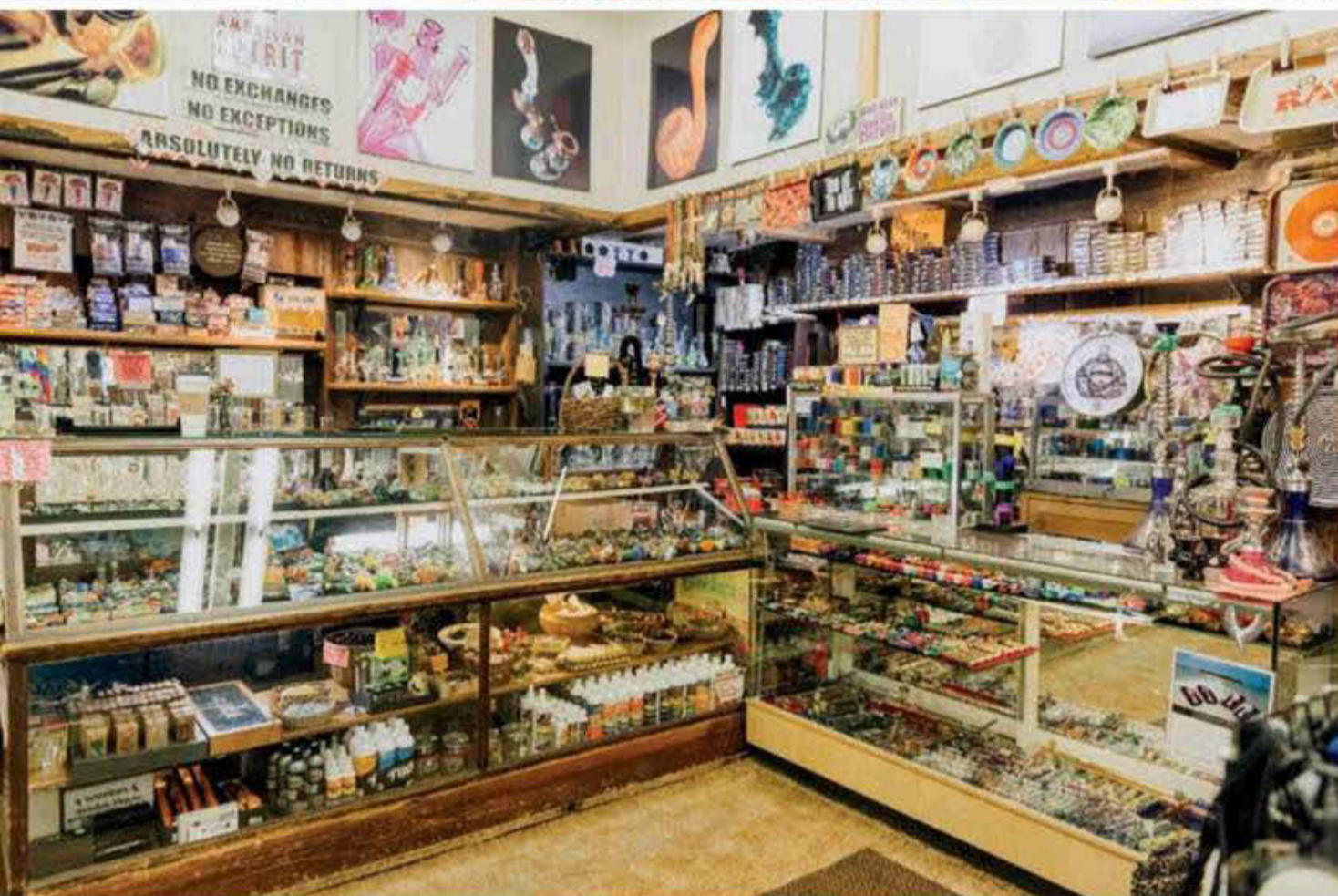
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THE BLACK

*Ocean Beach, CA
Established 1968*

The Black opened its doors in 1968, according to the current owner, Kurt. He started working at the beachside shop in 1975, finally purchasing it in 1981, and he's been slinging glass ever since. At one point, both of his brothers were working behind the counter, and their parents owned a photography studio down the block. The store's survived recessions and raids, and it still sells hacky sacks and huaraches to local surfers. The story behind the name? It's been "in the black" and making money this whole time. "If you come to San Diego, check it out. It'll blow your mind," Kurt says.



SATORI IMPORTS

*Oshkosh, WI
Established 1969*

Visit Satori Imports and you'll recognize the iconic T-shirts that have been given away free for almost 50 years. Current owner Kay's late husband was an "entrepreneur at heart" who opened the store so students from the local university could buy Mexican blankets, silver earrings and rock posters. The store is basically a visual overload. How has a smoke shop survived for so long in the heart of America's dairy land? "Supply and demand—find what people want and sell it to them," says Kay. Now serving a fourth generation of clientele, the shop is so well-loved that one customer even named their baby Satori.



ADAM'S APPLE

*Chicago, IL
Established 1969*

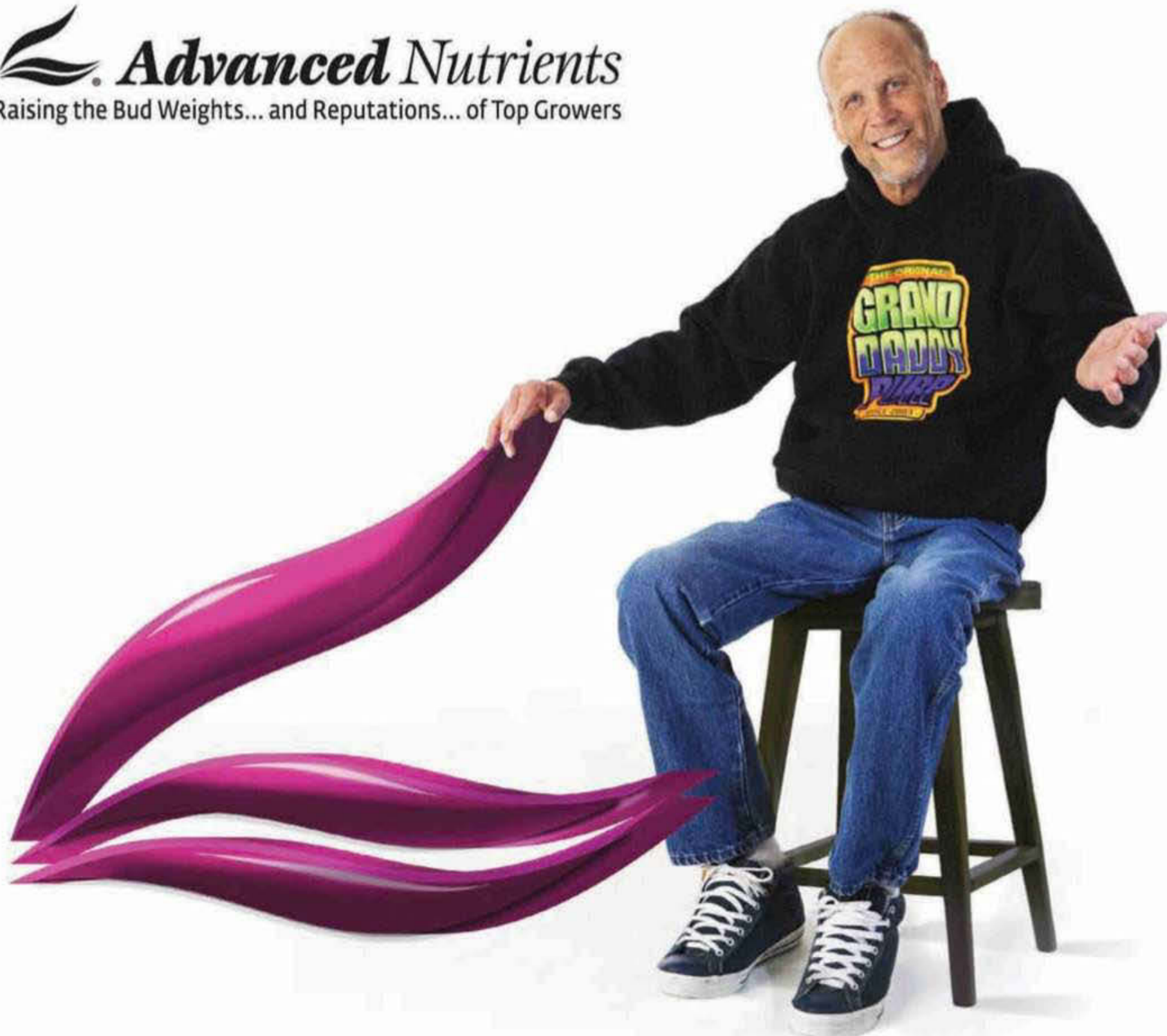
Fresh out of the Navy, Shelly came home to a different Chicago in the late 1960s than the city he left. His friends were hanging a parachute from the ceiling of a tiny shop, a guy named Charlie was painting the words "Adam's Apple" on the glass storefront in Day-Glo letters and longhairs ultimately took over the city. Many legendary headshop owners remember Shelly's former partner's *Adam's Apple* catalog, which distributed rolling trays, clips and snuff kits via nationwide mail order. Shelly attributes his success to staying "low key," and his inventory still boasts denim bell bottoms.

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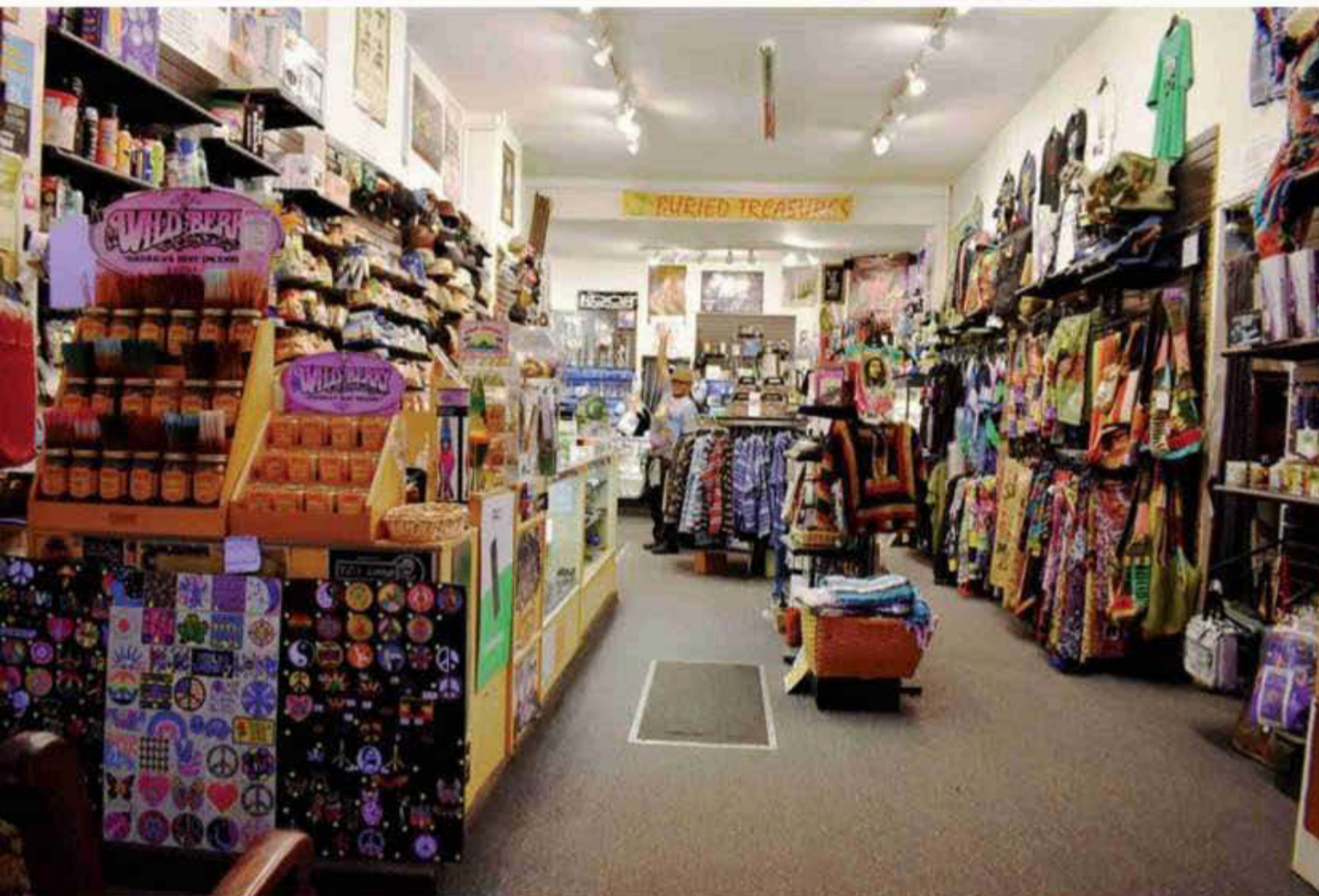


THE GAS PIPE

Dallas, TX

Established 1970

The “peace, love and smoke” headquarters known as the Gas Pipe was founded by a 24-year-old Vietnam War veteran on April 20, 1970, at 4420 Maple Avenue in Dallas. Get the symbolism in those numbers? Now the Gas Pipe is a chain with a dozen stores across Texas, which is no small feat in the buckle of the Bible Belt. The name is inspired by the exposed gas pipes spanning the ceiling of the humble flagship store and the natural resource the state is best known for. Expect military discounts, free lighter refills and complimentary grow guides.



BURIED TREASURES

Boston, MA

Established 1985

Greg wanted to be his own boss, so he bought a “card and T-shirt shop” and integrated smoking accessories, and Buried Treasures was born. He grew up in nearby Roxbury and remembers a headshop from his youth called the Psychedelic Shack with black-painted windows that closed up pretty quickly. Speaking to his own experience, Greg explains: “Longevity is the key to success.” Now that marijuana is legal for recreational use in Massachusetts, perseverance is definitely key! Water pipes and hand pipes (for tobacco use, of course) still sell as well as they did back in the ‘80s, though vaporizers have become increasingly popular.



TERRAPIN STATION

Buffalo, NY

Established 1988

Named after its owners’ favorite Grateful Dead song, Terrapin Station opened its doors in 1988. Self-proclaimed “pretty big deadheads,” Bob and Barry say their shop is all about the music, exemplified by an extensive collection of live-concert tape cassettes, posters, stickers and tie-dye shirts among cases of glass pipes, jewelry and incense. The \$5 bat is still their best seller after all these years, and much of their merchandise is made by local artisans. They celebrate their anniversaries with “legendary parties” and attribute their success to just two rules—“Never lie to your customers, and keep on truckin’.” ✨



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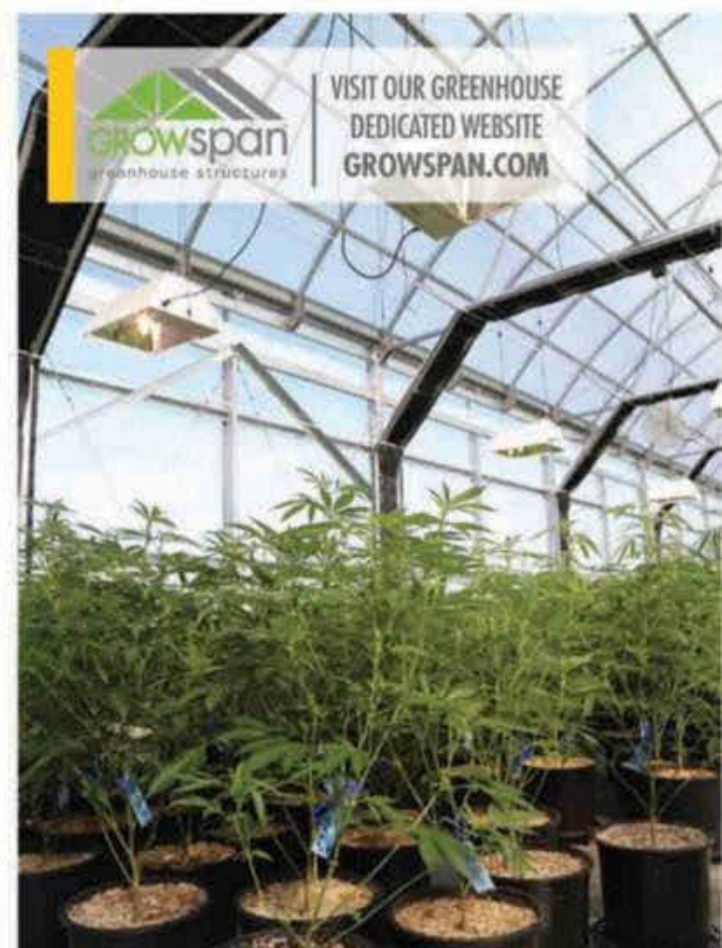
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GUIDE TO TRAVELING WITH POT

THINKING ABOUT TRAVELING WITH CANNABIS?
HERE'S WHAT YOU NEED TO KNOW BEFORE YOU GO.

BY JONATHAN HAVENS AND ADAM FAYNE



Hopefully, someday, this can be your travel stash. For now, learn the rules of traveling with pot.

A **S THE NUMBER OF STATES** AUTHORIZING THE USE OF CANNABIS FOR MEDICAL AND RECREATIONAL USE INCREASES—AT LAST COUNT, 30 STATES AND THE DISTRICT OF COLUMBIA HAVE AUTHORIZED THE USE OF MEDICAL MARIJUANA, AND NINE OF THOSE STATES HAVE ALSO AUTHORIZED RECREATIONAL OR ADULT-USE MARIJUANA—A MAJOR QUESTION ARISES: WHAT ARE THE LEGAL RESTRICTIONS AROUND TRAVELING WITH CANNABIS? DESPITE THE INCREASING LEGALIZATION OF MARIJUANA USE AT THE STATE LEVEL, IT REMAINS A FEDERALLY ILLEGAL, SCHEDULE I-CONTROLLED SUBSTANCE UNDER THE CONTROLLED SUBSTANCES ACT. BECAUSE OF THIS CONFLICT THAT CURRENTLY EXISTS BETWEEN FEDERAL AND STATE LAWS, INDIVIDUALS NEED TO UNDERSTAND HOW, WHEN AND WHERE THEY CAN TRAVEL WITH STATE-AUTHORIZED CANNABIS.

THE CONSIDERATIONS AND risks of traveling with authorized cannabis depend on both the destination and the mode of transportation.

Destination is the first thing to consider when traveling with authorized cannabis. It is important to understand the laws of the state where the individual will be traveling, whether simply passing through or as the final destination. The simple fact remains that, because of its federally illegal status, authorized cannabis cannot be transported across state lines. This is true even if the destination state has a similar marijuana program as the departure state (e.g., California and Nevada, which have both authorized medical and recreational marijuana). Despite the similarity between the laws of the departure and destination states, crossing a state line with cannabis can lead to myriad legal problems. Interstate travel falls under federal law, and thus transporting authorized cannabis across state lines is still considered a federal offense, regardless of the laws of departure and destination states. The federal government can charge an individual with drug trafficking if authorized cannabis is transported across state lines.

Similarly, attempting to transport authorized cannabis across international borders (e.g., between the United States and Canada) could lead to serious legal repercussions such as an arrest, fines and/or imprisonment. Even if you are a medical-marijuana cardholder in your home state, if you are caught with marijuana in your possession at the border, you could be detained by either American or Canadian border officials.

Furthermore, and as you might expect based on the discussion above, authorization to use cannabis in one state does not grant authorization to use cannabis in another state. Consider the following hypothetical scenario: Maryland has authorized the use of cannabis for certain medical conditions. If you have properly obtained a medical-cannabis card and are thus authorized to possess and use medical cannabis in that state but plan to go to South Carolina on vacation, be aware that the Palmetto State has not authorized the use of cannabis for any reason. Accordingly, South Carolina law enforcement could arrest you for bringing and/or using cannabis in the state.

ALTHOUGH A STATE MAY HAVE AUTHORIZED THE USE OF CANNABIS, IT IS IMPORTANT TO USE COMMON SENSE IN PLANNING WHERE YOU WILL USE THE CANNABIS. THERE IS A BIG DIFFERENCE BETWEEN PUBLIC AND PRIVATE PROPERTY, AND DIFFERENT PLACES WILL HAVE DIFFERENT REGULATIONS.

INTRASTATE TRAVEL

Even though an individual may lawfully travel within a state (i.e., intrastate travel) that has marijuana-authorization laws on its books, certain locations within that same state will still be off-limits for marijuana possession and use. Notably, it is illegal to bring marijuana onto federally owned property. Examples of federal property include national parks, post offices, federal buildings, military installations and any type of land owned by the federal government. For example, while Colorado has authorized use of cannabis for both medical and recreational purposes, it is illegal to possess cannabis in Rocky Mountain National Park, as the park is federal property.

If you travel with authorized cannabis, one important reminder is to always carry your medical-cannabis card with you. This could help if you are questioned about possessing marijuana (assuming you are in an authorized state and location to have the substance in your possession). It is also important to be conscious of how much cannabis you have in your possession. State laws generally restrict the amount of authorized cannabis you are allowed to possess. It is critical to recognize the limits for your home state and also the limits of your destination state if you plan to purchase and are authorized to do so.

Another consideration is the exact location of your destination. Although a state may have authorized the use of cannabis, it is important to use common sense in planning where you will use the cannabis. There is a big difference between public and private property, and different places will have different regulations. It is worth noting that many state parks will have rules about whether or not you can use cannabis on park property. It is therefore important to learn about the cannabis rules of any particular destination that will be a part of your travels.

As for private property, it is again important to know the rules about the establishment where you are staying. For instance, many hotels do not allow either the possession of cannabis or any type of smoking in guest rooms. Because a hotel is considered private property, the property owners are allowed to adopt and enforce their own drug-possession and -consumption regulations. While breaking the hotel's rules might not land you in jail (assuming state and local laws do not restrict the activity), a hotel could remove you from its property for failure to comply with its policies.

Your method of travel is also an important component when considering the legal ramifications of traveling with authorized cannabis. Whether transporting cannabis in a vehicle or attempting to bring it on an airplane, there are many things to prepare for and consider. Once again, research and knowledge of state and local laws and regulations are key to help mitigate risk.

DRIVING WITH CANNABIS IN A VEHICLE

First and foremost, driving under the influence of any type of cannabis is illegal, regardless of whether you are authorized to possess it and use it in the first place.

For intrastate driving with cannabis, many states have open-container prohibition laws that are similar to open-container laws relating to alcoholic beverages. For example, Colorado law states that a person in the passenger area of the vehicle may not have an open cannabis container. An open cannabis container is described as a receptacle or cannabis accessory that has a broken seal or whose contents have been partially removed. A violation of Colorado's law could also be found to have occurred if police observe any type of evidence that cannabis has been consumed in the vehicle. Another example of a state statute is that of Illinois, which states that a driver can only transport cannabis in a sealed and tamper-evident medical container.

It is important to know the traffic laws of the state in which the cannabis will be transported. The safest way to transport cannabis is in a sealed, tamper-proof container in the trunk of your car or in the closed glove compartment.

FLYING WITH CANNABIS

Although there have been some confusing remarks made by the Transportation Security Administration (TSA), one thing is clear: It is illegal to board an airplane with any kind of cannabis, authorized or



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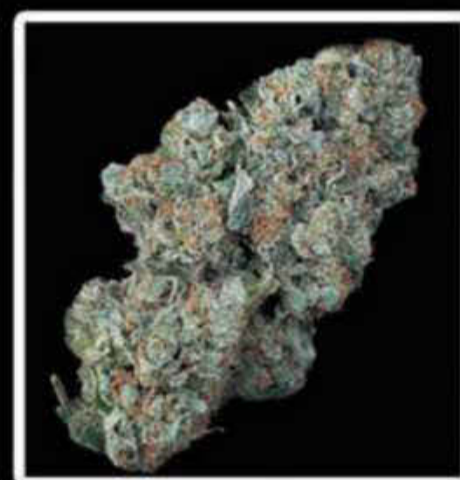
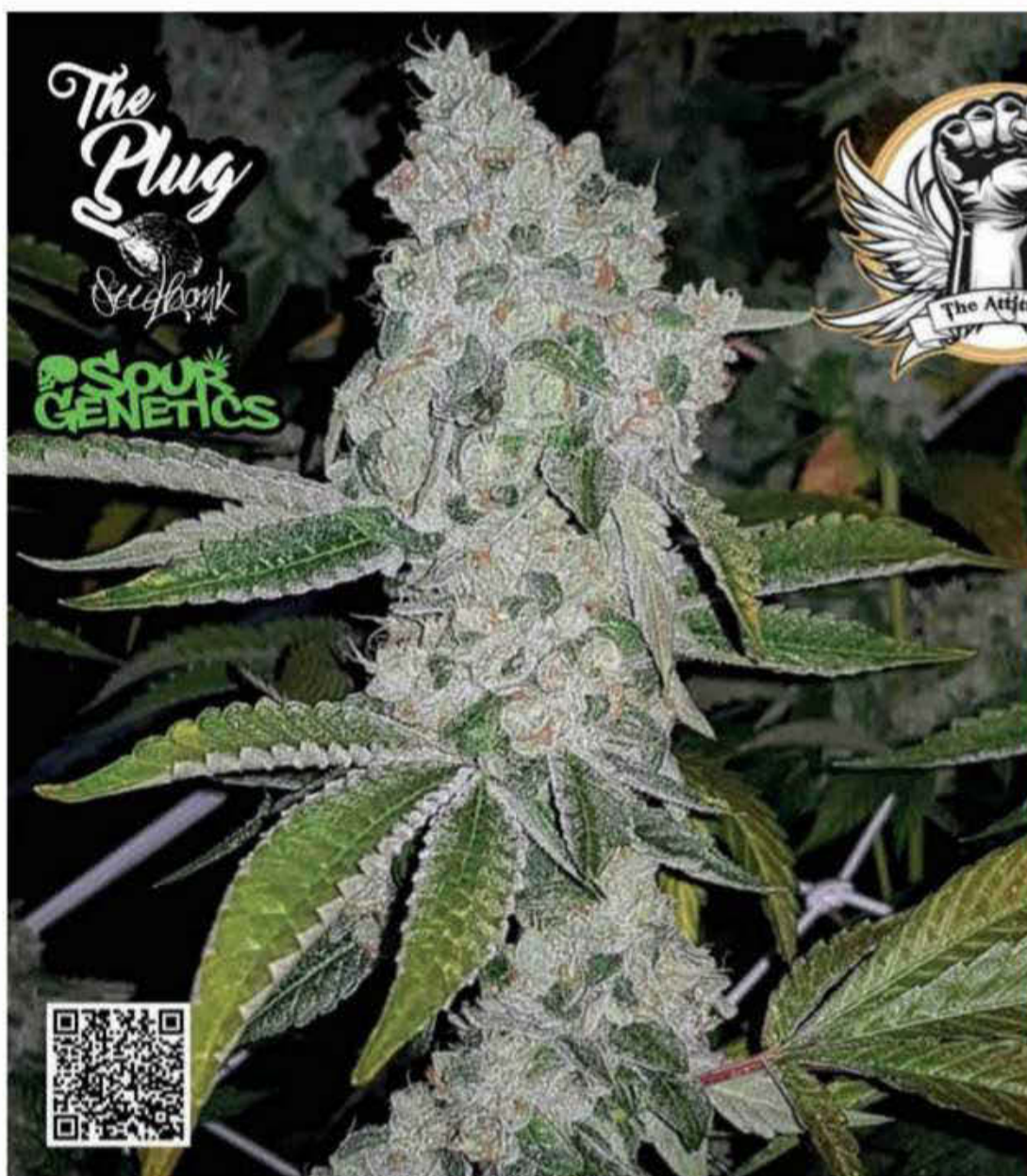
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otherwise. All secure areas of an airport and an airplane, once the door is sealed, are under the jurisdiction of federal law. The secure area of an airport is usually considered the area past the TSA screening section. Regardless of your destination, since marijuana possession is a violation of federal law, it is illegal to possess cannabis in either carry-on or checked luggage. This also includes air travel in a state where cannabis is authorized, even if the flight will not leave that state (e.g., a flight from San Francisco to Los Angeles). Again, this is because the airport and the airplane itself fall under the jurisdiction of the federal government.

Some of the confusion about flying with cannabis stems from statements made by the TSA itself. The TSA is not considered a drug-enforcement agency, and its agents do not have the authority to make drug-related arrests. One spokesperson for the TSA stated in an interview with the *New York Times* last year that the focus of the agency is “on terrorism and security threats to the aircraft and its passengers.” This means that the TSA is not specifically looking for drugs or contraband but rather for items that could harm the passengers of the

REGARDLESS OF YOUR DESTINATION, SINCE MARIJUANA POSSESSION IS A VIOLATION OF FEDERAL LAW, IT IS ILLEGAL TO POSSESS CANNABIS IN EITHER CARRY-ON OR CHECKED LUGGAGE.

plane, including explosives and weapons. This is also the same for TSA K9 units. The dogs sniff for explosive components, not for drugs. Nevertheless, if a TSA agent finds cannabis on a passenger or in a passenger’s luggage, that passenger will be detained and the agent will refer the matter to local law enforcement. A local law-enforcement officer will then carry out state or local law. If the individual is authorized to possess the cannabis, they will usually be asked to either dispose of it or take it home, as the TSA will not permit the cannabis through the checkpoint once it is discovered.

Even though the TSA is not specifically looking for cannabis, there is significant legal risk in attempting to travel with cannabis on an airplane. If an individual

is caught in possession of cannabis, even with a medical card, the individual could face punishment under federal law. Furthermore, the TSA has the ability to turn away passengers if they appear under the influence of drugs or alcohol.

In sum, there are many factors to consider when traveling with authorized recreational or medical cannabis. The destination and mode of travel, how the cannabis is stored, federal laws and the state and local laws of the destination state, and the rules of the owner of the private property where you will be staying are just some of the important issues to contemplate. ✨

Jonathan Havens and Adam Fayne are co-chairs of the cannabis law practice at Saul Ewing Arnstein & Lehr LLP in Baltimore and Chicago, respectively. Havens and Fayne counsel state cannabis-license applicants and awardees, ancillary service and product providers, investors, management companies and various other entities that are affected by federal and state marijuana laws, such as higher-education institutions. Havens and Fayne would like to thank former summer associate Matthew Allison for his invaluable research and significant contributions to this article.

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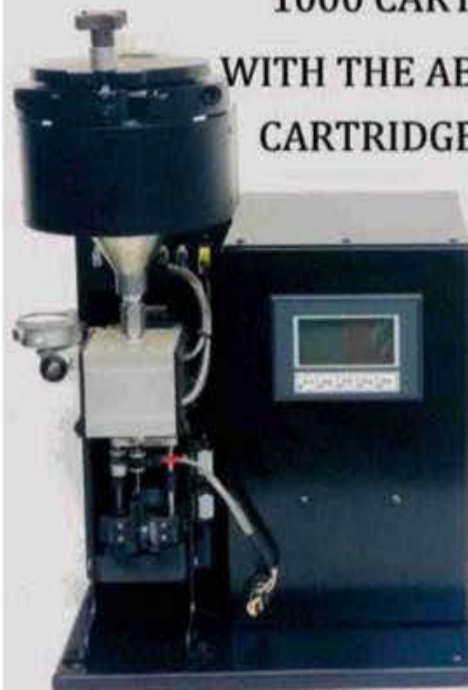
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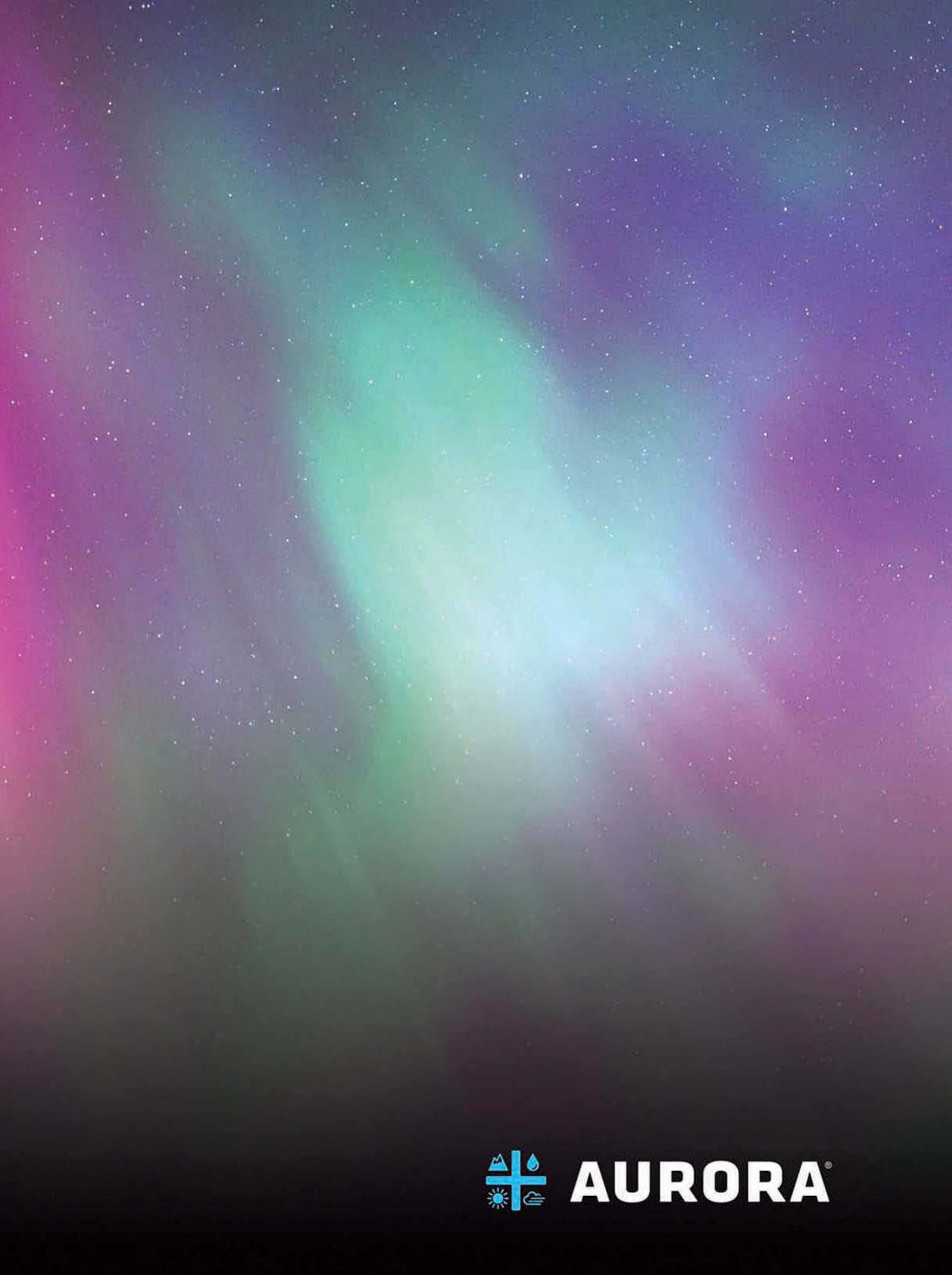
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SUBJECT: **Harvest Odor**

FROM: **Sparky Gump**

🐼 How do I control the odor my buds emit while drying?

Dear Sparky,

If you're drying in an enclosed space, any air that's removed from the space must be filtered. This means you need a strong fan to suck out air and push it through an activated-charcoal filtration device to remove odor particles. Otherwise, the scent will escape and permeate the area. It also helps to have odor-masking materials on the outside of your drying space (such as Ona products) to further hide the smell.

Danko Tip: Always use a clean, sharp blade when cutting clones, and slice at a 45-degree angle.



Get high and enjoy the beautiful sights of Amsterdam.

SUBJECT: **Lighting Auto-Flowers**

FROM: **Atman BG**

🌱 I've been growing auto-flowers for about nine months now and I just got into a perpetual cycle. I've read and heard a lot of different light/darkness scheduling, ranging from a 24/0-hour to a 12/12-hour light/dark cycle. I am currently running a 16/8 cycle with the gas-lantern method. I am using a Mars hydro reflector LED grow light, and I'd like to hear your thoughts or opinions on the light-schedule method for auto-flowering plants. By the way, the *Free Weed* podcast gets me through my day job!

Dear Atman,
Thanks for your kind words on the podcast. We're excited to be back up and running on a weekly basis, so thank you for the support! For auto-flowering plants, I recommend 20 hours of light throughout all stages of life. Any less and they seem to get a bit spindly and stretchy; any more and they don't have enough down time to recover from all that light.

SUBJECT: **Amsterdam**

FROM: **Mike M.**

🌱 Thanks for all you've done and what you are continuing to do for all of us in the industry. I'm an outdoor commercial grower and I'm heading to Amsterdam for the first time this August. Other than Sensi Seeds, do you guys have any recommendations for places to check out while I'm there?

Dear Mike,
Congratulations on your trip to Amsterdam. We recently returned to do more Cannabis Cups in the birthplace of marijuana freedom, and I couldn't have been happier to be back in Holland. The first place you should visit is the Cannabis College, where you can learn about the culture and prepare for your immersion into the coffeshop scene.

Then you should visit some coffee-shops. I recommend the trusty Green House, Grey Area, Dampkring, Barney's, Bluebird and Prix d'Ami, but there are also some relatively new places to check out these days such as Voyagers, the

Plug, Boerejongens and Het Bollonnetje. Make sure to also visit some of the many amazing museums and take a canal boat tour of the city while you're there as well.

SUBJECT: **Fan Size**

FROM: **theCatica**

🌱 I was wondering if you could give me a ventilation tip. I'm switching my 10' x 10' grow tent from a sealed room to a ventilated one. Every time the AC kicked in, the tent would be squeezed inward, and it just doesn't seem right. So instead of running the AC all the time, I would rather ventilate the tent really well. What size intake and exhaust fans would you recommend? I have a 1000-watt, a 2,600-watt and a couple of induction 420 lights. Should the intake and exhaust pull the same cubic feet per minute, or should I intake less and exhaust more?

Dear theCatica,
With growroom ventilation, you're trying to do two things: remove spent air and heat as well as provide fresh, cool air to your plants. You want to be able to clear

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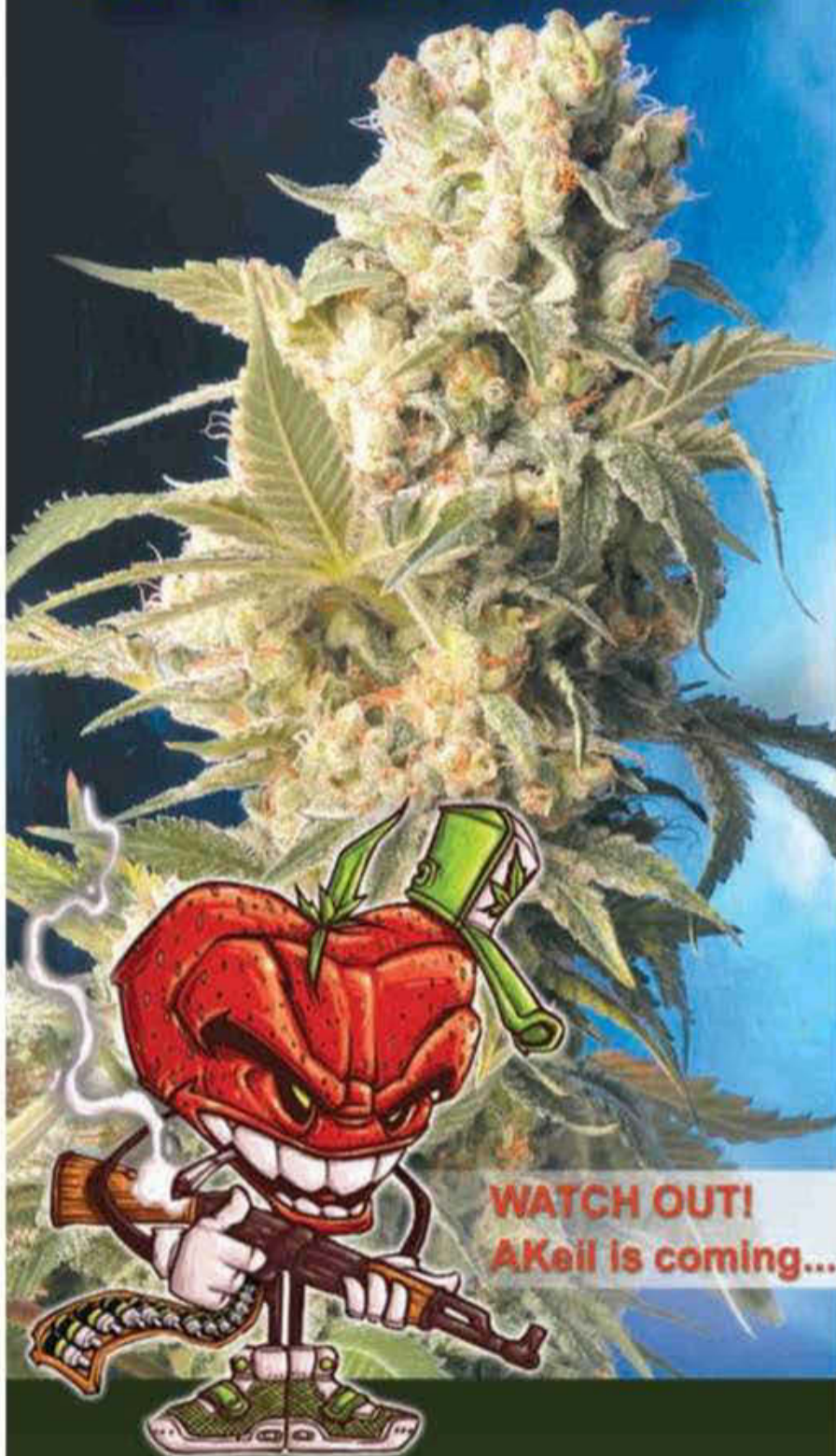


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DEAR DANKO

Danko Tip: Wet the soil in your pot thoroughly before transplanting to keep the root-ball together.

the air from your growroom in about five minutes. Any faster and you risk dehydrating your plants; any longer and growth will begin to stagnate. There are several other factors to consider, such as whether your lighting is air-cooled and vented separately—but I'm going to assume it isn't.

For a 10' x 10' space, assuming you have eight-foot ceilings, your cubic footage adds up to 800. This means you'll need an exhaust fan with a cubic-foot-per-minute (CFM) rating of around 160 in order to remove the air every five minutes. Keep in mind that any carbon filtration will slow your airflow significantly, so boost your rating accordingly. I recommend a 240-CFM exhaust fan for your space, using a charcoal filter.

Pulling out more air than you draw into your space will create negative pressure and pull extra air through any cracks, cutting down on the amount of odor that can escape. Make sure you have at least one oscillating fan per four square feet of area; you'll need about three of those strategically placed to distribute the fresh air drawn from the lower part of your growroom and expelling spent air from the highest point (because, as we learned in school, heat rises).

SUBJECT: **No Flowers**

FROM: **Tony O.**

Hi. I'm having a bit of a problem. I can't seem to get my plants to flower. They were in the vegetative stage for five weeks and have been in the flowering stage for six weeks, but no buds are forming—just what looks like pre-flowers to me, white hairs where it's stretching and making new branches. I'm not having any light leaks and I've tried different light timers. The only thing I've had a bit of problem with is the heat. I've had a high of 109°F, but on average between 80-90°F.

Dear Tony,

Your problem is definitely heat. Anything over 80 degrees is going to adversely affect your plant's ability to grow, eventually slowing that growth to a crawl. Over time, the plant will cease growth altogether in order to weather the intense temperatures, so you've got a plant growing in extreme slow motion. Cool your room down below 80°F and you should see growth rates return to normal and flower formation begin to accelerate.

SUBJECT: **Planting Deep and Pinching**

FROM: **Andy**

A couple of questions concerning the height limitation of plants:

When I grow from seeds, there are sometimes plants that are taller than the others. My friend says it's good to plant them deeper down in the container when transplanting. Sometimes he buries almost half the plant. He tells me that roots will eventually grow out of the buried stem and fill out the container, even above the rockwool rooting cube that is sometimes halfway down inside the container. Another buddy says that roots won't grow out of the upper part and that you'll lose the use of the upper part of the container when you do this. Who is right?

Another one about height limitation: When they're still in vegetative stage and some plants are starting to get taller than others, I



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DEAR DANKO

Danko Tip: Rotate your pest-control methods to maintain the effectiveness of your attack.

have a friend who likes to pinch the stem about 5-10 centimeters above the soil, saying this will slow down the vertical growth of the plant. But I've heard that this is very bad for the plant—it will shock it and eventually the plant won't grow, flower or produce as it should. Who is right?

Dear Andy,

To answer your first question, it is wise to plant deeper and bury some of the stem of your plant when transplanting. You increase the amount of vertical space you can grow in as well as allow the plant to form more roots from the buried part of the main stem.

As to your second inquiry, it's fine to prune or pinch your plants during the vegetative stage if they're getting too tall, but doing so only 5-10 centimeters above the soil isn't the way to go. Instead, let the plant grow at least 6-12 inches and several sets of leaves before any pinching. And try not to take off too much healthy growth. Instead, be selective and prune with purpose, like a bonsai master.

SUBJECT: **How Much Water?**

FROM: **Anaheim Angel**

🌱 How often should I water my pot plants, and when should I start adding the liquid nutrients to my solution?

Dear AA,

Plants need to be watered differently based on how old they are and how much of a root system they have. Young plants with a smaller root system require less water more frequently, while larger, more established plants will need a full soaking every day. Flowering plants also take up more water than vegetating plants in order to supply enough fuel to build buds.

In containers, one good rule of thumb is to pick each individual container up after watering to get an idea how it feels when full. Then, once the first few inches of mix at the top of the bucket have dried out, pick it up again to feel the weight without much water. Eventually, you'll be able to tell exactly which plants need how much water and act accordingly.

As for nutrients, plants in soil mixes can usually go a few weeks with plain water before you'll need to start adding the vegetative nutrients that are higher in nitrogen. Hydroponically grown plants will need at least a mild nutrient solution from the moment they show roots. Once you have decided to flower your plants (soil or hydro), you'll need to start adding flowering nutrients with higher levels of phosphorous and potassium.

SUBJECT: **Too Much Light**

FROM: **MVN**

🌱 I'm starting a five-plant grow in coco coir in a 4' x 4' tent. Is a 1,000-watt HPS too much light for five plants?

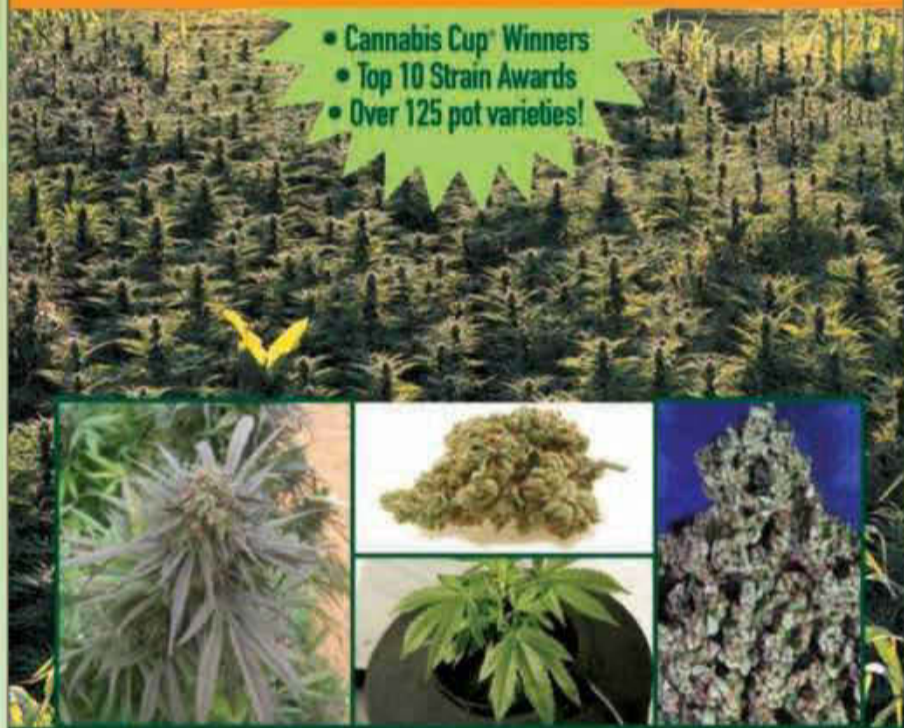
Dear MVN,

Yes, I think a 1,000-watt light is a little too much for a 4' x 4' enclosed space. I would recommend a 400- or 600-watt light for that, unless you're very confident you can deal with the intense amount of heat created by a 1,000-watt lamp in such a small area. If you increase the size of the tent to 5' x 5', though, that size lamp would be more reasonable. 🌿

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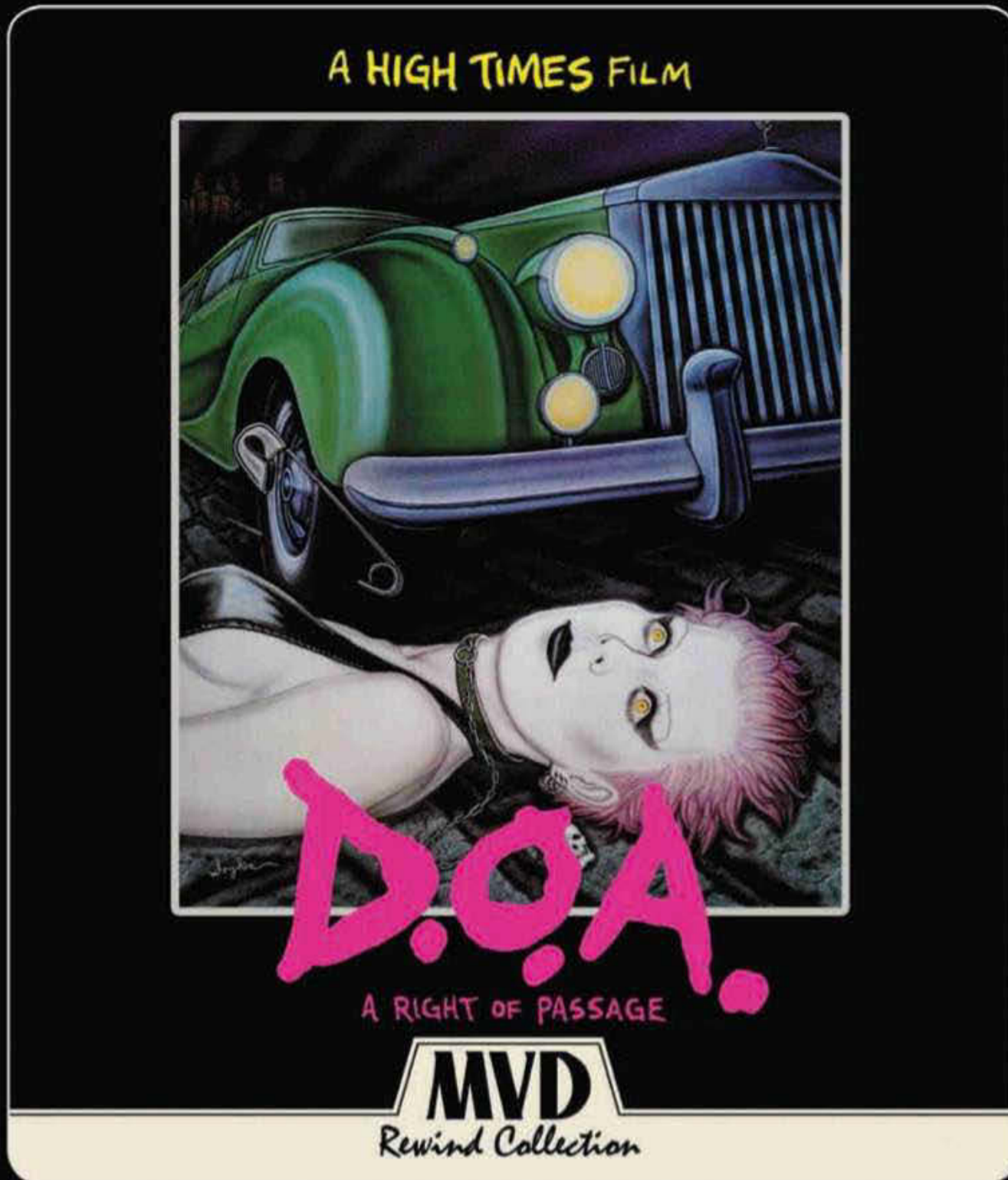
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INGREDIENTS

Crust:

Premade frozen pie crust or no-bake graham-cracker crust

Pecan filling:

*⅔ cup creamy almond butter
½ cup pure maple syrup
½ cup virgin coconut oil
4 tsp. pure vanilla extract
½ tsp. sea salt
½ cup pecans, toasted and chopped*

Ganache:

*3 oz. (½ cup) dark chocolate chips
¼ cup coconut milk
½ cup pecans, toasted and chopped*

Infused salted caramel sauce:

*1 cup coconut sugar
⅔ cup full-fat coconut milk
1 tsp. sea salt
Half a gram activated/edible THC distillate*

DIRECTIONS

Bake the premade pie crust if needed, according to package instructions.

For the filling, place ½ cup toasted pecans in a layer on the bottom of the crust.

Mix the almond butter, maple syrup, virgin coconut oil, vanilla extract and sea salt in a medium saucepan. Heat over medium-low flame for a few minutes, or until the coconut oil is melted. Whisk until smooth.

Let the mixture cool slightly, then pour it over the pecans in the crust. Shake to even out and place the mixture in the refrigerator for at least one hour, or until the filling is firm.

For the ganache layer, place the chocolate chips in a heat-proof bowl. Place the coconut milk in a saucepan and heat over a medium-low flame until steaming. Pour the hot coconut milk over the chocolate. Whisk until smooth. Quickly spread over the caramel layer, then sprinkle with the other ½ cup of toasted pecans. Let cool completely.

To make the infused caramel sauce, pour the coconut sugar into a medium saucepan over medium heat and stir for about three minutes to warm it (stop when the sugar starts to melt). Add

the coconut milk. Whisk until the sugar dissolves, then bring to a boil.

Reduce the heat and simmer for 14 minutes—avoid stirring too much to prevent air bubbles, and use a swirling motion to avoid burning the caramel. The sauce should thicken slightly as the water bubbles off, and it will start to look like a very dark brown syrup.

Remove the caramel from the heat when the sauce coats the back of your spoon or spatula. Allow to cool for about 10 minutes. Stir in the half gram of activated THC distillate. Whisk thoroughly to fully incorporate.

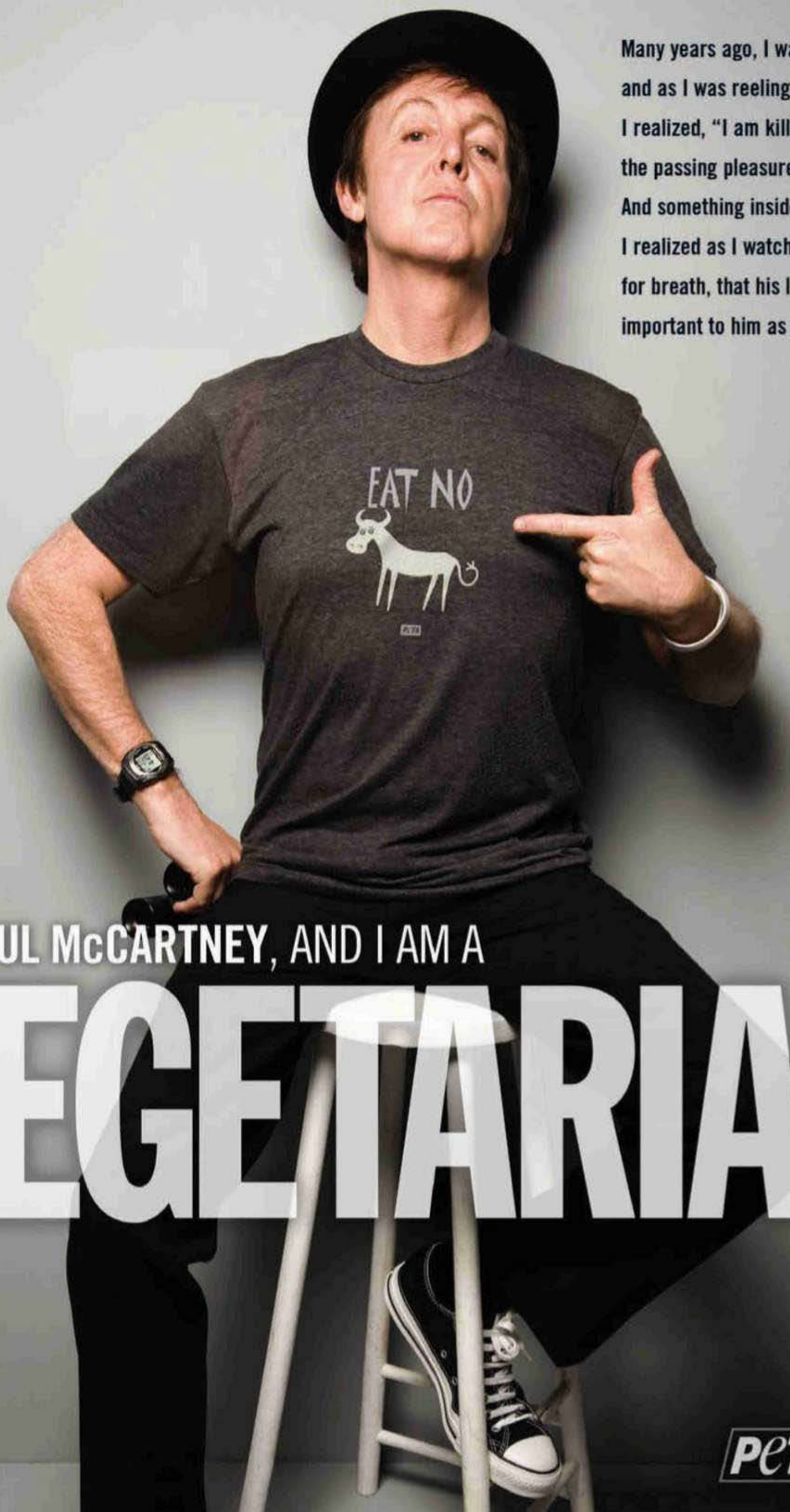
Drizzle half of the now-infused caramel sauce on the pie, and then sprinkle the remaining pecans on top. Chill the pie in the fridge again for at least two hours. For a firmer pie, refrigerate overnight.

Serve with a scoop of ice cream and a tablespoon of the infused caramel sauce on top of each slice.

A note on dosage: The infused sauce will contain approximately 3.75 mg of THC per tablespoon. A plain slice of the pie will contain approximately 13.75 milligrams of THC. Together, a slice with a tablespoon of sauce will contain around 27.5 mg of THC per serving. ✨

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and as I was reeling in the poor fish,
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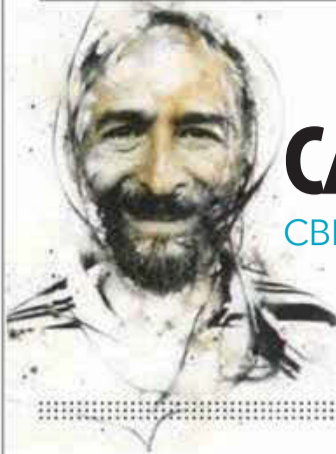
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I just saw a robotic bud trimmer. Are they going to steal my job?

Optimus Crime

Hi Optimus, Trimming machines have been around for 15 years or so. These gizmos use cameras and computer detection to trim a plant in four minutes. But don't worry. Someone has to load the plants into the machine—and that's a job that won't give you carpal tunnel syndrome.



many joints as they wanted to smoke. What a surprise—they smoked less. Your tax dollars at work.

I was stoned to the bone when an ambulance ran the siren for hours and I was completely straight again. What gives?

Buzz Killed

Hey Buzz, Back in the 1970s, Bob Pihl at McGill University (my adviser's adviser) showed that loud, aversive sounds lowered a subjective high, but there's been no funding to find out why. If we had more subtle measures of "highness," I think we'd discover that the sounds wreck happy moods—what most folks monitor when they're asked how high they are.

I just read a study "proving" that the THC pill gets people to smoke less pot. Am I crazy, or is that the stupidest thing ever done?

Ways Ted Effort

Howdy Ways, Yes, Johns Hopkins researchers gave people at least 120 milligrams of THC and as

I have insomnia but my wife has arthritis. Can we use the same ratio of CBD to THC?

Jack Spratt

Hello Jack, The published literature on ratios of CBD to THC is absurdly thin. Despite claims, all we really know is that CBD minimizes some of the trippy and hungry facets of the THC experience. Try what you can, see what works and tell me how it turns out!

Why don't people use cannabidiol to treat schizophrenia?

See Bee Dee

Hey See, They do! Researchers in London gave 88 schizophrenics a full gram of CBD per day. They were much less psychotic and experienced few side effects. 🌿

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



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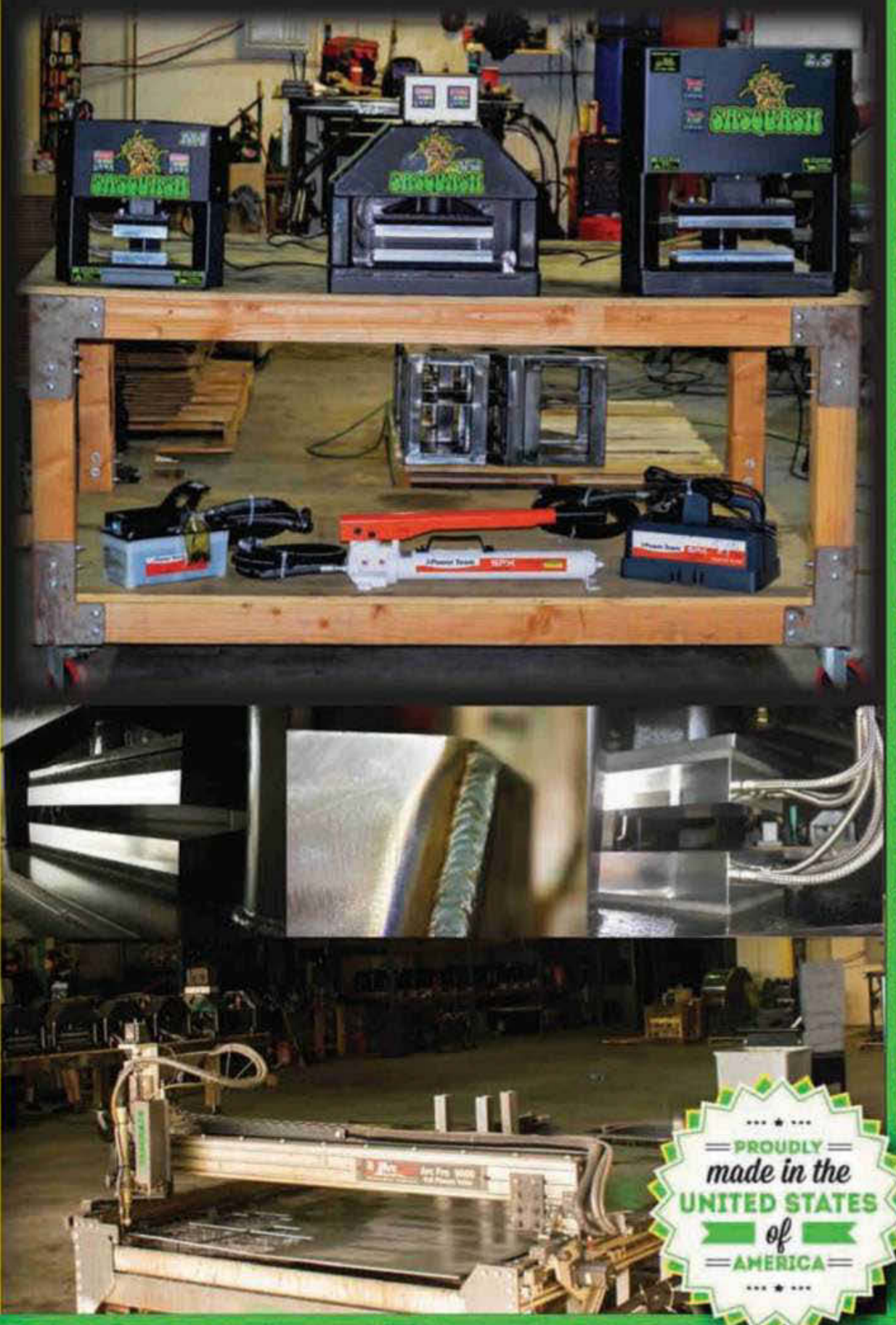
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WHILE OFTEN FRUSTRATED, ADVOCATES MUST SOLDIER ON IN THE NAME OF CANNABIS FREEDOM.

Joseph Koenig is a NORML legal intern. Visit norml.org.

CANNABIS SHOULD NOT be illegal and never should have been outlawed in the first place. If you are reading this article, you probably agree with that statement. To mainstream America, cannabis was, for a long time, a noncontroversial medicine. The *United States Pharmacopeia*, which lists and standardizes drugs and medications, included cannabis from 1851 until 1943. Cannabis often came in the form of a tincture to be applied sublingually, and medical professionals recognized the various benefits that cannabis provided to patients. On a grand societal scale, cannabis use simply was not an issue.

Harry Anslinger changed all of this in the 1930s. Anslinger headed the Federal Bureau of Narcotics, a post that he assumed after leading the Alcohol Prohibition Bureau, which of course evaporated with the repeal of the 18th Amendment to the US Constitution. Anslinger perpetuated the false narratives of *Reefer Madness*, relying heavily on hysteria, racism and bizarre propaganda to falsely classify cannabis as a dangerous drug used primarily by people of color. Despite several scientific studies concluding that cannabis use was not dangerous, Anslinger stubbornly persisted in his crusade to outlaw the plant.

Richard Nixon, with arguably the same motives as Harry Anslinger, passed the Controlled Substances Act in 1970, which listed cannabis as a Schedule I narcotic. Schedule I substances, by definition, have a high potential for abuse and no current accepted medical use, and they lack safety of use. Of course, we know that this classification for cannabis is ludicrous. Nixon knew this too, as he ignored the findings of the Shafer Commission, which urged the president to decriminalize the drug. The Shafer Commission found that cannabis posed no public health risk and that the enforcement of anti-marijuana laws was a waste of taxpayer money. It ultimately called cannabis-related issues overdramatized.

However, Nixon had political motives for outlawing cannabis. In fact, his top political aide, John Ehrlichman, admitted that he and Nixon were aware of the lies that they

disseminated about cannabis. The anti-pot propaganda the Nixon administration spread about cannabis users gave it a useful way to undercut the legitimacy of these people, arrest them in large numbers and raid their homes while broadly painting these communities in an unappealing light. Nixon's War on Drugs destroyed and disenfranchised people of color and the anti-war left. We still feel the effects of these policy choices resonating even today.

Throughout the legal history of cannabis, politicians have consistently given the big middle finger to medical researchers and scientists who have continuously stated that the plant is not dangerous and poses very little risk. Furthermore, the War on Drugs has disproportionately targeted minorities, despite studies showing that whites and people of color consume cannabis at similar rates. Minorities are also disproportionately victims of the prison-industrial complex, a brutal reality birthed from the combination of harsh police tactics and mandatory minimum sentencing. (Ironically, as legalization movements succeed, white people are the first to reap the financial benefits of cannabis, not people of color, who have historically suffered from pot's prohibition.)

While *Reefer Madness*-style propaganda, racism and the mass incarceration of cannabis users have lessened lately, they still exist, and their effects on the population remain. Apathy does too. Some people just seem unconvinced. Indifference frustrates us as activists, whether it comes from lawmakers or from members of the public. Through this quagmire, though, I urge all people to keep building momentum.

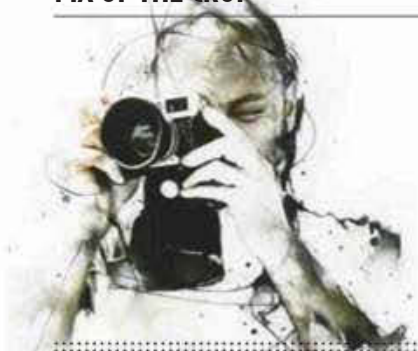
Changing the minds of others does not happen quickly, especially on complex subjects. It occurs through thoroughness, understanding and, of course, having a good argument. Cannabis can be legalized, used responsibly and be effectively overseen. Building something this great requires a steady chipping away at the daunting marble block of past transgressions. To all of my fellow activists: Do not let impatience and frustration impede our movement. Our victory will come to fruition. 🌿

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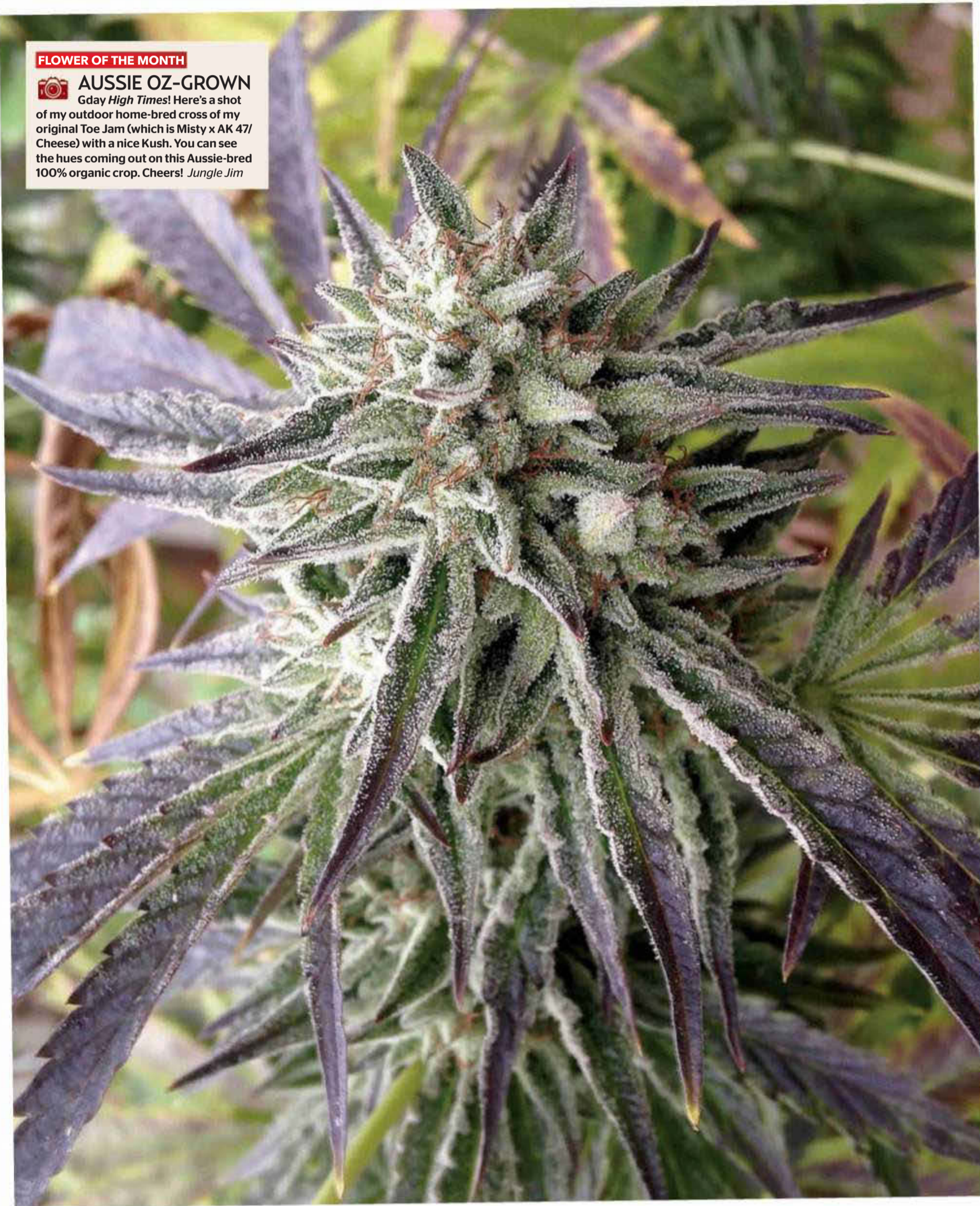
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FLOWER OF THE MONTH



AUSSIE OZ-GROWN

Gday *High Times*! Here's a shot of my outdoor home-bred cross of my original Toe Jam (which is Misty x AK 47/ Cheese) with a nice Kush. You can see the hues coming out on this Aussie-bred 100% organic crop. Cheers! *Jungle Jim*



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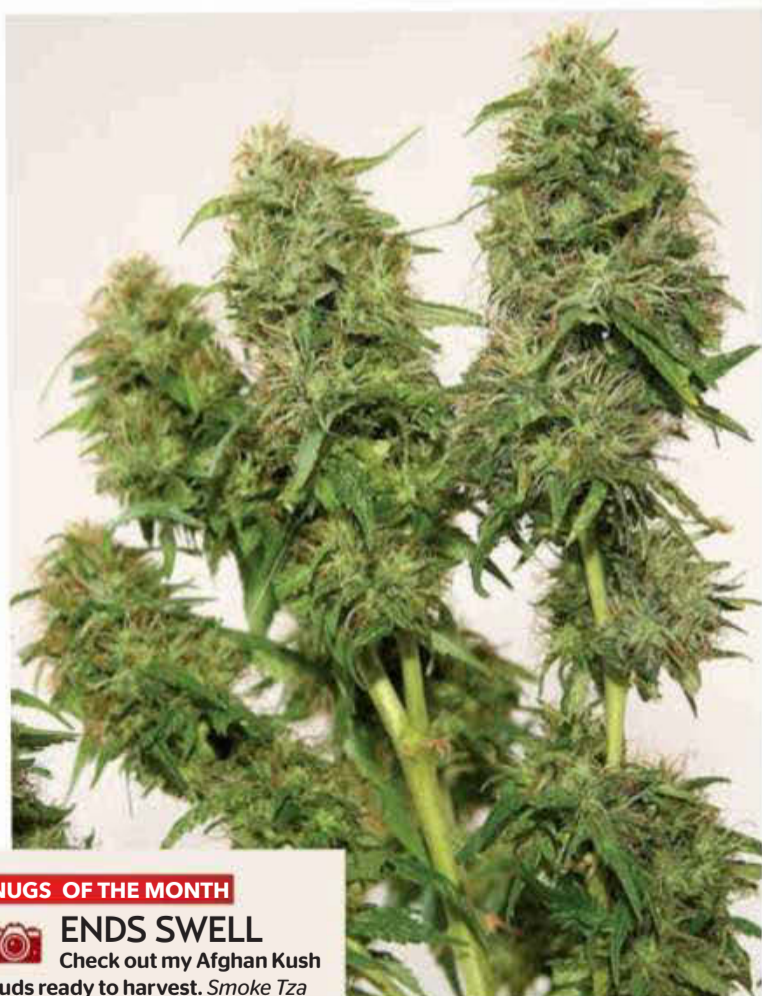
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GROW OF THE MONTH

SUNSHINE DANKDREAM

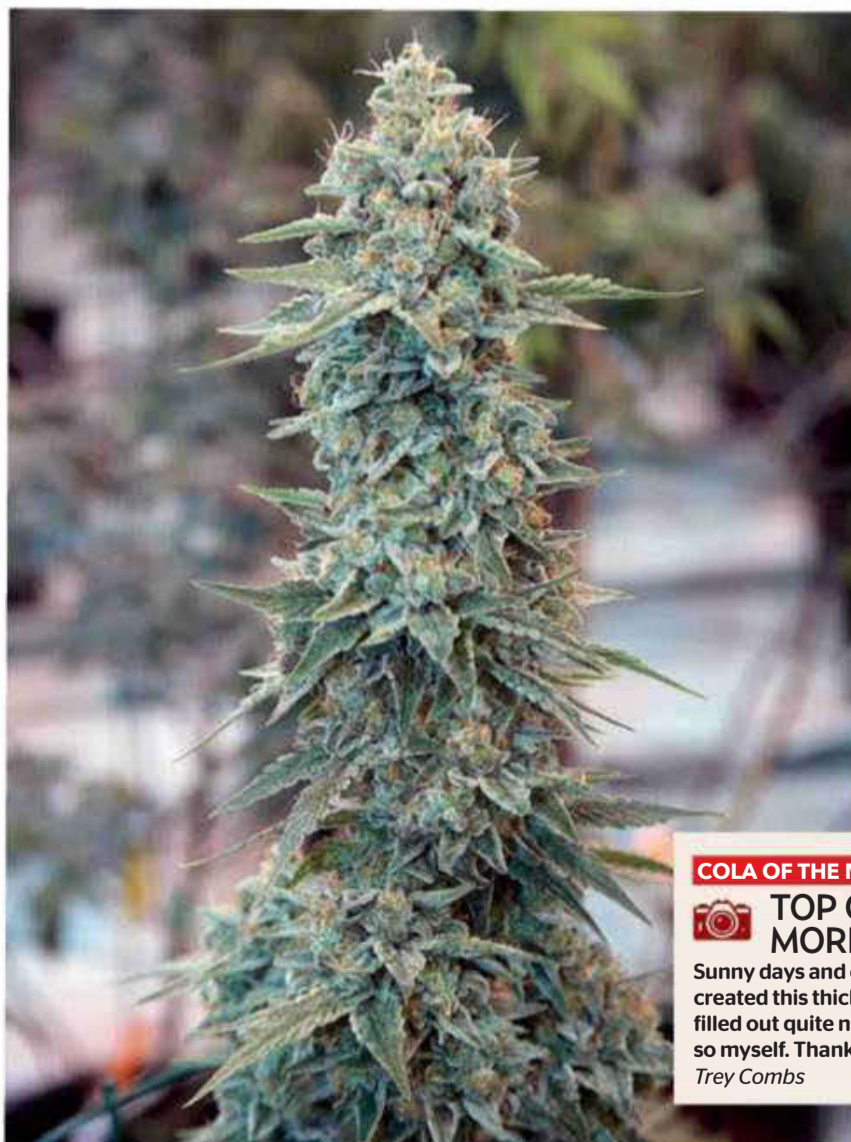
Nothing beats outdoor sun-grown cannabis! *High Alai*



NUGS OF THE MONTH

ENDS SWELL

Check out my Afghan Kush buds ready to harvest. *Smoke Tza*



COLA OF THE MONTH

TOP OF THE MORNING

Sunny days and cool nights created this thick cluster that filled out quite nicely if I say so myself. Thanks *High Times!*
Trey Combs

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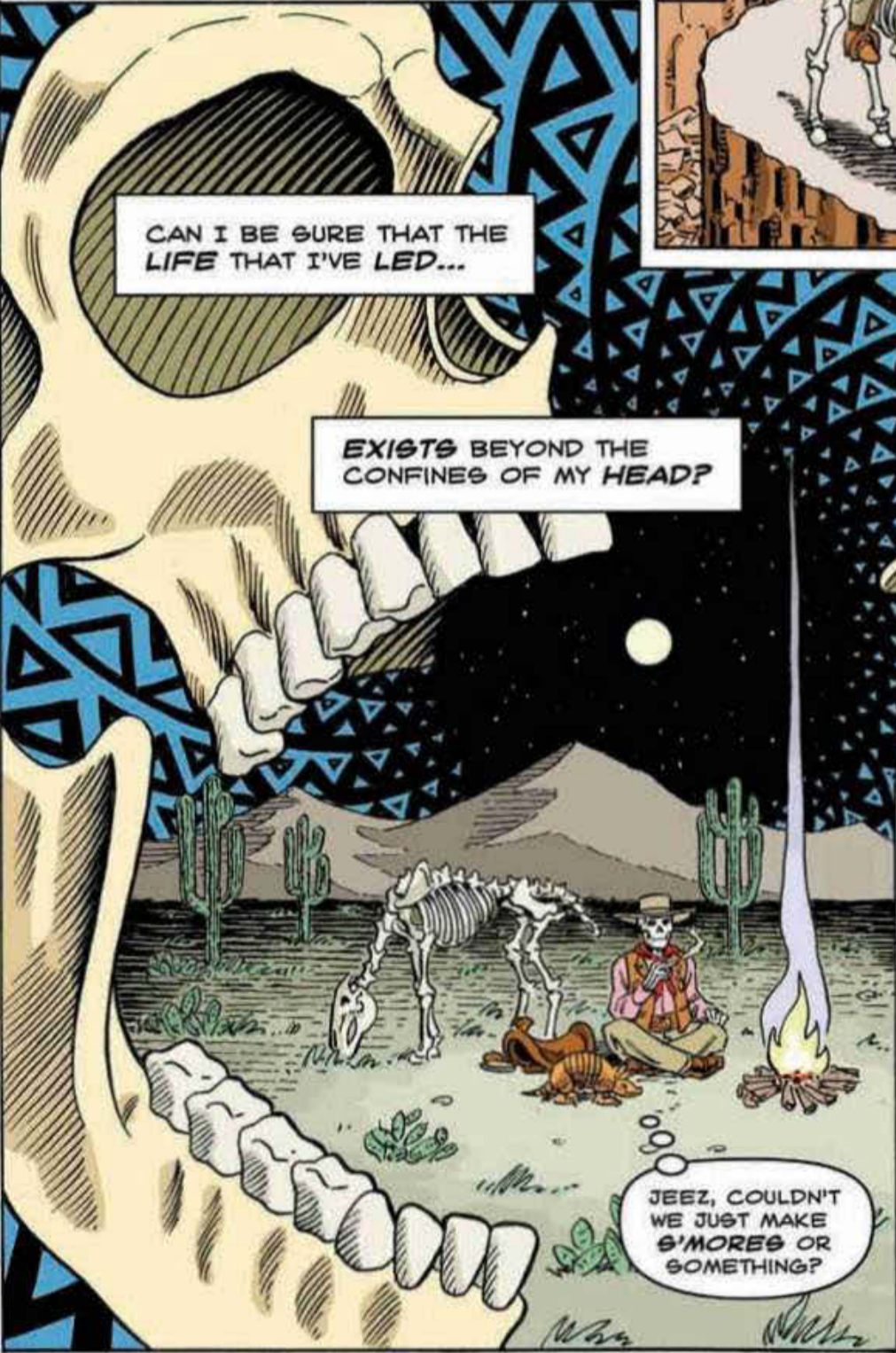
OR THE FORCE OF MY WILL AND MY FOCUSED DESIRE?



IS THERE TRUTH TO BE FOUND AT THE END OF THE TRAIL...



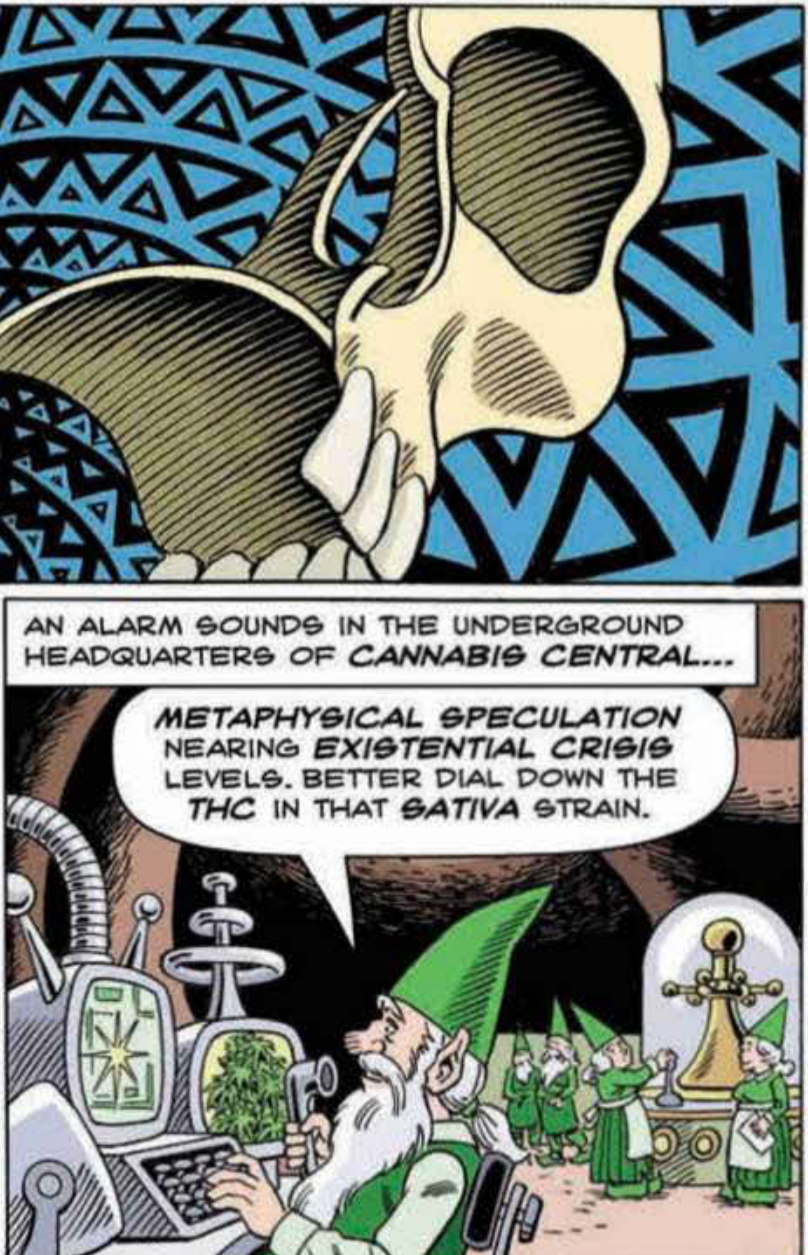
OR HAS IT LESS SUBSTANCE THAN THE SMOKE I EXHALE?



CAN I BE SURE THAT THE LIFE THAT I'VE LED...

EXISTS BEYOND THE CONFINES OF MY HEAD?

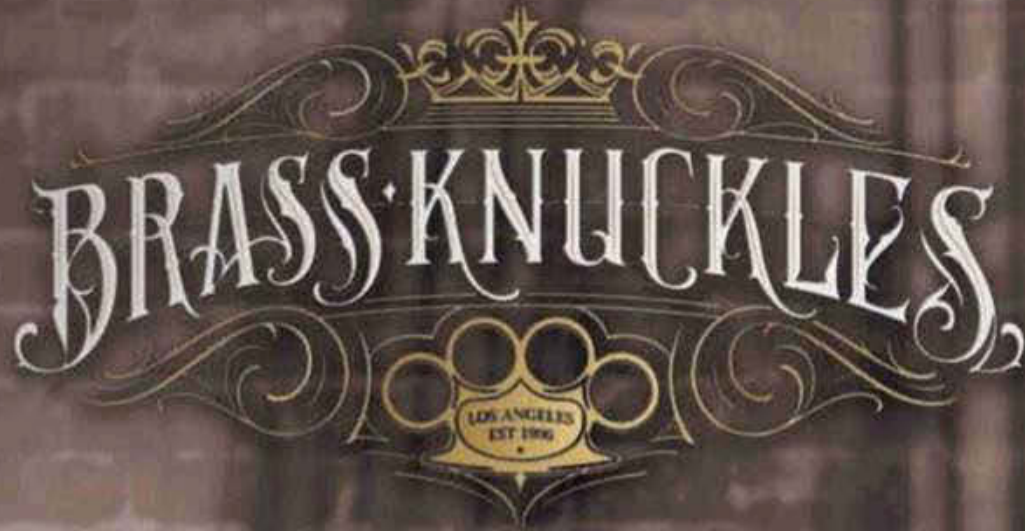
JEEZ, COULDN'T WE JUST MAKE S'MORES OR SOMETHING?



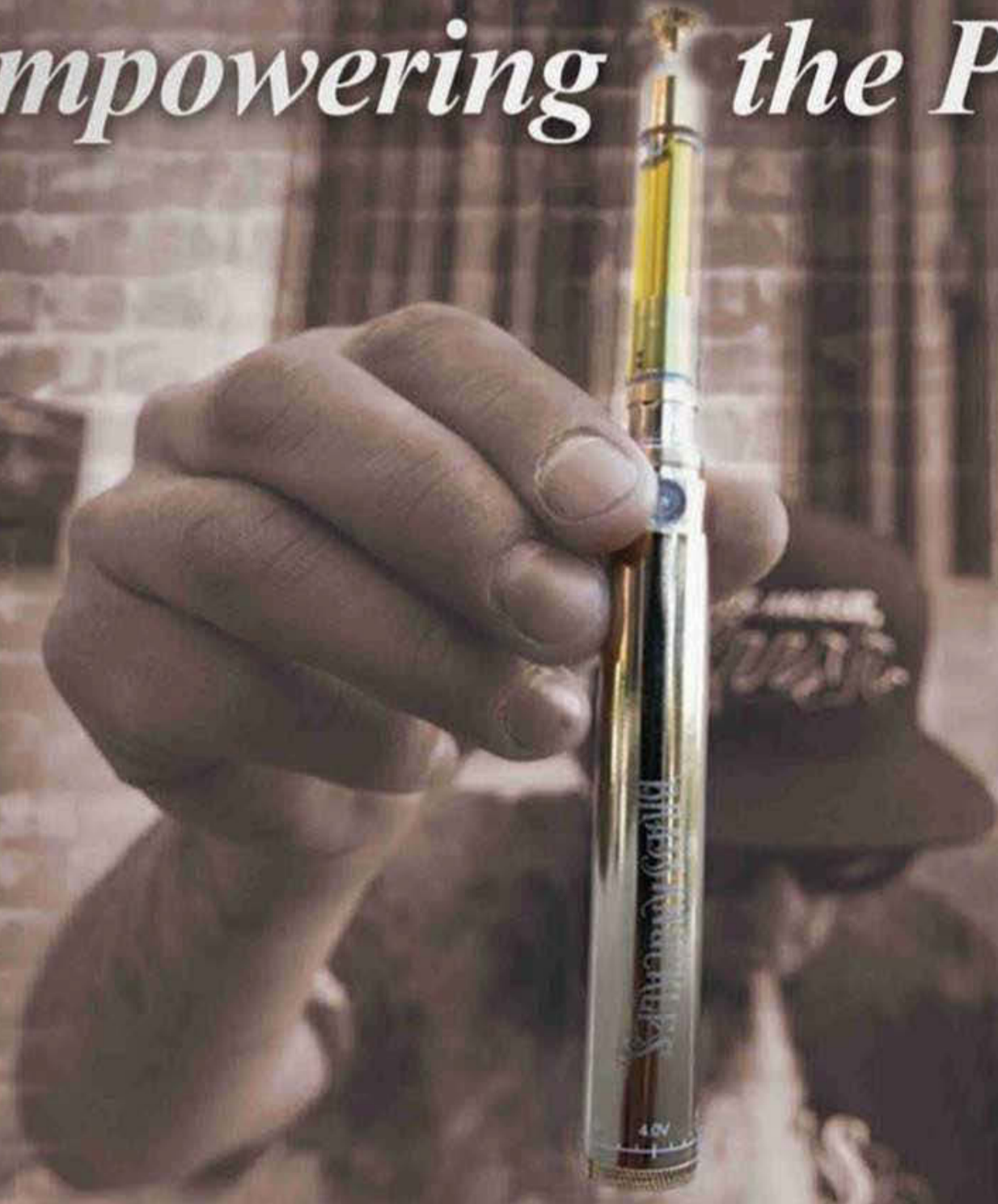
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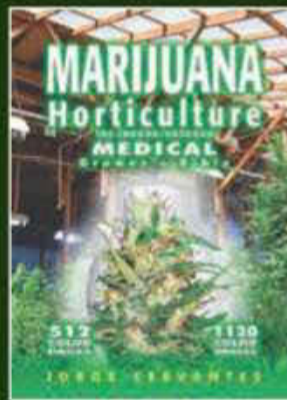


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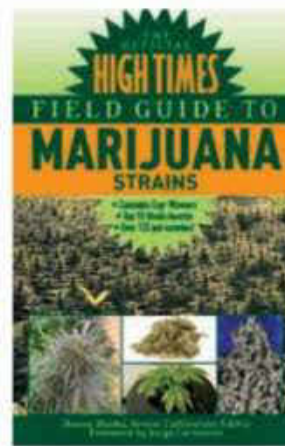


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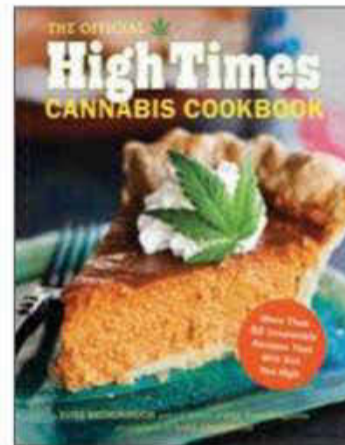


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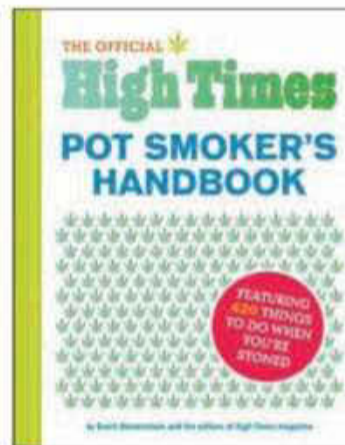
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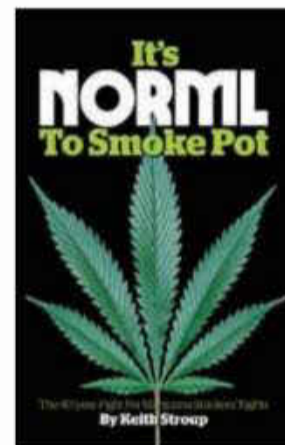
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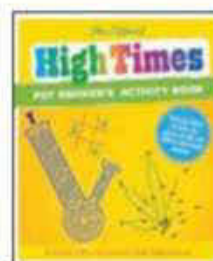
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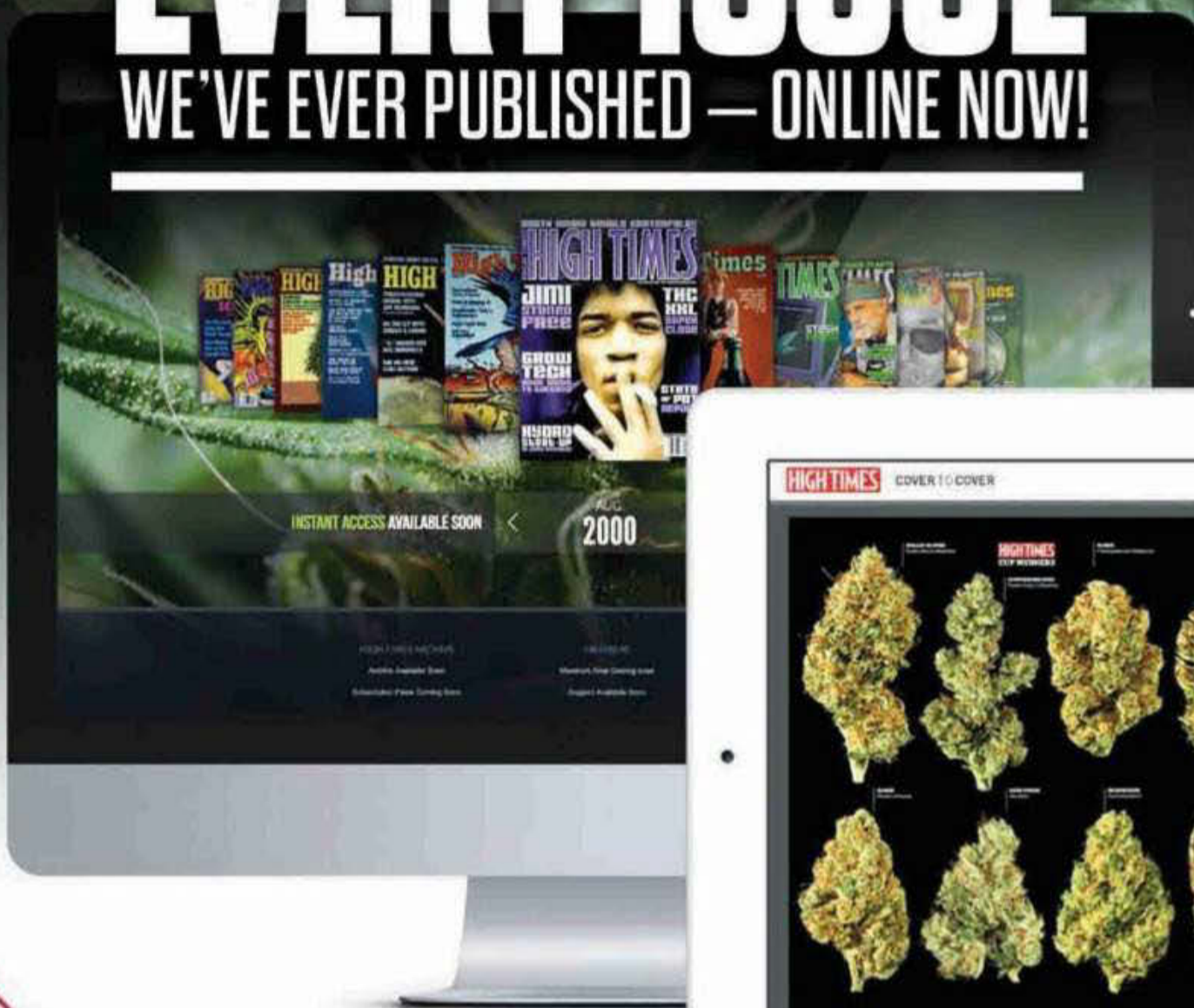
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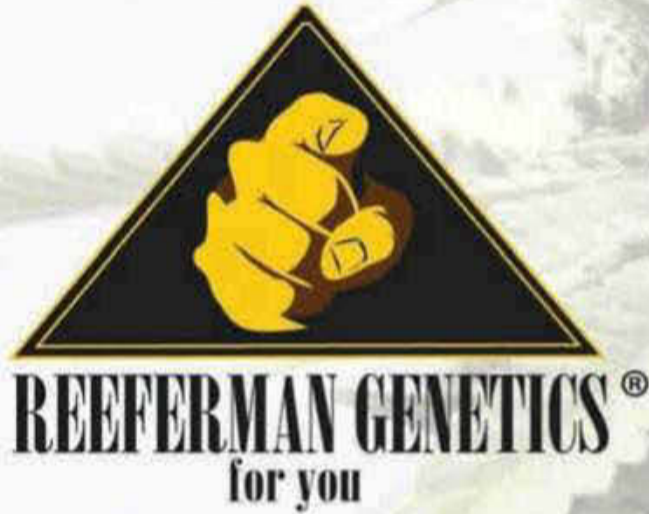
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