

THE SCIENCE & TECHNOLOGY ISSUE

HIGHTIMES

FEBRUARY 565

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DETECTS
THC IN
PLANTS

NANOTECHNOLOGY
TRANSFORMS
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CULTURE TO
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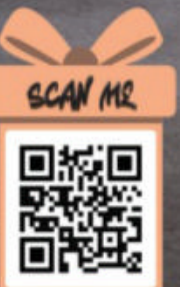
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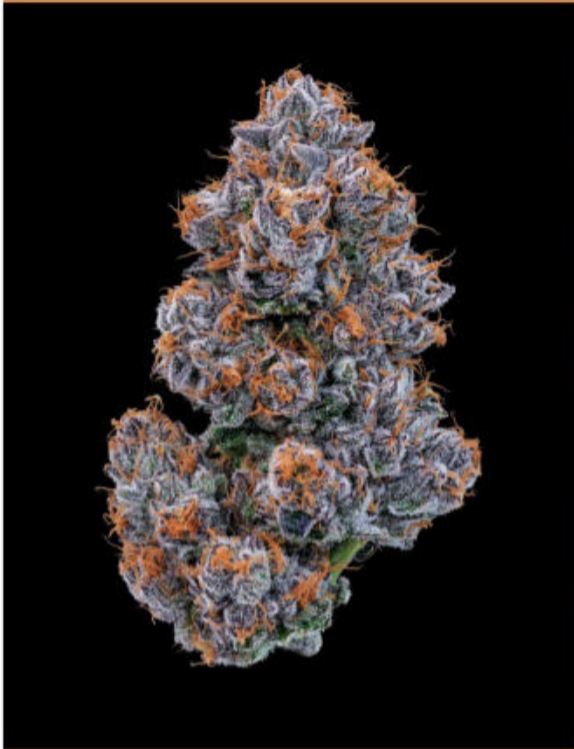
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CENTERFOLD:

PHOTOS BY JUSTIN CANNABIS - PG. 67-70

ON THE COVER



Science & Technology

Nearly everything about the world we live in today revolves around technology. In cannabis especially, technology is always changing and evolving to take us further away from decades-old stigmas and closer toward a bright future. In our annual Science and Technology issue, we take a look at the latest and greatest in fast-acting edibles, new methods of determining the sex of hemp plants as well as THC content, growing cannabis via tissue culture, and the budding standards of legal mushroom testing.

DEVINE STORM
GREEN TRUCK FARMS, @GREENTRUCK3.0
PHOTO: MARK ARCHER, @THECURATORCO.ME

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Innovative Tech Aims To Provide Edible Options

A proprietary cannabis powder from It's All About Choices is opening the door to new opportunities for consumers, with over 150 different edibles to choose from. Using nanotechnology, the powder effectively reduces the time it takes for cannabis to be absorbed into the body, allowing for a quicker onset in approximately 30 minutes.



38

Preserving the Plants

Northern California-based Node Labs is leading the charge of restoring and preserving cannabis genetics via tissue culture.

50

Predictive Plant Analysis

Louisiana-based Mariposa Technology has developed a more efficient way to determine the sex of a hemp plant as well as measure the THC levels. Through the use of a handheld spectroscopy device connected to a specialized database, farmers can avoid sending in cut samples to determine plant sex, saving weeks of time, and ultimately preventing the potential of "hot" crops that need to be destroyed.

DEPARTMENTS

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A Brave New World

Flourish Labs, a Portland, Oregon-based mushroom testing facility, has been set up since early 2022, just two years after voters legalized therapeutic mushrooms. More than 50 mushroom species can produce psilocybin, and Flourish Labs is setting the foundation for psilocybin testing methods.





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Ellie Coyne
Chief Operating Officer
East Coast Cure

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LET THERE BE LIGHT




“I’ve learned that whenever I decide something with an open heart, I usually make the right decision.”

—Maya Angelou

THERE ARE CERTAIN THINGS IN THIS OFTEN DARK WORLD that we bring along with us because of the way they brighten and enhance our lives. Cannabis is one of those things. While some might try to tell us it’s a hindrance, we know it’s a helper. This plant has guided so many before us towards a better way of life, one that is more kind and in communion with nature. That’s probably because cannabis is a part of nature that our internal pathways innately understand. And, as this female flower turns on signals within receptors in my brain, I want to send you, dear reader, the message I hear. Our time together is not infinite, but it can be beautiful.

Many scientific discoveries surrounding how the cannabis plant works are yet to be made. In this issue of *High Times* we’re taking

a look at science and technology, which often means thinking big, but looking small. Staff writer Benjamin M. Adams wrote about a machine that can identify the composition of cannabis, both its sex and THC levels, with laser spectroscopy. Jimi Devine tackled plant tissue culture and how science is helping to preserve and protect cannabis genetics. Andrew Ward looked into how nanotechnology is changing the way we interact with cannabis edibles. And A.J. Herrington bruised blue with an article examining the testing of legal psilocybin.

It’s February, which is one of the coldest and darkest months of the calendar year. We’re using the more solitary winter months to settle into ourselves and store our seeds. Spring is coming and soon the whole world will be in bloom. For now, we offer you a spark. Use it not only to light your flowers, but also to set the world on fire. 

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SPINZ ♀ SAMARA OG x RED RUNTZ

GAMETIME ♀ SOH MEGA x RED RUNTZ

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3 STICKERS - 1 FREEBIE - 1 PUGGY PACK
1 HAT - 1 POSTER - STIMULATOR MEMBERSHIP

Silver Box
ANY 5 PACKS - 2 PACKS STIMMY'S CHOICE
1 UNRELEASED CEREAL MILK PACK - 5 STICKERS
2 FREEBIES - 1 HEADY BOY PATCHES - 1 HAT
1 - STIMMY BOBBLEHEAD - 2 POSTERS
STIMULATOR MEMBERSHIP

Gold Box
ANY 7 PACKS - 3 PACKS STIMMY'S CHOICE
1 UNRELEASED CEREAL MILK PACK - 1 UNRELEASED
SNIPPY PACK - 7 STICKERS - 3 FREEBIES - 1 BACKPACK
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DEAR EDITOR,

I WENT TO MJBIZCON (HELD IN LAS VEGAS, NEVADA IN NOVEMBER 2022) and saw something new: A man wearing a sandwich board hand-written with a funding pitch for his Massachusetts social equity license. A true “last-resort” funding attempt. I think the sign wearer was tongue-in-cheek. But humor is also a method of coping with disappointment. I share his deep disappointment about the wave of unfunded social equity licensees.

Social equity activists have pushed back against social equity as a buzzword only—talked about but not actualized. Standing outside the Las Vegas Convention Center wearing his sign was a buzzword in the flesh. His sign explained the license is in a desirable location. There’s committed venture capital (VC) funding and a strong advisory team with exits under their belt. And it’s not enough. Without full funding, his license will remain only worth a fraction of its potential value. Social equity ownership is on display without actually achieving the goal of industry diversity.

The irony is that Massachusetts is such a great example of robust, thoughtful social equity legislation. If you built a great social equity program with attractive licenses people believed the capital would come. But the capital isn’t coming. The VC funding that’s trickling in isn’t enough. The private sector is falling short.

What’s the solution? I believe the solution looks like NuProject—organizations with a mission to fund historically excluded entrepreneurs. Our work is about closing the gap. Mission-driven funding organizations prioritize funding historically excluded and underserved communities. So important to the U.S. economy, the feds issue a special certification to mission-driven funders, termed Community Development Finance Institutions (CDFIs), and designated funding enabling them to lend at low rates.

Since 2018, NuProject has funded over \$2 million to more than 40 businesses across three states via grants, low-interest loans, and revenue-sharing. Launched initially with funding from the city of Portland, Oregon cannabis tax revenue, funding sources for loans have grown to include values-aligned foundations and companies who see benefit in making an investment that grows the future

pool of money available to invest.


CDFIs identify a priority funding community. NuProject prioritizes funding Black, Indigenous, and Latinx cannabis founders. Black people are arrested at four times the rate of white people for cannabis possession despite studies showing similar rates of consumption.

The wealth stripping resulting from over-policing of Black communities means Black founders have the least access to personal wealth and wealthy networks for funding their cannabis businesses. NuProject funds generational wealth building for Black communities as an act of equity and reparation. More than 50% of the businesses NuProject has funded are Black-owned. Ninety percent of the businesses funded are owned by people of color, more than 70% are women-owned, and more than 50% of the owners we’ve funded were arrested for cannabis or have a family member previously arrested.

Mission-based lending is high-touch and funding often comes with mentoring and other support. This mentoring model is believed to be why CDFI loan portfolios fare better through financial downturns compared to bank portfolios.

NuProject is also a high-touch model with mentoring and capability support to our funded entrepreneurs. To date, NuProject’s client loan default rate is nonexistent.

Mission-based lenders need access to funding from entities aligned with their values. Governments and foundations are uniquely positioned to fund mission-based lenders. It’s an easy win. With effective revolving loan fund management, \$1 of cannabis tax revenue or foundation grant funding can become \$3 lent to historically-excluded founders.

Which brings me back to Massachusetts. Without non-predatory lending, social equity programs will issue “on paper” licenses while the industry remains inequitably owned and profited from by “rich white men.” Mission-based lenders with robust lending portfolios are the missing capital link between social equity as a buzzword and cannabis businesses that build wealth for historically excluded communities. Learn more about funding equity in cannabis at nuproject.org. 

Jeannette Ward Horton
CEO, NuProject

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License Application

- Site Survey/ As-built
- Dispensary Layout
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Conditional Use Permit

- Land Survey
- Due Diligence
- Conceptual Drawings



Concept Design

- Look & Feel
- Branding Coordination
- Schematic Layout

Concept Design

- Fixture Design
- Finish Selection
- Lighting Design

Construction Documents

- Permit Coordination
- Construction Admin.

Construction Documents

- Code Review
- Architectural Drawings
- Engineering Drawings

Concept Design

- Exterior Rendering
- Interior Rendering
- Virtual Walk-Thru

Concept Design

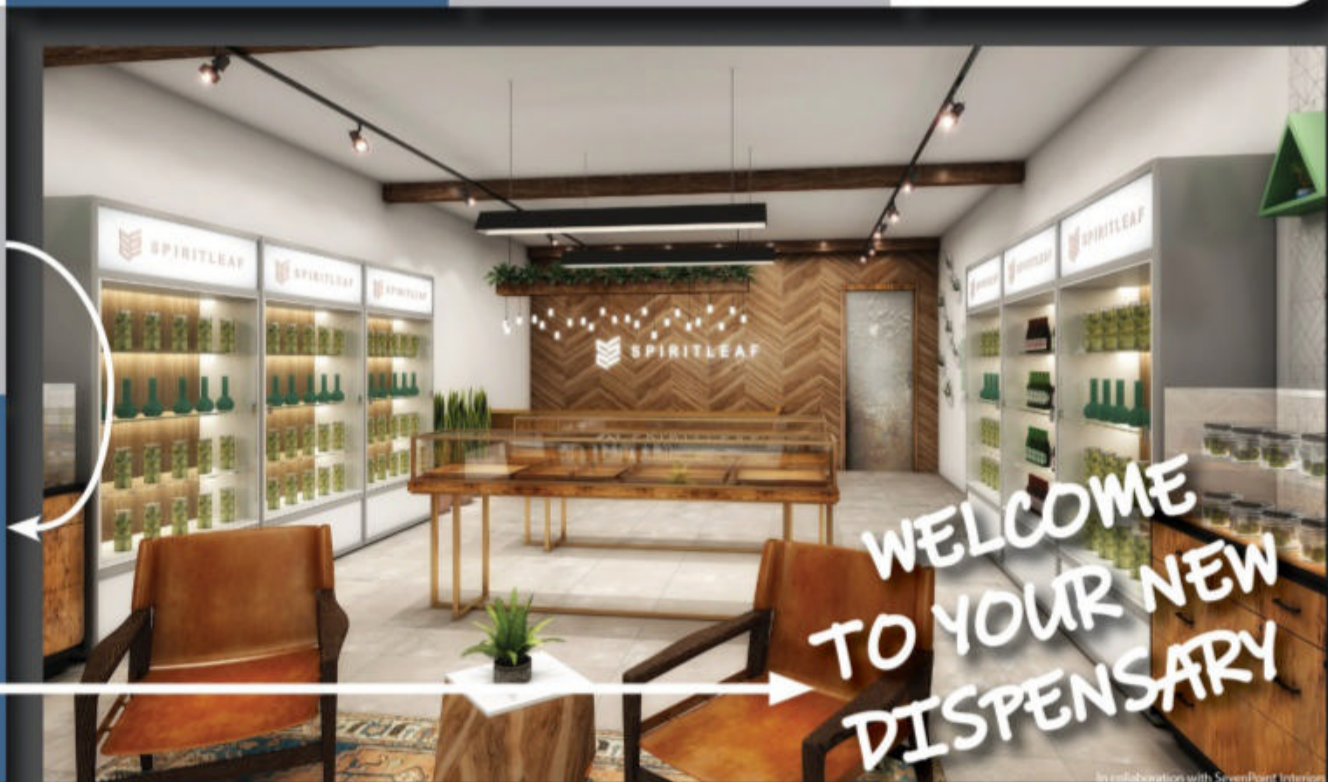
- Customer Journey
- Operational Flow
- Security Coordination

Project Management

- GC Bidding
- Contract Award
- Site Observation

Project Management

- GC Payment Applications
- Punch List
- Close Out





Cows Produce Milk With THC

German researchers published a study in *Nature Food* on Nov. 14, 2022 and determined that dairy cows that were fed industrial hemp produced milk with detectable traces of delta-9 THC. Researchers observed that the cows underwent behavioral changes, indicating that they might have been under the influence of the cannabinoids found in the hemp feed. To conduct the study, researchers at the German Federal Institute for Risk Assessment fed 10 lactating dairy cows different amounts of hemp feed loaded with a wide range of cannabinoid concentrations. The cows were observed over a period of weeks, and researchers collected data on the behavior of the animals and conducted lab analysis. The cows that were given feed made from cannabinoid-rich hemp leaves, flowers, and seeds demonstrated noticeable behavioral changes. Additionally, the milk from the cows showed detectable levels of several cannabinoids. According to the study data, the cows consumed up to 86 times the amount of THC that is required to produce a psychoactive effect in humans.

Read more at [HighTimes.com](https://www.hightimes.com)



U.K. Researchers Launch Study Exploring Weed's Effects on the Brain

A new project is underway to get a deeper look of cannabis's overall impact on the brain. As part of King's College London's Cannabis & Me project, researchers in the United Kingdom recruited volunteers for a study designed to explore the effects of cannabis on the human brain. To conduct the two-part study, researchers recruited 6,000 volunteers ages 18 to 45 who reside in London. Participants who were selected for the study are either a regular cannabis consumer, have never tried the drug, or have consumed cannabis fewer than three times. The first part of the study involved a 40-minute online survey, and people who completed the initial survey were entered into a drawing. Researchers then drew and selected participants to complete a face-to-face assessment, and the ones who completed the in-person assessment were paid £50 or nearly \$60. A questionnaire asked participants about their experiences with cannabis and the reasons why they take it, including use prompted by trauma, medical conditions, or social situations. The survey also examined how mood and anxiety can change the way participants think and feel. It hopes to determine if mood and anxiety influence cannabis habits, particularly in social situations.

Read more at [HighTimes.com](https://www.hightimes.com)

On Instagram

Take a peek at those perfect rows of plants and uniform size in this small garden! People who love organizing will love this practically perfect setup grown and snapped by @leonweed10 and shared on the @sensiseeds.official account. One commenter called it "the most beautiful canopy" they've ever seen. Sensi Seeds' N13 Kush is a coveted strain, especially in Europe, and is a cross of Mr. Nice G13 x Hash Plant x Nicole Kush. Not everyone has a green thumb, but @leonweed10 appears to have the canopy setup down to an art. With a little practice and troubleshooting, one can strive for the level of proficiency that this grower attained.



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

@vanessamotobike

@HIGH_TIMES_Mag Would you be interested in holding a Cannabis Cup in Thailand next year sometime?

@AndyKowl Found this old National Lampoon parody of @HIGH_TIMES_Mag [called *Wasted Times*]. It's pretty lame, and that wasn't us being sensitive. Regardless, we took it as an honor to be lampooned.



@SujfatS @HIGH_TIMES_Mag How the fuck is this even still being voted on at this point? It's a violation of human rights to criminalize a plant that hasn't killed anyone.

@blueberrychem @nimitz2004 and @HIGH_TIMES_Mag Honestly tho when you compare the last 5-10 years of drug policy advancements to the preceding 100 this is all happening at light speed. glass half full idk

@MrGrowit

Method Man & Redman just crushed it at the @HIGH_TIMES_Mag MJBizCon after party!

@Gregory_Ego @underwatermoonl Interested whether I'd recognize any cartoons Asa Brebner did for @HIGH_TIMES_Mag.

@Heady_NJ A former @HIGH_TIMES_Mag employee, [Mario] Ramos was first locked up for 13 months & 18 days. After the referendum & the adult-use #cannabis legalization implementation law (CREAMMA) passed, Ramos went back to jail on homegrow charges.



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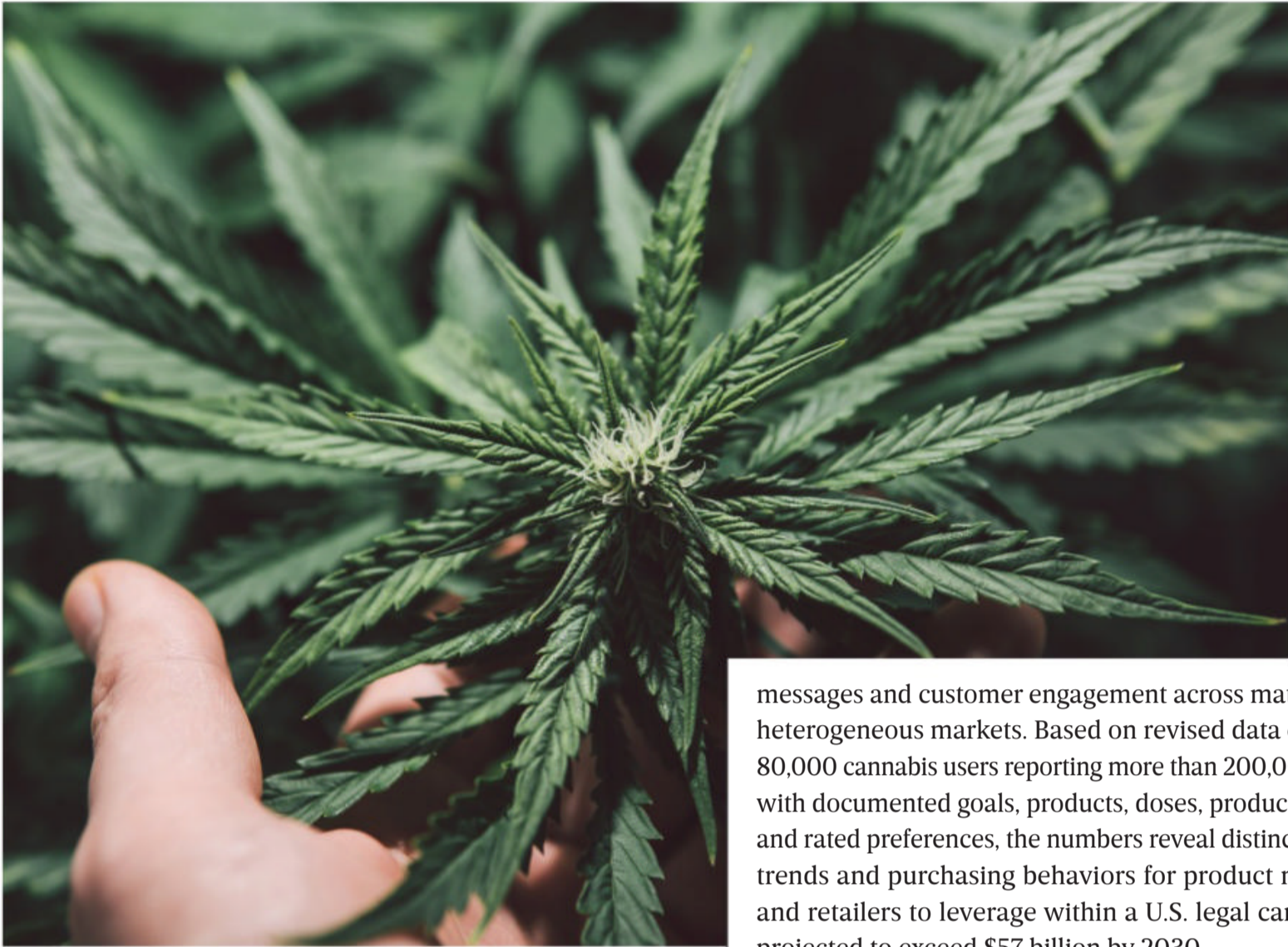


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GATHERING CONSUMER DATA

Using advertising technology to reach today's cannabis consumers.

WORLDWIDE, THERE ARE AN ESTIMATED 260 MILLION CANNABIS CONSUMERS ranging from savvy connoisseurs to holistic healers, yet the marketplace today too often remains set on pigeonholing marijuana consumers into one of two categories, either as a stereotypical recreational stoner or a chronic patient holding a doctor's note.

"All insecurity in business is created by a lack of data," says Gary Allen, CEO of New Frontier Data, a Washington, D.C.-based research data and strategic analysis firm.

He explains that for advertisers to effectively tap into a local or global market, they need to see beyond the legalized reform policy buckets of recreational versus medicinal cannabis markets, and better understand the consumers themselves in order to find and engage them.

Toward that end, New Frontier Data interviewed 3,100 consumers over a three-year period to quantify and qualify some nine cannabis social archetypes described by its NXTeck advertising technology (adtech) division to promote branding

messages and customer engagement across maturing, broadly heterogeneous markets. Based on revised data collected from 80,000 cannabis users reporting more than 200,000 experiences with documented goals, products, doses, product effectiveness, and rated preferences, the numbers reveal distinct consumption trends and purchasing behaviors for product manufacturers and retailers to leverage within a U.S. legal cannabis market projected to exceed \$57 billion by 2030.

The NXTeck platform not only provides data for marketers, but also media and technology for every level of campaign optimization.

"The point of NXTeck is to ensure that the audiences and the technology come to the marketplace in a familiar way that agencies and marketers have been using for the last 20 years to deliver their consumers, enhance their performance, and ultimately deliver loyal, brave advocates," Allen said.

"Most cannabis marketers work under shoestring budgets, with nearly half reporting annual budgets less than \$50,000."

It is incumbent upon product retailers to review those lessons which they have already learned through more mature industries, and apply them to their own product development, deployment, and marketing to shorten the learning curve and increase their sales. And it is not only brands and retailers who stand to benefit from consumer data: The ancillary cannabis business space is crowded with companies trying to make business easier for plant-touching companies. Payment processors, hardware manufacturers, facility builders, and clean air providers also recognize goals in supporting those who grow, process, and sell the plant. >>

SMOKE AND POKE

FACT

Scientific studies show that smoking marijuana before sex leads to **stronger, harder** orgasms.



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Find a partner to smoke with

According to New Frontier Data's research, 98.6% of the U.S. population now enjoys legal access to some form of a cannabis-based product or service. Meanwhile, many consumer packaged goods (CPG) companies and larger brands dealing in those markets find that they have traditional needs, whether it be understanding their consumers, protecting their brand's reputation, or understanding the thickets of state regulatory compliance.

Throughout the past decade especially, the legal cannabis industry has seen job creation, revenue generation, and social justice reforms while often being deemed as "essential business" during the COVID-19 shutdowns. Still, consumers remain too often confused about what's illegal in their own city, state, or country, which only stirs more fears. Reforms and new regulations lead to safer consumption and the standardization of products and services.

However, the nationwide patchwork of strict and stringent regulations in guidelines can also inspire false product claims, stoking a lot of misunderstanding and fear in the consumer marketplace. Much of the confusion stems from federal restrictions, which evoke anxiety in both users and operators.

Through a recent online survey of cannabis consumers, New Frontier Data partnered with the Cannabis Marketing Association to better understand and benchmark the current state of cannabis industry marketing practices with a focus on digital efforts.

Included among the findings:

More than 80% of cannabis marketers reported difficulty getting the right message to their best audience.

Cannabis marketers typically dedicate much of their limited resources on social media and other top-of-funnel brand awareness campaigns.

Most cannabis marketers work under shoestring budgets, with nearly half reporting annual budgets less than \$50,000.

Misusing or underusing channels that perform well presents strategic opportunities to improve results from bottom-of-funnel efforts like email marketing and programmatic advertising campaigns.

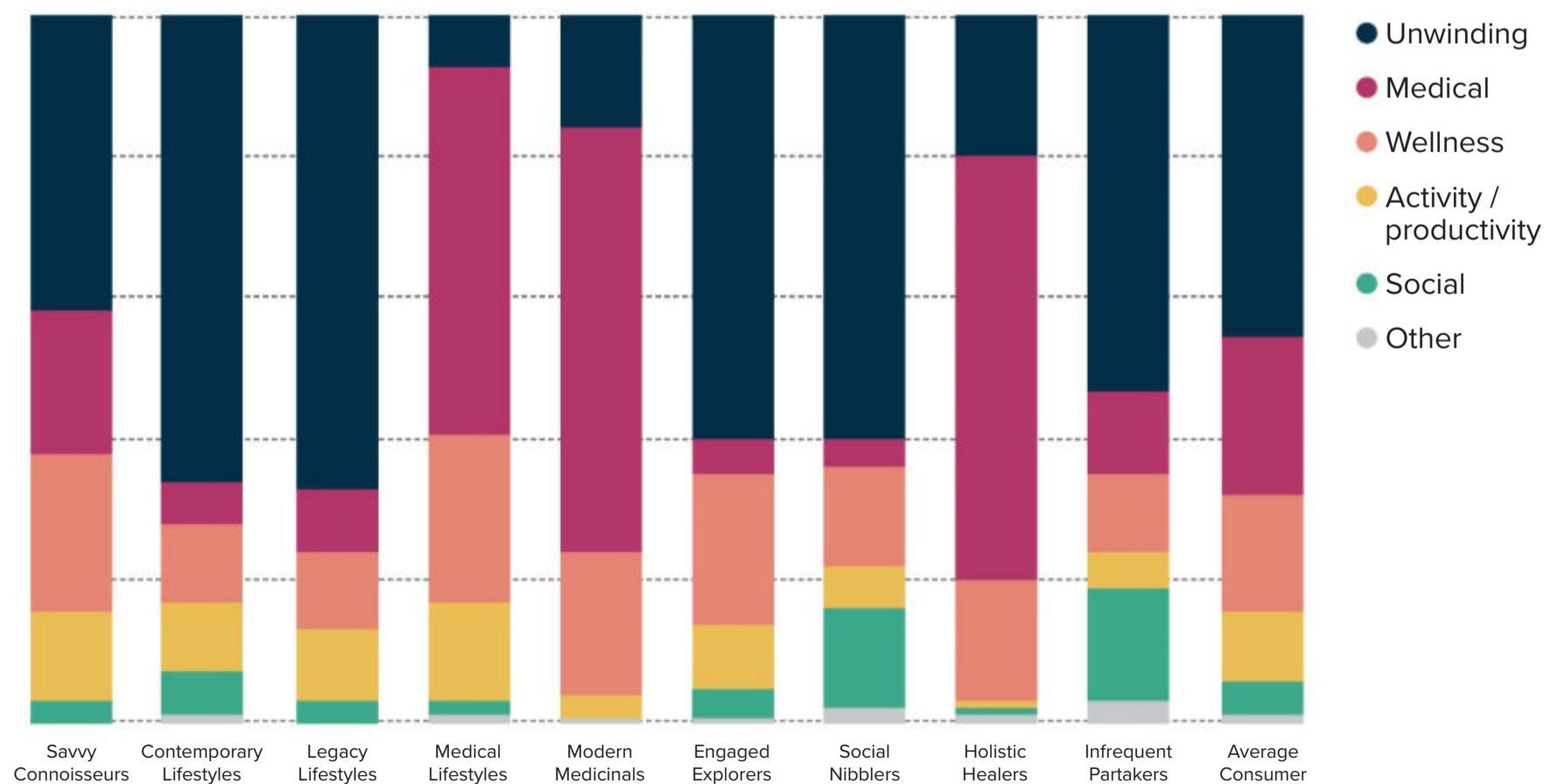
The results published in the *2022 Cannabis Digital Marketing Survey: How Cannabis Marketers Are Chasing Their Share of a \$32 Billion Market* revealed how some 42% of respondents had not conducted any research into buyer personas. Without understanding those to whom they intend to sell their goods, product retailers are essentially navigating blind.

"The consumer of the brand that you're servicing now isn't necessarily different because they consume cannabis," Allen explained. "The count of cannabis consumers is far greater than anybody ever believed, and only 5% of cannabis consumers are the stereotypical stoners that people think the entire industry is made up of."

It can be tremendously useful for agencies to know that 95% of consumers in the cannabis market are also consumers of other things, ranging from Honda automobiles and Corn Flakes to Timberland boots and iPads.

The takeaway is that agencies don't need to learn everything about every market, because of the guidance and targeted information which technological platforms like New Frontier Data's can provide. 

Primary Reason for Cannabis Use



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2022 ALASKA LEAF BOWL WINNER

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HT

THE VETERAN CHRONICLES

BY PATRICK SEIFERT



▲ Ron Millward, founder and president of Balanced Veterans Network.

SAVING LIVES

Balanced Veterans Network founder Ron Millward helps veterans get access to alternative therapies.

WELCOME BACK TO THE TWENTY22MANY VETERAN CHRONICLES, WHERE I HAVE THE honor and privilege to write about incredible veteran activists. This month I get to tell the story about possibly one of the most needed and useful organizations that I have ever written about on this platform. I proudly bring you the Balanced Veterans Network (BVN), founded by United States Air Force veteran Ron Millward.

Millward is dedicated to creating a safe, reliable space for cannabis education, advocacy, and empowerment of alternative therapies for veterans and their families. Millward grew up in Lancaster, Pennsylvania and enlisted in the United States Air Force at 17 years old. He served for seven years as a combat vehicle operator and an aerospace flight medic. During that time, Millward deployed to Iraq, Qatar, Saudi Arabia, and South Korea. After struggling with combat-related PTSD and the loss of friends to suicide, he decided to leave the Air Force in hopes of finding a new direction in life by helping people.

From 2014 to 2019 Millward tried to find purpose by working as a creative pastor for various churches around the United States. Eventually he found cannabis to be a powerful tool for relief and recovery, among other alternative therapies.

In late 2018, the BVN was formed with a board of other combat, service-connected veterans. As a community, they channel their collective passion for helping people, especially veterans who desperately need directions, resources, and guidance. The BVN partners with other organizations as well to reach veterans and provide education and tools to find a new path toward recovery.

“Four years ago, psilocybin saved my life and I often wonder if it could’ve saved my now 13 friends lost to suicide.”

- Ron Millward

***High Times Magazine:* When did you first realize for yourself the healing potential of medical cannabis?**

Ron Millward: I proudly enlisted out of Harrisburg, Pennsylvania into the United States Air Force at 17. I loved my job, and the military. What I thought would be my life-long career, put me on a fast track to success, with promotions, awards, and deployments. Fast forward seven-and-a-half years after four deployments, 20 moves, one divorce, military sexual trauma, and four friends lost to suicide later, my career hopes came to a crashing halt.

After experiencing the lowest point of my life, luckily a friend introduced me to alternative therapies. I first tried cannabis, a helpful healing tool that opened my world to holistic living. Four years ago, psilocybin saved my life and I often wonder if it could’ve saved my now 13 friends lost to suicide. I have the most profound reverence and respect for these sacred fungi, given to us by nature. I urge lawmakers and anyone who hears my voice to educate themselves on psychedelics’ powerful healing benefits. Since my first psilocybin treatment, I have not had any suicidal ideations and have experienced a dramatic improvement in my mental health and, more importantly, my view of myself. I am on the path to learning how to love and care for myself.

BVN makes it very easy for a veteran to get involved and get to healing with access to medical cannabis. Can you tell us what BVN offers to veterans?

Our vision: To connect veterans and their families to a community and resources for post-service transition and healing.

Our mission: To educate, advocate, and ensure access to alternative therapies for veterans and their families.

Our motto: Unconventional healing for conventional forces. BVN bridges the gap in resources for “conventional forces,” or non-combat, non-special operations forces. The veteran resource space is inundated with support and resources for combat veterans and special operators, but sparse for the remaining 90% of veterans. We welcome and serve all veterans. >>

Our tagline: The Balanced Veterans Network provides education, advocacy, and empowerment of alternative therapies for veterans and their families. We are a community that shares knowledge and camaraderie to combat the suicide epidemic, addiction, homelessness, and loss of purpose after leaving the military service. Finding a balance in life is a mental, physical, and spiritual journey. To accomplish this, we use a multitude of approaches, including yoga, breathing, meditation, nutrition, plant medicine, breathwork, movement, community, and empowerment through education. We offer curated, introductory educational content covering a plethora of topics and modalities in order to lessen the overwhelm of starting a healing journey.

Can you tell me about Operation 1620?

Operation 1620 used to be its own non-profit, focused solely on cannabis, that launched as a Facebook group in 2017. Balanced Veterans started in late 2018, bringing in education around all alternative therapies, and we merged our organizations in late 2019, to form Balanced Veterans Network. The direction of our organization is currently led by a six-person board of medical professionals and other veterans. We have a thriving volunteer leadership team and many veterans helping keep the mission going.

Do you believe that a veteran's "movement," i.e. daily exercise, is equally as important as reliable access to medical cannabis?

Cannabis is just a tool in our community and it is one of many. We believe there are many modalities that contribute to living a balanced life. Outside of our online peer-to-peer support community and educational resources, our organization focuses on four main initiatives: mental wellness, peer-to-peer support community; movement, weekly wellness classes, and introduction to movement; Operation 1620, all things cannabis, and Project Triangle, psychedelic-assisted therapy education and resources.

Does BVN provide free cannabis to veterans?

Unfortunately, most legislation prevents BVN from gifting cannabis, but we have gotten as legally creative as we can and have provided over \$25,000 of free CBD to veterans. We have helped over 1,000 veterans get their MMJ card for free and reimburse state fees. We have also gifted many veterans with all the equipment they need to cultivate their own cannabis in states that legally allow home cultivation, and have provided over \$300,000 in free equipment and resources to help veterans circumvent the costs of cannabis.


How many veterans have signed up for BVN's program to date?

We currently have over 3,000 active veteran members from all around the nation.

Where do you see BVN in 10 years?

As we've just passed five years, our team is more excited than ever. We are settling in for the long haul and continuing to make a difference in the veteran community. We hope to be facilitating wellness retreats, continuing to connect veterans and their families directly to alternative therapies and resources, and continuing to help veterans find themselves and balance post military service.

Do you believe you will see the end of cannabis prohibition in your lifetime?

I do believe that rescheduling cannabis would be a phenomenal step in the right direction, and I see in my lifetime the stigma breaking and people accepting cannabis as a medical modality. 

TOP:
BVN founder Ron Millward speaks with Cannabis Talk 101.

BOTTOM:
BVN hosts a yoga and breathing meditation session.



“We have helped over 1,000 veterans get their MMJ card for free and reimburse state fees.”

- Ron Millward



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MARKET ANALYSIS

Pot prices skyrocketed for the second month of 2023, as both the Western (now **\$310**) and Southern (**\$330**) markets each rose a wallet-squeezing **\$22** per average ounce. These large gains, coupled with the Eastern sector rising three bucks to **\$316**, drove the cost of cannabis in America all the way up to **\$319** per ounce. February's "Top 5" has some familiar faces like list-leading Mimosa, but is also populated with new selections like Love Affair, Zelato, and Planet of the Grapes.

TOP 5 STRAINS

1	Mimosa	3 @ \$261
2	Planet of the Grapes	2 @ \$368
3	Love Affair	2 @ \$296
4	Blue Dream	2 @ \$287
5	Zelato	2 @ \$220

WINNERS



+1.58

↑	AbbVie Inc.	NYSE: ABBV	\$151.74 (+1.58)
↑	Cara Therapeutics Inc.	NAS: CARA	\$11.33 (+0.24)
↑	Hydrofarm Holdings Group Inc.	NAS: HYFM	\$2.79 (+0.15)
↑	SNDL Inc.	NAS: SNDL	\$2.62 (+0.02)
↑	Canopy Growth Corp.	NAS: CGC	\$4.24 (+0.02)

LOSERS



-2.50

↓	Innovative Industrial Properties Inc.	NYSE: IIPR	\$110.38 (-2.50)
↓	Constellation Brands Inc.	NYSE: STZ	\$244.46 (-2.39)
↓	Jazz Pharmaceuticals	NAS: JAZZ	\$148.45 (-0.70)
↓	Altria Group Inc.	NYSE: MO	\$43.96 (-0.42)
↓	GrowGeneration Corp.	NAS: GRWG	\$5.76 (-0.17)

HIGHEST 10 STATES

TENNESSEE	OG Kush	\$560
NEVADA	Ice Cream Cake	\$521
ILLINOIS	Animal Mints	\$504
UTAH	John Stalkton	\$483
MICHIGAN	Terdz	\$480
LOUISIANA	Planet of the Grapes	\$476
WASHINGTON	Wedding Mints	\$464
WEST VIRGINIA	Grapes & Cream	\$440
NEW MEXICO	Goji OG	\$438
VIRGINIA	Love Affair	\$400

LOWEST 10 STATES

OREGON	Brr Berry	\$91
ARKANSAS	Elite 4	\$133
MAINE	Mimosa	\$160
CONNECTICUT	Bianca	\$160
CALIFORNIA	Zelato	\$160
ARIZONA	Platinum Gorilla	\$175
FLORIDA	Love Affair	\$192
ALABAMA	Girl Scout Cookies	\$200
COLORADO	Chemodo Dragon	\$201
MASSACHUSETTS	Clementine	\$204



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INNOVATIVE TECH AIMS TO PROVIDE EDIBLE OPTIONS

**Nanotechnology
changes the
way edibles are
absorbed.**

by Andrew Ward

SUGARY TREATS SCRATCH THE SURFACE OF THE massive iceberg that is today's infused edible options. What was once essentially relegated to cookies and brownies, edibles now offer a world of choices, with virtually every food or beverage having the potential to be infused. The growing popularity of edibles is propelled by various reasons, ranging from a more discrete consumption method to a longer lasting high. But while traditional edibles take anywhere between

30 minutes to two hours to take effect, through technological advancements numerous cannabis brands are now offering edibles that can take effect in a half hour or less. A new company entering the California market aims to deliver on faster-acting edibles while offering a range of choices and consumables that few, if any, other companies can rival at this time. With a motto that mirrors the company name, It's All About Choices for this brand. >>





distillate, flower, or a harder, harsher raw material,” said Powder Nation COO Hadas Cohen Dewey.

Powder Nation is the parent company of It’s All About Choices and the only current licensee of Capsoil’s canna powder.

Cohen Dewey noted that the company only handles cannabis in the powder raw ingredient form. She said that this type of cannabinoid handling had created an interesting reality for the company’s manufacturing team.

“They’ve never touched cannabis flower, which is silly to say because we are a cannabis company,” said Cohen Dewey. >>

Choices Galore

•••

California-based It’s All About Choices uses a proprietary active ingredient known as “canna powder,” a water-soluble powder, to infuse each of its 150 different edible items. The powdered delivery method is the patented product of an Israel-based company, Capsoil Technologies. Capsoil’s ownership includes Matthew Bronfman, an investor and entrepreneur whose family founded Seagram’s beverage brand empire.

“This technology allows us to work with a raw material that is not necessarily



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“Because our powder is a self-emulsified product in water, the emulsification only happens in your body.”

-Hadas Cohen Dewey

Proving Its Efficacy



The powder may be a standout component of the company’s product rollout, but Cohen Dewey notes that canna powder’s delivery system is what they consider to be cutting edge. In recent years, numerous edibles and other cannabis products have touted the efficacy of nanotechnology, a field of chemistry that involves the manipulation of matter on an extremely small scale. Cannabinoids are naturally fat-soluble and traditionally not capable of mixing with water.

When used in cannabis, nanotechnology can produce water-soluble cannabinoids so small they are measured on a nanometre scale.

These microscopic compounds can be used in edibles and gelatins in certain capsule-based products. It’s All About Choices’ use of nanotechnology facilitates a self-emulsifying delivery that allows for infusing cannabis into virtually any product.

“Because our powder is a self-emulsified product in water, the emulsification only happens in your body,” said Cohen Dewey.

The effect reportedly creates a quicker onset time than traditional edibles which take anywhere between 30 minutes to two hours to take effect due to their pathway through the body: First reaching the stomach, then the liver, and into the bloodstream and brain.

Powder Nation’s work with Capsoil began in July 2021, around when Cohen Dewey joined the team. She credits the Powder Nation team for the rollout of It’s All About Choices and the integration of canna powder into the product line. Head chef and former Milk Bar pastry chef and Commissary Manager Casey Shea received significant credit from the COO. Shea, Cohen Dewey, and the team began exploring what would become the company’s diverse product offerings by listing their favorite foods and how they could incorporate the powder into those products. Soon plans were in motion for an array of options, including infused cinnamon sugar, popsicles, and condiments.

The roughly year-and-a-half of R&D led to the rollout of four curated bundles offering several infused items. Each bundle contains 100 mg of THC, with items ranging between 2 mg to 10 mg. The bundles focus on common favorite activities, including going to the beach and staying in for a movie night. The beach bundle includes four different freeze pops. The movie pack contains infused popcorn seasonings, drink mixes, cookies, and crackers. With each product aiming to be single-use, Cohen Dewey said that consumers are encouraged to try and discover what they enjoy most. >>



“You have so many choices,” she said.

Developing, dosing, and confirming the efficacy of 150 products required the company to create different powder concentrations in various items. Shea worked closely with Capsoil’s R&D center in Israel to accomplish the goal. Cohen Dewey credits canna powder’s versatility with the company’s ability to create lower- and higher-dose products based around various powder potencies. Powder Nation used Los Angeles-based Encore Labs to confirm product potency and dosing.

Sales started in January 2023, and Cohen Dewey said the company is excited to learn from the market. Without discussing sales expectations, she said a prime metric for success would be the public’s reaction.

“We’re excited for them to have their own choices and to start enjoying it as much as we have,” she added.

Confidence Despite A Difficult, Saturated Market

...

To get the word out, It’s All About Choices has been making


the rounds at major cannabis events, introducing itself to the industry at the 2022 Hall of Flowers and MJBizCon. Cohen Dewey said feedback has been largely positive, but crowd favorites have been a bit of a surprise. She reports that garlic mashed potatoes and mushroom soup are the top crowd-pleasers.

“A lot of people mentioned the convenience of it,” said Cohen Dewey, noting that instant, single-serving options have been a hit so far.

Despite using an innovative delivery system and offering a range of choices, the company still faces tests in the form of the oft-crushing California legal market and an edibles market saturated with players. Still, Cohen Dewey and the company remain optimistic that they can succeed, crediting the support of fellow California cannabis brands and consumers.

“To an extent, people are competing against each other,” said Cohen Dewey.

However, the market isn’t as cutthroat as some may suggest.

“People really do want to help you because your success means there’s success for them,” Cohen Dewey said. 



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- Mark Kaz - High Times Director, Competitions & Events



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RESERVING THE ORIGINAL STRAINS

NODE LABS OFFERS GENETIC RESTORATION.

BY JIMI DEVINE

Through the challenges of legalization in California, few companies have proven more adept at handling the challenges the industry is facing like the scientists at Node Labs in Northern California.

Be it cleaning up viruses or providing commercial farming operations with quality genetics that people actually want to smoke, Node has led the way since 2018. Their work with some of the biggest names in the industry to restore weathered cuts to their original luster has created a lot of value for the farmers and the consumer who gets to enjoy the end product.

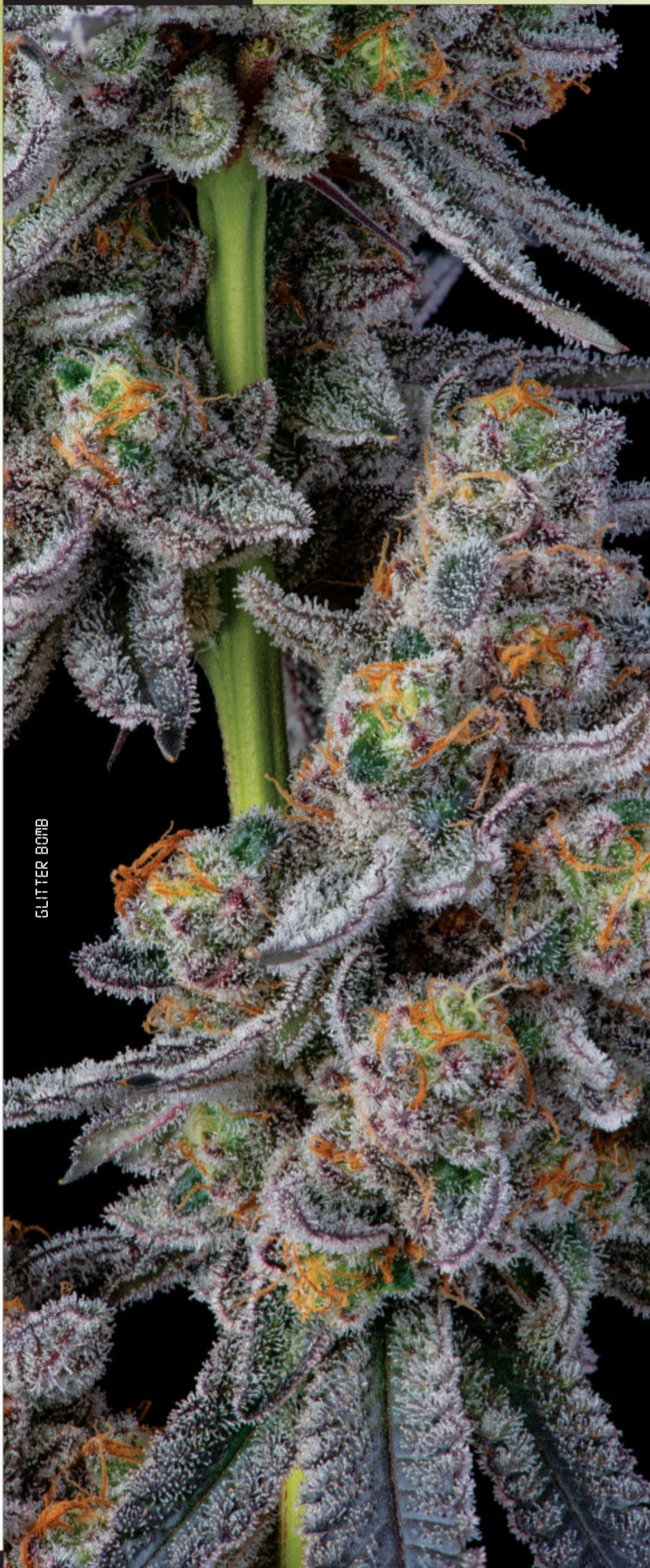
Tissue culture is now very much normalized thanks to Node's efforts and that of a handful of others. The survival rate for the nurseries that work with Node through the recent culling of California's industry is just one of many testaments to this fact.

But before all these new plant viruses popped up, the world wasn't sold on the idea of tissue culture having a meaningful place in the industry. A lot has changed since 2018.

"I mean, honestly, as the story goes, truly, I moved to the Bay Area looking for cannabis work," Dan Adler-Golden, Node's co-founder and chief business officer said of the company's founding. >>



HORCHATA



GLITTER BOMB

JUMPING ON THE TISSUE CULTURE WAVE EARLY

Adler-Golden would make his way to the San Francisco area in 2016. He'd initially dip his toes in the laboratory consulting space but not long after he'd head south to Los Angeles to help with the Chalice festival. There he'd make a ton of connections but would head back to Boston after the festival.

But even before Chalice he was on Craigslist and saw that someone posted a job looking to hire a tissue culture scientist. He wasn't particularly close with Node's Chief Science Officer Chris Leavitt at the time but they knew each other from circles they ran in and he passed on the listing.

"So he wound up meeting with these guys in Oakland that were some trap stars because that was the only option back then," Adler-Golden said. "And he met with them a couple of times. And he basically hit me up being like 'Dan, what do you think? I don't know anything about weed can you school me on this?'"

Leavitt remembered the Oakland gig fondly.

"It was rugged. There was pepper spray all over the wall from their most recent robbery. Needless to say, I was sketched out and was not strongly considering the job," Leavitt said. "Dan suggested I meet with Evan Tenenbaum and Felipe Recalde to see what they thought of the job, maybe ease me into the cannabis world and vet this operator for me."



UNROOTED PLANTLETS CAN BE STORED IN TEST TUBES OR CRYOVIALS FOR LONG PERIODS OF TIME.

Adler-Golden had originally met Tenenbaum during his music startup days. He returned to Boston only to get a call from Recalde to return to California. The pair had never met.

“We started Node Labs that same week, envisioning the way that a tissue culture propagation lab built the right way, by the right people, and with the right goals could help usher in this next phase of cannabis legalization and upcoming commercial production by protecting growers from the next big pathogen,” Leavitt said. “At this point, HLVd (hop latent viroid) was undiscovered and our hypothesis was soon to be strongly reinforced.”

Tennenbaum, Recalde, Leavitt, and Adler-Golden are all the co-founders of the lab. They would start with some early funding issues before Adler-Golden was even on the plane.

“Felipe was supposed to be the first guy to put money in and the Tubbs fires happened,” Adler-Golden said. “He lost his house and all his cash and everything. And so



EMILY HSU, LAB MANAGER NODE LABS

he called me like the day after the first day of the fires and was like, ‘Yo, I just lost everything. I can’t put any money in. But if you have any doubts about how you’re spending your time in Boston, get on the next plane to California. And let’s fucking do it because I always land on my feet. I’m gonna land on my feet.’”

Adler-Golden followed up with Tennenbaum to see whether Recalde was batshit. Tennenbaum replied he should probably head to the airport.

They found a place in Petaluma to get the ball rolling. The location between The Emerald Triangle and San Francisco is very accessible to the cannabis industry that regularly drives up and down Highway 101.

In the first couple of months, they would get their first order for 250,000 cuttings due in spring 2018. But startup life is tough sometimes, the full lab wasn’t built out until May. While they would miss that first deadline due to the hurdles of licensing, things would pick up.

“During the R&D process, which was the first year, year-and-a-half of just figuring out how to make it work, we didn’t deliver any plants,” Adler-Golden said. “We were just learning how to do cleaning, how to get stuff stabilized.”

Leavitt said the earliest contracts were based on the way the industry saw tissue culture’s value in the space. Most of that value was in micropropagation for the preservation of genetics.

“Little did we know how difficult this would be for cannabis,” Leavitt said. “Cannabis is a plant that is recalcitrant to tissue culture (intolerable of its conditions) without all the conditions being just right. And each cultivar has a different recipe for what is just right.” >>

MERISTEM
 PROLIFERATION AT
 WORK. THESE VERY
 YOUNG PLANTLETS
 ARE IN THE EARLIEST
 STAGES OF TISSUE
 CULTURE. THEY ARE
 ABOUT TWO WEEKS
 OLD, AND EVEN
 THOUGH THEY ARE
 TINY, THEY HAVE
 APPROXIMATELY 10
 TIMES THE MASS
 SINCE THEIR INITIATION
 DATE INTO TISSUE
 CULTURE AS MERISTEM
 DISSECTIONS.



FIGURING OUT THE SCIENCE

■ All of that learning made the first year of running this lab brutal.

“Nothing was working, our clients were getting frustrated, and I was banging my head against the wall along with our three employees to figure out what was going on,” Leavitt said. “We began to get some headway when we hired some professional help, [lab manager] Luis Mautner in the winter of 2018.”

In spring 2019, they had a breakthrough.

“A fundamentally different way to micropropagate this plant which worked for nearly every cultivar,” Leavitt

said. They’re still using nearly that exact same technique today.

Adler-Golden felt that late fall of 2018 was when they started to feel comfortable taking on work after bringing in someone for doing meristem dissection and bringing the process all the way through. The meristem is a type of embryonic tissue found in plants that has yet to be infected by many residual diseases. Leavitt’s breakthrough in spring 2019 only reinforced a business model they were already starting to figure out.

“But it was wild because there was no handbook. No one knew about it,” Adler-Golden said. “It was this thing that we thought was going to be huge, but there were only like two people claiming to do it. And they were like raising astronomical amounts.” >>

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HOP LATENT VIROID

Adler-Golden felt whatever he raised the investors would be expecting a tenfold return. But through their work they started to have some hiccups. That hiccup was hop latent viroid, a virus that causes sickly plants, as it began to really gain a foothold when Dark Heart Nursery published their findings on the subject, showing the problem was widespread, in the fall of 2021. Leavitt called it a seminal moment in the disease's history.

"Suddenly, this hard-to-detect and harder-to-cure disease required much more elaborate and costly procedures to remediate or screen for," Leavitt said. "Our

cleaning and restoration service was losing money. With all the client management, schedules, screening, and rising costs, we decided to try our hand at the nursery game."

With the nursery they could control their own destinies and timelines, and provide really good plants to customers—effectively accomplishing the same goal as before, but with more control over the result.

But the disease presented challenges to stocking the nursery.

"The problem [was] with getting genetics that we could actually work with that were also clean," Leavitt said.

Adler-Golden was in charge of hunting for those cuts early on. He noted the Wedding Cake he bought in a parking lot was particularly exceptional. Eventually, they would gather a pretty storied vault of genetics. >>



LEFT: NODE CO-FOUNDER DAN ADLER-GOLDEN. TOP RIGHT: A PLANTLET CLONE PRODUCED VIA TISSUE CULTURE, A PROPAGATION PROCESS THAT INVOLVES REMOVING TISSUES OR CELLS FROM A LIVE OR FRESHLY HARVESTED PLANT. BOTTOM RIGHT: A BARE ROOT PLANTLET HAS ITS ROOTS CLEARED OF SOIL IN PREPARATION FOR TRANSPLANTING.

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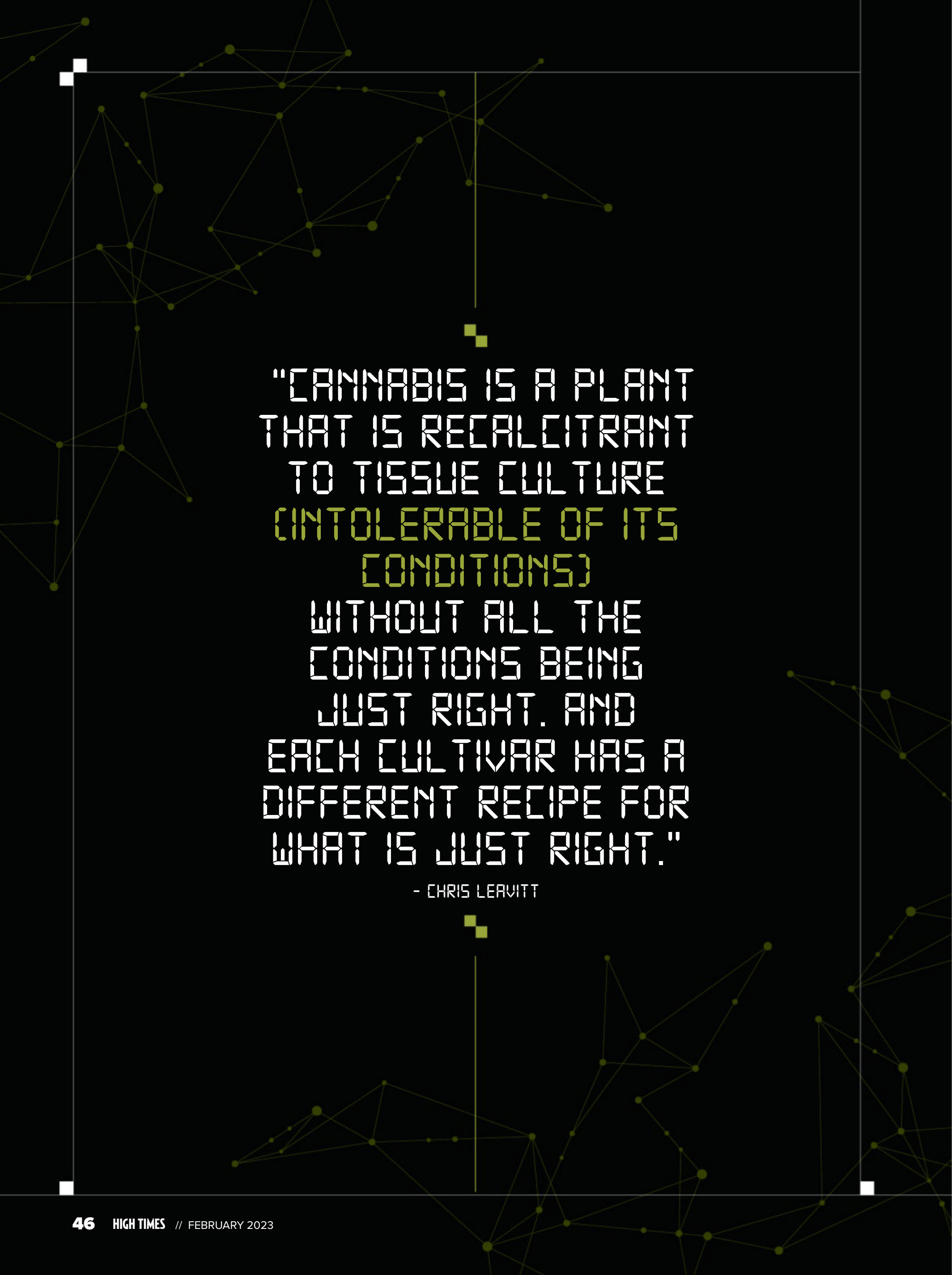
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WITHOUT ALL THE
CONDITIONS BEING
JUST RIGHT. AND
EACH CULTIVAR HAS A
DIFFERENT RECIPE FOR
WHAT IS JUST RIGHT."

- CHRIS LEAVITT





TOP: FIELD TRIALS AND LARGE-SCALE SEED HUNTS ARE NECESSARY TOOLS FOR GENETIC TESTING AND DISCOVERING OUTLIER PHENOTYPES.
 BOTTOM: RED BULLZ



WORKING WITH KILLERS

In the process, some of the biggest names in cannabis would become believers. Connected Cannabis Co.'s founder Luke Coleman gave his take on Node's restoration of their famous Biscotti offering. "It was starting to grow a little bit differently, yields were suffering," Coleman said. "And I don't know we were just hoping that last time and then they came back with a really good, usable cut again, more virile than even to begin with. It was kind of shocking."

Coleman believed 10 years of Cookies polyhybrids (a crossbreed of two different unstabilized hybrids) experience more genetic drift than other things making the tissue culture that much more viable.

When asked if it's fun to prove the old doubters wrong, Adler-Golden said it was validating. He noted that working with people like Connected is just another reaffirmation to the process.

"They started with two strains. And then they increased it to 10. And then now we have 40 of their genetics in our lab, and they've just maintained that contract for years, because they understand the value. So it's been incredibly validating to like, do the work, correct the issue, bring it back to the client," Adler-Golden said. **HT**



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PREDICTIVE PLANT ANALYSIS

DEVELOPERS AT TEXAS
A&M UNIVERSITY AND
MARIPOSA TECHNOLOGY
TACKLE THC LEVELS AND
PLANT SEXING.

BY BENJAMIN M. ADAMS

As American hemp farmers struggle to accurately sex plants and prevent their crops from going hot—going over the potency definition of what makes the plants hemp or 0.3% THC on a dry-weight basis—technology is improving to make these tasks a little easier. With the help of some of the top minds at Texas A&M University, Louisiana-based Mariposa Technology has created a digital farming tool for hemp and marijuana farmers using a database and software that allows them to test their crops at any stage of the growing season without having to cut any samples. Using a small laser-operated spectroscopy tool, THC content and plant gender can be determined without waiting for a lab to process the data.

The Mariposa Technology team developed Predictive Analytical Modeling Application for Plants (PAMAP), a protocol for rapid, in-field testing of live plants. It gives farmers the power to self-test, saving them weeks of valuable time that would normally be taken up by mailing cut samples for lab testing.

“The only plants that we have in our database, as of today, are cannabis plants, primarily hemp; however, the technology can be used for other plants in the future,” says Mariposa





JOHN ROBERTS
TESTS PLANTS
WITH A HANDHELD
DEVICE THAT
UTILIZES RAMAN
SPECTROSCOPY.

Technology Chief Operating Officer Michael Dalle Molle. “We are focusing on hemp primarily because we see major pain points in the industry that our technology can solve for farmers.”

The process of scanning the plants involves a handheld device that utilizes Raman spectroscopy. Raman spectroscopy is an analytical lab technique where scattered light from a laser is used to measure the vibrational modes of molecules—thereby detecting the chemical composition of materials. The laser light interacts with molecular vibrations and provides a chemical fingerprint.

“So essentially, you have a handheld device that is paired with our database, that’s comprised of millions of different data points, and you fire off a laser through the scanner, it scans live complex living tissues, so this is a non-destructive, non-invasive test,” says Molle. “And that scan produces a spectrum, and the spectrum is then sent through our application, it’s read by our algorithms, and you’re produced a result.”

HOT HEMP HORRORS

Just how bad is the hot hemp problem? According to New Frontier Data, over 4,000 acres of roughly 243,000 hemp plants in the U.S. were destroyed for going hot in 2019. In 2020, this only increased to 6,234 acres—despite there being fewer acres planted. According to data from recent years, this number could go up beyond 10,000 acres destroyed, given the U.S. Department of Agriculture’s (USDA) 2021 definition change of THC limits—now not only limited to 0.3% delta-9 THC, but total THC.

“We’ve talked to farmers who have had to destroy their entire crops before; this is happening less and less because people are

becoming more aware of the problems and more aware of how they can mitigate these problems,” Molle says. “But it’s only happening less for the farmers that are aware of it.”

Hemp farmers can usually effectively single out hot hemp, though by the time they’re aware of it, often thousands of dollars have already been wasted. Still, in many states, a lot of hot hemp biomass makes its way into regulated cannabis markets and is sold in vape pens or other products.

“Our tool allows you to become aware of this before you get a COA [certificate of analysis]. Before you send any tests into your local governing bodies, you’re able to use PAMAP to basically predetermine when you will go hot,” Molle says. “So it’s an optimization tool, as well as a testing tool. And it allows farmers to really understand, you know, the levels of THC and understand when they might need to harvest or if they’re too late to harvest, unfortunately, and then they need to kind of come up with a plan B. Our test is able to provide them with all of that information.”>>

“OUR DEVICE IS VERY EASY TO USE. AND ONE OF THE MAIN REASONS FOR THAT IS THAT YOU DON'T NEED TO HAVE ANY CHEMICALS OR SOLVENTS.”

-MICHAEL DALLE MOLLE



AGILENT'S HANDHELD LASER-OPERATED SPECTROSCOPY TOOL AT WORK.

SEXING PLANTS

■ In Volume 27, Issue 15 of the peer-reviewed journal *Molecules*, released in August 2022, Mariposa Technology co-founder and President John K. Roberts III and Molle joined five other co-authors—Nicolas K. Goff, James F. Guenther, Mickal Adler, Greg Mathews, and Dmitry Kourouski—to publish their study of using Raman spectroscopy to sex plants. The journal article demonstrated how they can determine hermaphrodite, male, and female hemp plants based on the detection of different amounts of carotenoids. Carotenoids, or tetraterpenoids, are yellow, orange, and red fat-soluble pigments found in certain plant varieties including cannabis.


The concentration of carotenoids is the greatest in female cannabis, and hermaphrodites demonstrate the lowest carotenoid content, with males in the middle. Specifically, the intensities of carotenoid vibrations detected via spectroscopy were much more intense in female plants than male plants and less intense in hermaphrodites.

“We believe that it’s the carotenoids in the plant,” Roberts says, explaining how they can tell the difference between males, females, and hermaphrodites. “But we haven’t determined it. We have proven that we can successfully do it 100% of the time from male and female plants and 98.7% of the time for monoecious [hermaphrodite] plants. But the actual reason that we’re able to determine it is still somewhat of an open scientific question.”

Gender is controversial in the hemp plant world, leading to efforts to ban male hemp plants. In Oregon, Corvallis-based Oregon CBD has fought the state legislature to ban male hemp plants since 2014. The company said wind-blown pollen from a neighboring farm ruined its crops, amounting to an estimated \$2.5 million in damages.

Cross-pollination from rogue males creates problems. It’s bad for hemp producers and processors focused on CBD and other non-psychoactive cannabinoids because a pollinated hemp crop loses up to half of its biomass and around 30% of its total cannabinoid content. For farmers focused only on fiber, it’s not as much of a big deal. If plant gender could be determined earlier, some of the damage might be mitigated.

WHAT IS RAMAN SPECTROSCOPY?

 Dmitry Kurouski, professor of biochemistry and biophysics at Texas A&M, specializes in Raman spectroscopy technology, using it for everything from identifying components of cannabis to crime scene analysis. For example, Kurouski demonstrated in a study that Raman spectroscopy could determine if a crime scene hair was dyed or natural hair color, something that's always been a bit of a challenge for law enforcement. Like with human hairs, Raman spectroscopy can also be used to determine components of cannabis. The laser excites molecules, causing them to vibrate differently from one another and produce different spectra in the readouts.




"WE ARE FOCUSING ON HEMP PRIMARILY BECAUSE WE SEE MAJOR PAIN POINTS IN THE INDUSTRY THAT OUR TECHNOLOGY CAN SOLVE FOR FARMERS."

-MICHAEL DALLE MOLLE




"A laser is fired, and it only has a millimeter-wide focal point," Molle says. "So you're firing a laser into a very concentrated area, and it creates excitation within the photons and the electrons. You then get a vibration that is picked up by the device and reader within the

device. So the laser creates excitation, the device picks up that excitation and creates a spectrum based on the vibrations of those molecules. And that's the reason why it's such a precise instrument."

The motivations behind technology in the world of cannabis go beyond just saving time and money. Hot hemp—especially in states with high altitudes susceptible to higher UV light, which is a trigger for THC production—is an ongoing problem.

Roberts explained that the piece of hardware that does the scanning has existed for about 10 years and is manufactured by Agilent Technologies, though until now, it hasn't been used for cannabis. Agilent Technologies focuses primarily on ways to improve the overall laboratory workflow. The company was formed as a spin-off of Hewlett-Packard in 1999.


The same tools used previously for crime scene analysis turned out to be ideal for determining characteristics in cannabis as well.

"What happened was Professor Kurouski at Texas A&M, our collaborator and partner in this, discovered that this particular device, which is used for chemical identifications in a wide range of scenarios, had just the right laser, nanometer, and the power of the handheld device that eliminated background scattering from the spectra on live agricultural products," Roberts explains.

The handheld scanning device is one thing, but it's essentially worthless if you don't have the correct data to compare readouts. Mariposa Technology plans to soon offer the handheld detection device via a subscription service following a software update.

"The hardware itself produces a numerical representation of what it's scanning organic compounds and spectra that you can look at, but it tells you nothing unless you have a data set and a library available to refer and compare that," Roberts says.

Beyond expediting the cannabis testing process, this technology can further revolutionize the cannabis testing industry by reducing its impact on the environment, given the new shortcuts around materials such as chemicals and solvents used by labs. It's also a fix that can reduce transportation and other costs.

"What we're doing is trying very hard to also reduce the carbon footprint of the cannabis testing industry at large," Molle says. "Our device is very easy to use. And one of the main reasons for that is that you don't need to have any chemicals or solvents. You don't need gloves. There's much less waste involved. There's no transportation of samples, you know, with a licensed handler, none of that exists with us. So on top of all of the other things that we're doing, we're also hoping that we can make the cannabis industry just greener and more eco-friendly at large." 



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FLOURISH
LABS IS
TESTING LEGAL
PSILOCYBIN IN
OREGON.

BY A.J. HERRINGTON

When Oregon voters passed Proposition 109 in 2020, they cleared a path for greater access to the therapeutic use of psilocybin mushrooms and products that contain their active compounds. The ballot measure, which was approved with more than 55% of the vote, authorized the Oregon Health Authority (OHA) to create a program to permit licensed service providers to produce and administer psilocybin-producing mushroom products to adults 21 years of age or older.

A model for progressive drug policy reform, Prop. 109 also laid the groundwork for a new industry in Oregon. The OHA's Psilocybin Services Section is charged with drafting rules to license and regulate the manufacturing, transportation, delivery, sale, and purchase of psilocybin products as well as the provision of psilocybin services, with a mandate to have the program up and running in 2023. The agency is already accepting applications for psilocybin business licenses and savvy entrepreneurs are launching new enterprises to service a rising industry. >>

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"A MICRODOSE
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- GEORGE SELLHORN



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A NEW BUSINESS IS BORN

George Sellhorn, founder and principal scientist at Flourish Labs in Portland, is one of the business owners preparing for the launch of legal psilocybin in Oregon. He has had a personal relationship with psychedelics, including psilocybin mushrooms, since he was a teenager and acknowledges that psychedelics have had a “huge impact” on his life. He is also an avid cannabis enthusiast and, with tips and encouragement from *High Times*, has been growing his own plants since 1993. His interest in and passion for cannabis inspired his academic pursuits, with Sellhorn earning a Ph.D. in plant biochemistry from the University of Washington in 2006.

At that time, the legal cannabis industry in the U.S. was in its infancy, and positions in professional fields were few and far between. Sellhorn turned to biotechnology to begin his career, with stints working on cancer therapeutics and an HIV vaccine. Before long, however, friends with businesses in the emerging industry encouraged him to open a cannabis testing lab. Intent on seeing where his chosen path would take, he decided against going into business for himself, although he did dabble in the industry a bit and helped a couple of friends get labs set up. It seemed right for Sellhorn at the time, but it didn’t take long for him to wish he had decided differently.

“A few years later, I kind of was kicking myself saying, ‘I probably should have started a lab, and I’d probably be a lot happier than I am right now,’” he tells me in a telephone interview.

After the passage of Prop. 109, things came full circle. Once again, friends in a soon-to-be legal industry encouraged him to open a lab. The ballot measure includes provisions directing the OHA’s regulations for testing psilocybin products for contamination. Additionally, therapists would want to know the dosage of active compounds they were administering, leading to a need for potency data throughout the supply chain.

Sellhorn remembers thinking, “I’ve been down this road before,” and decided he wouldn’t leave himself open to later regrets this time around. He began ordering the lab equipment and supplies he would need to launch the operation in September 2021, and by the beginning of 2022, Flourish Labs was ready to start taking in samples and running tests.

Sellhorn says that testing mushrooms is quite similar to lab analysis of cannabis, but with one key difference. Like many cannabis labs, Sellhorn uses high-performance liquid chromatography incorporated with ultra-violet spectroscopy (HPLC-UV) to separate the molecules of a given sample and determine its makeup. However, unlike cannabinoids, which are fat-soluble (hydrophobic), the alkaloids in mushrooms are water-soluble (hydrophilic), necessitating a change in the approach to make it work. “So, same methods as cannabis, but just the opposite chemistry,” Sellhorn summarizes.

LAB TESTING FOR PSILOCYBIN, AND MORE

■ Much of the time Sellhorn spends in testing involves determining the amount of psychoactive alkaloids, or potency, a particular sample contains. More than 50 species of mushrooms produce psilocybin, which is expressed at different levels determined by factors including genetics and cultivation practices.

“The most potent mushroom that I’ve seen from different people is an Albino Penis Envy or an APE,” says Sellhorn. “I’ve tested anywhere from 0.1% alkaloids, up

to 2.3% was the highest one that I’ve tested so far. So, there’s a pretty big range. The average, I’d say, is about 0.5% to 0.7% alkaloids [by dry weight].”

Initially, Sellhorn’s business plan primarily involved analyzing mushrooms that contain psilocybin and related alkaloids, including psilocin, psilocybin, norpsilocin, baeocystin, and norbaeocystin. Since opening Flourish Labs, he has also developed testing protocols for other products made with psilocybin mushrooms that are likely to be part of Oregon’s upcoming regulated market.

“I can also do fruiting bodies and gummies, chocolates, and extracts, whether it be liquid extract or dry extract” he explains. “So, I have a protocol for all of the possible products that could be made, that I’m aware of, as of now.” >>





DOSAGE IS KEY

■ Sellhorn notes that the renewed interest in the reported health and wellness benefits of psilocybin has fostered a new culture of microdosing, which Sellhorn has been practicing for more than four years. To microdose, only a tiny fraction of a psychedelic dose of psilocybin is taken, perhaps 0.1 to 0.2 milligrams, Sellhorn suggests. With mushrooms of average potency (rounded up to 1% total alkaloids), that translates to about a tenth to two-tenths of a gram of mushroom biomass. “That’s like a really nice microdose, and you can adjust it based on body weight,” he says. “A microdose should be enough to lift your mood but not feel any of the psychedelic effects like you’re about to trip.”

At the other end of the spectrum is macrodosing, which involves taking enough psilocybin to produce a strong psychedelic effect, which can either be a heck of a fun trip or a space for life-changing spiritual or psychological breakthroughs, depending on the intention with which the drug is taken. To macrodose, Sellhorn says a dosage of 30 milligrams to 50 milligrams of psilocybin (approximately 5 grams of mushroom biomass) should be about right for an intense trip. And within the extremes of micro- and macrodosing, “there’s doses in between there for whatever you’re looking for.”

In addition to potency, Sellhorn notes that the form of psilocybin taken can also influence the effects of the drug. While eating dried mushrooms is the classic method of consumption, extracted psilocybin and products made from it can modify the drug’s effects.

“It’s abundantly clear to me now that the mushroom biomass itself acts like a time-release capsule. So, if you take a mushroom that has, say, five milligrams of psilocybin in it, and you eat that, you’ll get a certain effect,” he explains. “And it’ll take a certain amount of time to hit you. But if you take five milligrams in a gummy or a chocolate, it hits you way faster, it’s much more intense,

and it gets over more quickly.”

Sellhorn’s work in the lab has given him an opportunity to increase his knowledge about other psilocybin best practices, as well. He notes that proper storage is very effective at preserving the potency of psilocybin mushrooms. When a client was looking for data on potency degradation, an in-house study determined that mushrooms stored in a vacuum-sealed bag and kept in dark conditions at 60° Fahrenheit retained 98% of their potency after four months.

AN EXPANDING SCIENTIFIC FIELD

■ Although he sees a strong market for analyzing psilocybin-containing mushrooms coming to Oregon, Sellhorn realized that demand for lab testing may be limited until the industry is more established and generating revenue. Although the state’s regulations will likely eventually include requirements for testing for microbial contamination or the presence of heavy metals in addition to potency, such testing is not yet in high demand. So, to supplement his business plan, Flourish Labs has also begun lab testing of so-called functional mushrooms including cordyceps, reishi, and amanita muscaria (famous in folklore and pop culture) for compounds that could have health and wellness benefits. Additional species to be tested by the lab in the coming months include lion’s mane, chaga, maitake, tremella, and turkey tail.

When regulated production and administration of psilocybin for therapeutic purposes begins in Oregon later this year, it will launch a new industry in the state and become a milestone in the continued evolution of drug policy reform. Leading the way will be a new generation of innovators and entrepreneurs, including Sellhorn and Flourish Labs. **HT**



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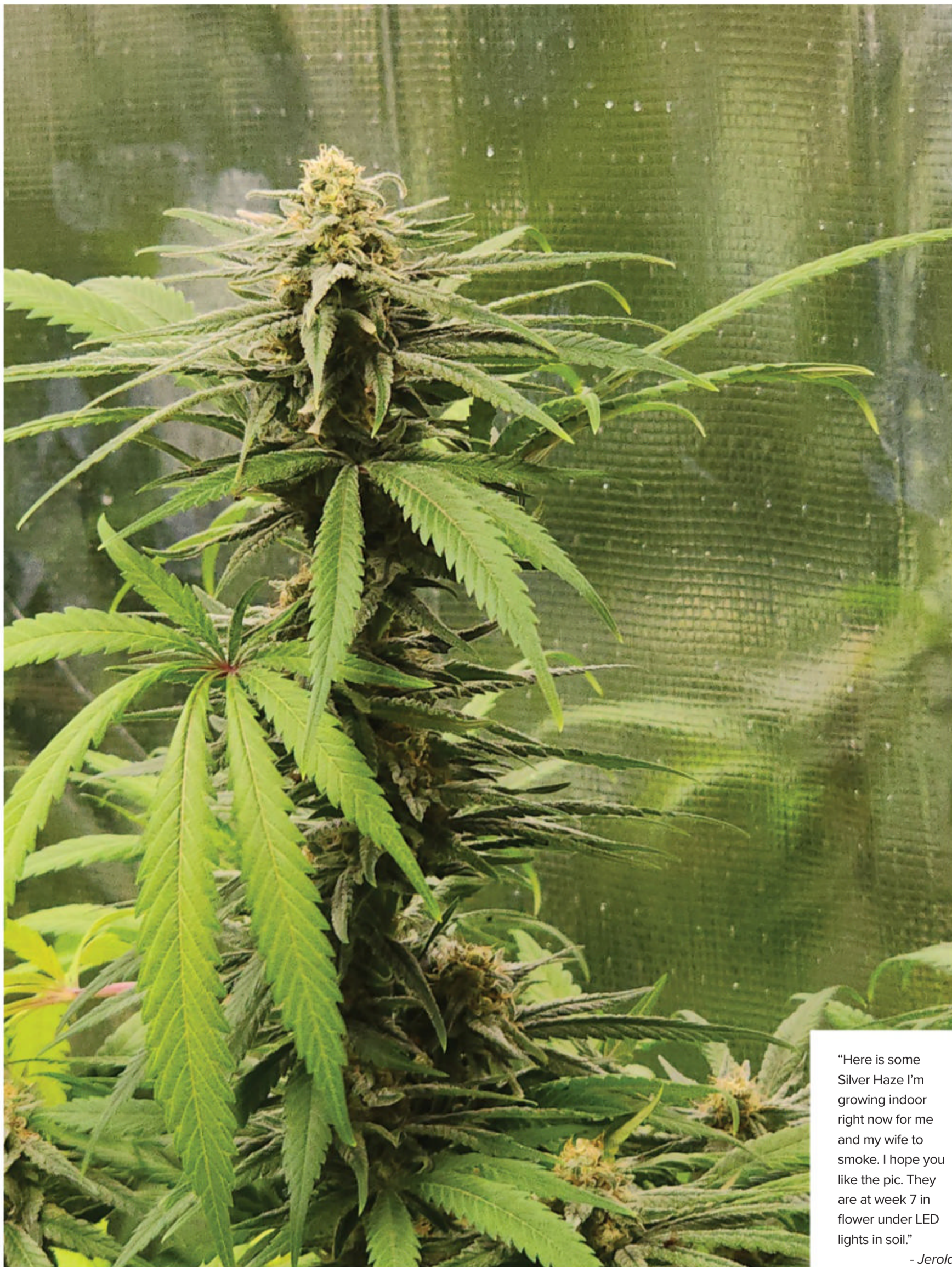
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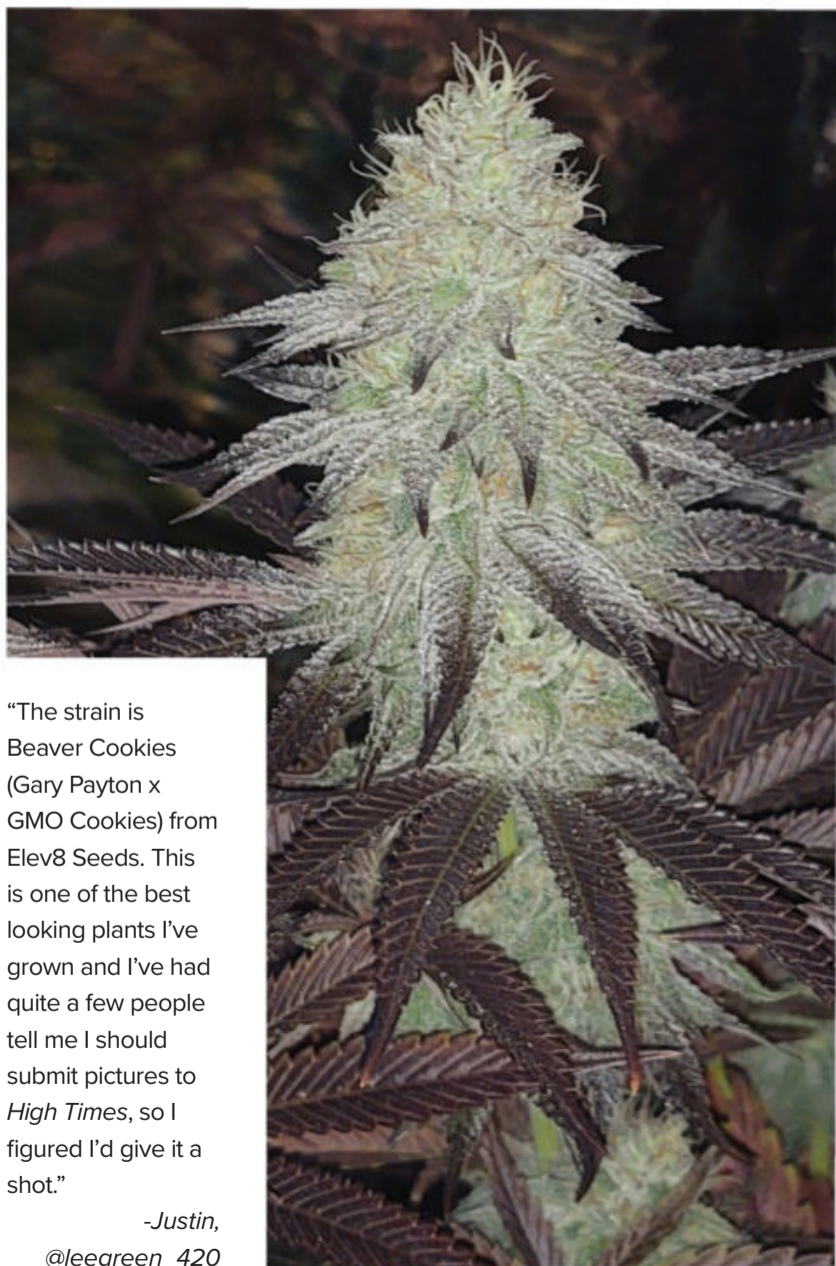
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-Justin,
@leegreen_420



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ILLUSTRATION: ILHAM NUGROHO, @TKS.LOWSKILL

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A Portrait of the Machine

Polish artist Agnieszka Pilat is a tech optimist who collaborated with robot “apprentices” to create stunning abstract art. She views today’s advanced robotic creations as children of humanity and believes it’s her responsibility to teach them about the power of technology and their impact on society.



90

Adam DeVine’s Path To Comedy

Actor Adam DeVine reveals all about the near-fatal life event that led him to a career in comedy and shares most important revelations about finding people who share your goals. Meeting cohorts Blake Anderson, Kyle Newacheck, and Anders Holm helped him create a team that complemented each other’s skills, and led to breakout projects such as *Workaholics*, and so much more.

100

Flygod Steez

Westside Gunn has been present through many historical moments in rap history, which has led him to a successful career punctuated by his *Hitler Wears Hermes* album projects. He smokes about an ounce of weed every day, and promotes his personal goals of working hard, staying consistent, and never giving up.



108

Sugar High

Chris Sayegh created a fine dining empire through his catering company The Herbal Chef, a private dining experience called the Secret Supper Club, and the launch of Nostalgia Bar in Santa Monica, California. Now he’s releasing a cookbook called *Sugar High: 50 Recipes for Cannabis Desserts*, which covers a wide variety of infused sweet treats, including a decadent chocolate raspberry torte.

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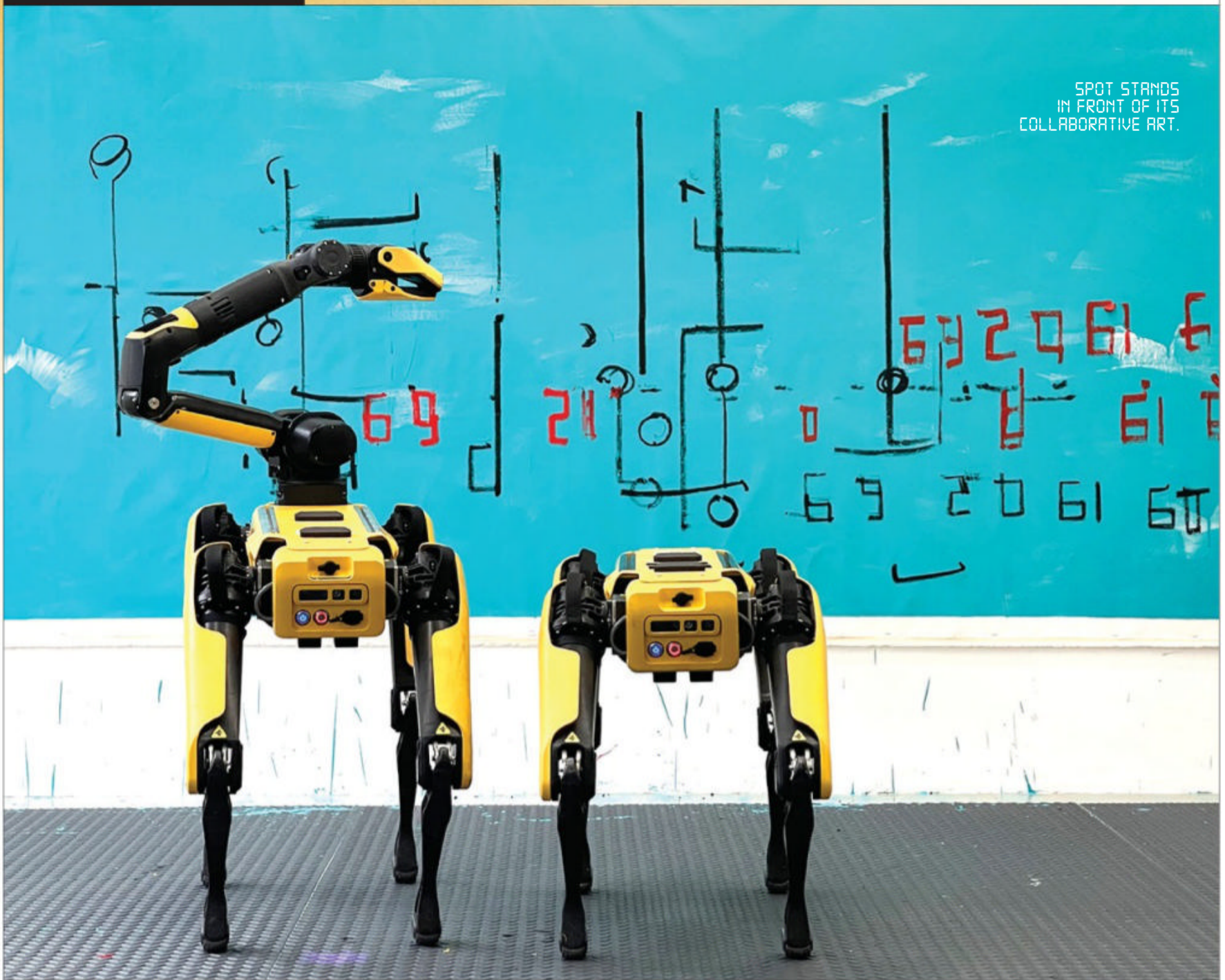
BY ASHLEY KERN





AGNIESZKA PILAT AND SPOT TAKE A WALK IN NEW YORK.

SPOT STANDS
IN FRONT OF ITS
COLLABORATIVE ART.



**TECHNOLOGY
AND ROBOTICS
HAVE LONG BEEN
EXAMINED IN
SCIENCE FICTION
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TELEVISION,**

often exploring what the future could hold and how technology could be integrated into our lives through

both positive and negative perspectives. Today, many of the leading technology companies are working on impressive and advanced robotic creations that have been constructed to benefit humanity.

What these creations mean for the distant future is anyone's guess, but Polish artist Agnieszka Pilat is a self-described tech optimist who is inspired by the innovations of today's modern robotics. After moving to San Francisco, Pilat became fascinated with honoring aging technology through portraiture. Eventually, this led her on the path to paint portraits of some of today's newest, most highly developed machines such as advanced robotics, which she believes to be humanity's children.

Although Pilat does not consume cannabis, she supports legalization.

"What I've always liked about that, you know, [cannabis] culture, is the push towards innovation and also the push towards the outside the cultural norms. I think society really gets a lot out of it," she says. >>

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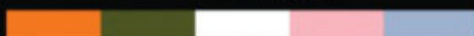
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“AS A PERSON IN CULTURE, I FEEL IT’S MY RESPONSIBILITY TO, EARLY ON, COME IN AND QUOTE, ‘TRAIN THESE ROBOTS.’”

-AGNIESZKA PILAT

PORTRAITS OF POWER

Traditionally, art portraits feature people with power, such as aristocrats, the wealthy, or those with religious positions of high rank. Having grown up in Poland during a time when the Iron Curtain still divided Europe, Pilat saw the differences of power on display between Poland and the U.S. To Pilat, portraiture reflects power and aristocracy in society, and once she moved to the states, she saw America’s aristocracy as a machine. This realization has led her to a successful career exploring the cultural significance of machines and technology through her work.

In 2016, she was commissioned to paint a portrait of a fire department alarm bell. This became the first of multiple in her art series entitled *#Disrupt*, which also included portraits of an old projector, a vintage table fan, and a telephone. She chose to paint these items with a darker palette, each depicted with reverence, which, she adds, is the same way she might paint an elderly person.

“I wanted to honor these old machines that are kind of sitting without people really paying them tribute,” Pilat explains. “So like a song of unsung heroes, I wanted just to give them tribute in that.” >>



AGNIESZKA PILAT AND SPOT IN NEW YORK

Pilat's love for these aging pieces of technology led her to participate in many art residencies with tech companies such as Wrightspeed, Waymo (formerly owned by Google X), and Autodesk.

She was approached by Waymo CEO John Krafcik to paint a portrait of the company's new lidar (which stands for light detection and ranging) sensor technology. Lidar is a component in the Waymo Driver, the company's autonomous driving technology. Pilat spent a few months working on that project in the same style as her previous machine portraits, but described the result as "very hostile and unpleasant."

It became clear to Pilat that if old technology is comparative to older people, then Waymo's lidar technology is more similar to children.

"So I had to rethink. In human years this machine is like a young child, I have to change my whole approach," Pilat says. "Like, what do young kids do? They dress funny, they dress [in] very bright colors. They wear two different shoes, and their mother's hat with like six feathers. So I really approached [Waymo] with this innocence and kind of silliness. So we see very strong movements, like changing the color palette, [from] the way I painted from old machines to new machines." >>





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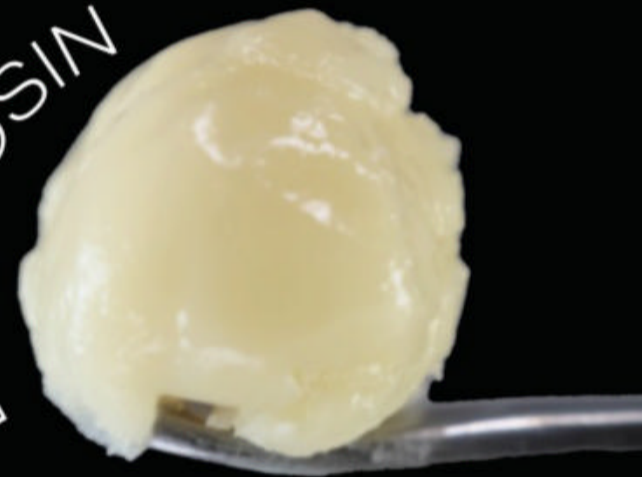
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DIGIT
STANDS NEAR
COLLABORATIVE
ART.



THE COLOR OF YOUTH

■ This realization altered the course of her work going forward. Pilat's unique art residencies allowed her to work with a few highly advanced robotic creations, including Boston Dynamics's Spot and Atlas, and Agility Robotics' Digit.

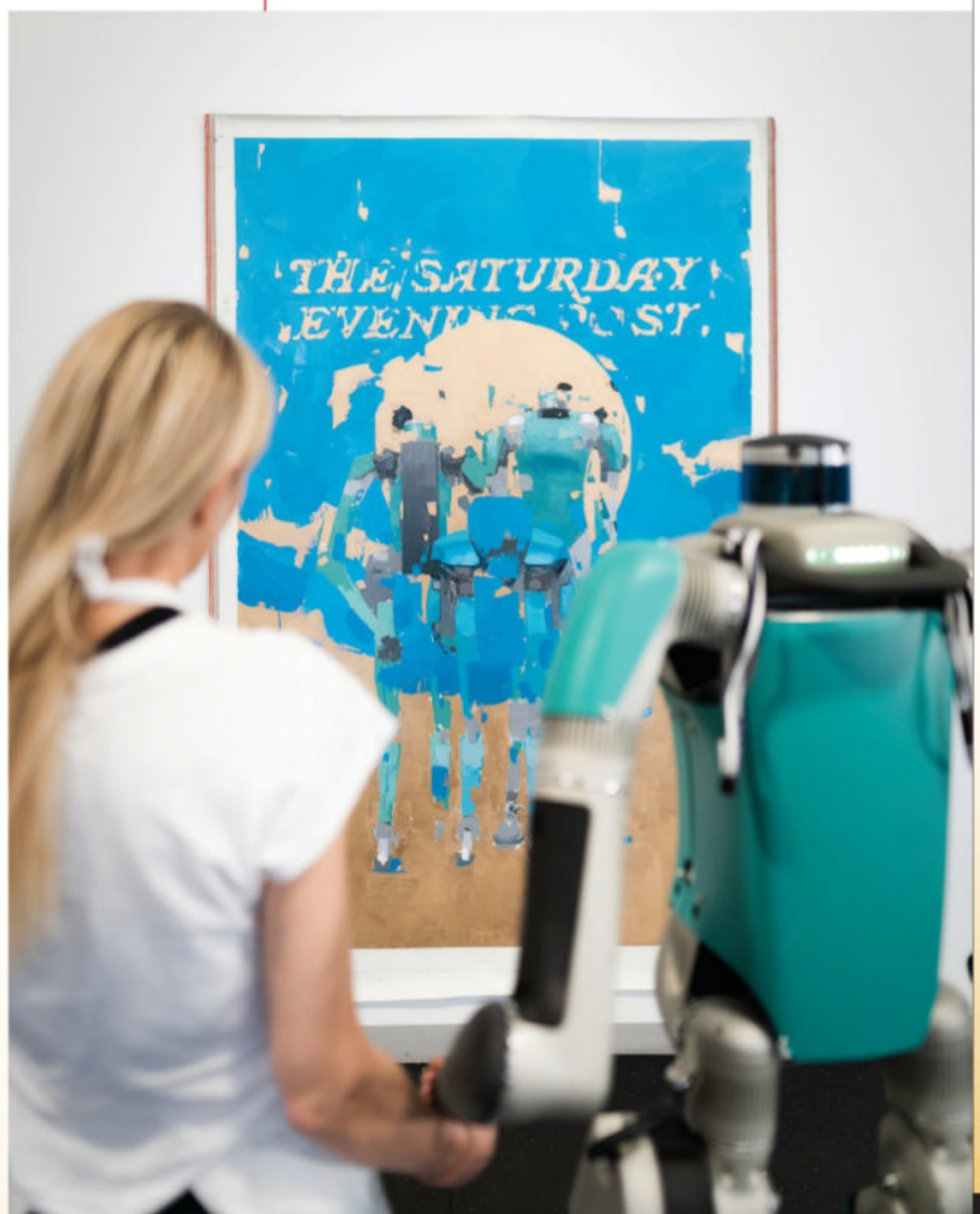
Boston Dynamics's Spot is a bright yellow mobile robot touted for its ability to inspect progress on construction sites or conduct routine inspections, while Atlas is a bipedal, humanoid robot that emulates the power and balance of human agility. Agility Robotics' Digit is a teal-colored human-centric robot that was designed to work alongside humans, and is also bipedal, but features a leg structure similar to that of birds, which bend backwards rather than forward at the knee.

In Pilat's 2021 exhibition *Thinking Machines: Renaissance 2.0*, she painted Spot and Atlas as subjects in fine art recreations. Atlas was painted in the same position of Leonardo da Vinci's *Vitruvian Man*, and Spot was the focus of a piece inspired by Marcel Duchamp's *Nude Descending a Staircase*. Bright pinks, blues, yellow, and gold recreated numerous classical works, depicting new technology with vibrancy and youthfulness. These

paintings also interacted with augmented reality when viewed through the lens of a cell phone camera, adding another element of technology to the exhibit.

In Pilat's most recent exhibit, *ROBOTa*, which was on display at the Modernism Gallery in San Francisco between November and December 2022, she collaborated directly with Spot and Digit as her "apprentices" in the creation of abstract paintings.

"I call them 'apprentices' because [I'm] going back to the power in society and the impact of technology," Pilat explains. "I think these are very early years, still extremely early. And as a person in culture, I feel it's my responsibility to, early on, come in and quote, 'Train these robots.'" >>

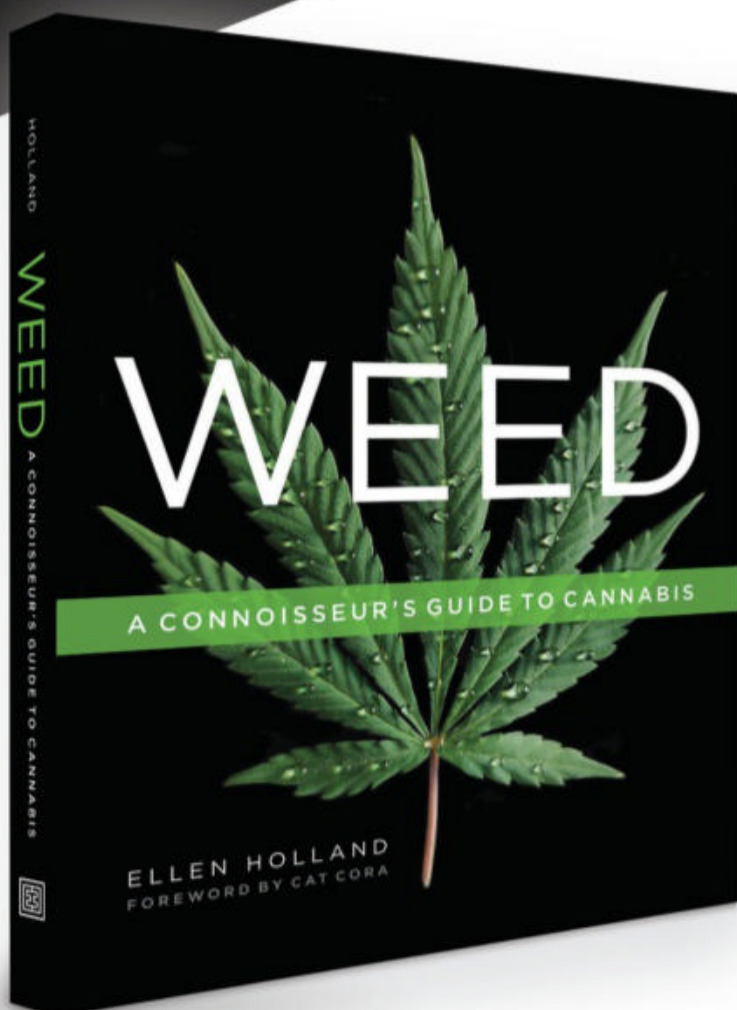




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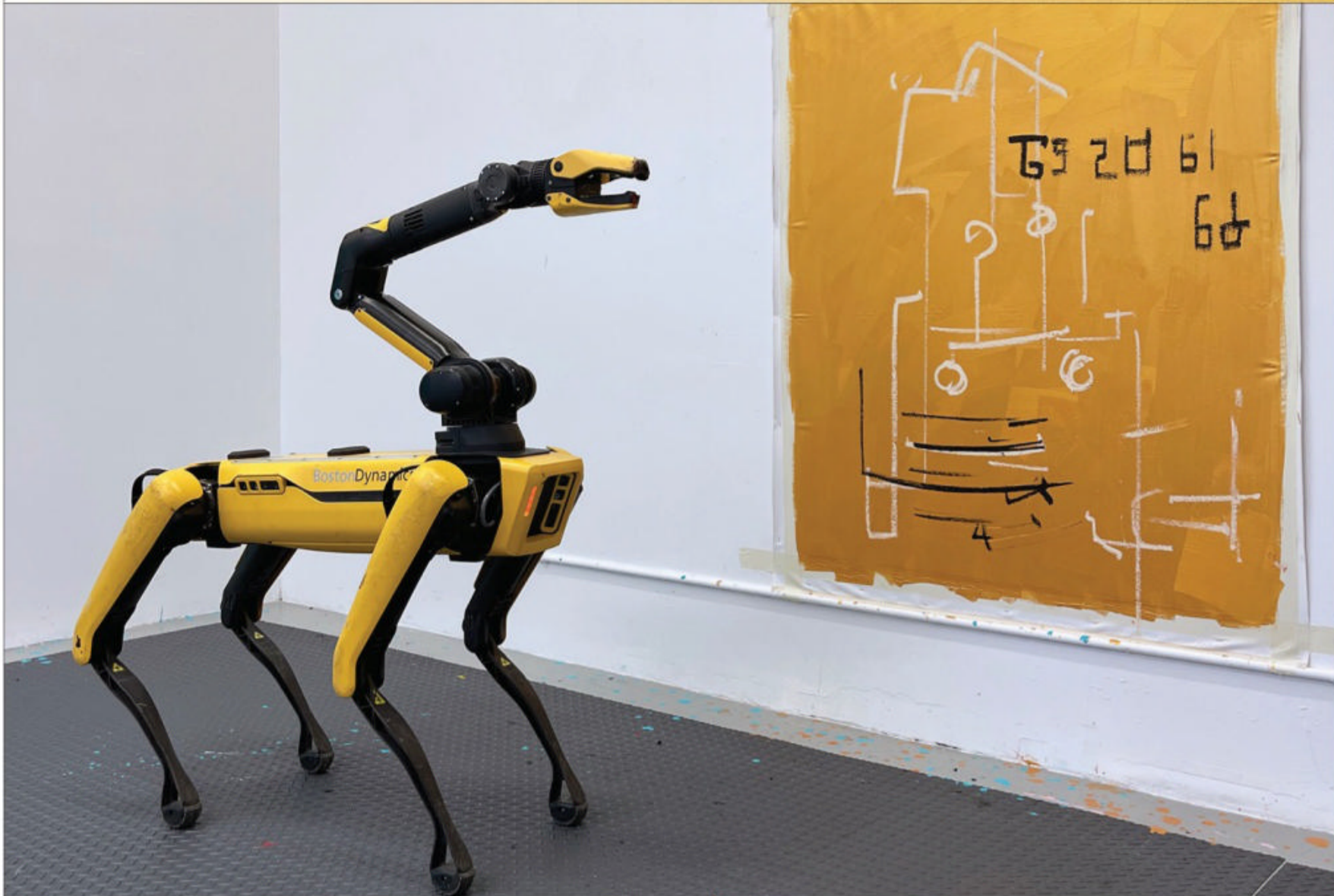




"KNOWING THAT THE BEST MINDS REALLY
WORK ON TECHNOLOGY, THE SMARTEST, THE
MOST TALENTED, HARD WORKING PEOPLE
OFTEN, I HAVE LOTS OF OPTIMISM (IN)
TECHNOLOGY FOR THAT REASON."

-AGNIESZKA PILAT





Controlling Spot and Digit required exploring what the robots are capable of. For example, Spot can be manually directed with a remote control. For Digit, Agility Robotics provided Pilat with a basic programming language, which allowed her to tell Digit where to go and what to do. Both of the robots were given either a paint brush with paint applied, or an oil stick, to perform Pilat's art directions. Even though Spot and Digits are robots, mistakes still happened in the painting process, and Pilat shares that she cherishes those mistakes more than the work itself.

"They are full of mistakes and mistakes make them human. Also, mistakes make them remind us [that] these are just children, they're just learning," she says.

Pilat is optimistic about the future of technology.

"Knowing that the best minds really work on technology, the smartest, the most talented, hard working people often, I have lots of optimism [in] technology for that reason," she says.

Next up for Pilat, the National Gallery of Victoria in Melbourne, Australia, is honoring her work in an exhibit set to debut in December 2023. **HT**

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A full-page portrait of Adam Devine against a solid blue background. He is wearing a dark green t-shirt with white text and a smiley face logo. The text on the t-shirt reads "PATH TO COMEDY" with a white smiley face below it. Large white text "ADAM DEVINE'S" is overlaid on the image, with "ADAM" partially obscured by his head.

ADAM DEVINE'S

PATH
TO
COMEDY



THE **WORKAHOLICS** STAR OPENS UP ON GETTING HIT BY A CEMENT TRUCK, FEARLESSLY PURSUING HIS COMEDIC ASPIRATIONS, AND USING **CANNABIS PRE-ROLLS** AS A NIGHTCAP.

BY STEPHEN LADDIN

Adam DeVine is STOKED to be featured in *High Times Magazine*, especially since—once-upon-a-time—his journey through comedy almost never happened. “*High Times Magazine* is so cool for me, man. If you were to have told an 18-year-old-me—we’ll say 18, but really 16—that I was going to be interviewed by *High Times Magazine*, I would have lost my mind. And still, a 39-year-old-me would have lost my mind the same exact way, like I did a couple of weeks ago when I found out I was going to do this interview.”

As a kid, DeVine was involved in a serious accident, one that—to this day—left him with lasting physical ailments. Yet despite such a horrific experience, he was able to conquer his fear of death at a very young age and come to the very mature conclusion that if you’re blessed with the gift of life, you better

make the most of it and do what you love.

When we connect by phone, the comedian, writer, and actor is doing just that—gearing up for a brand new season of *The Righteous Gemstones* on HBO, a spinoff series of the *Pitch Perfect* movies *Pitch Perfect: Bumper in Berlin* on Peacock, a big action comedy *The Outlaws* on Netflix, and a new *Workaholics* movie that’s aiming to start production sometime toward the beginning of 2023.

Over the course of our conversation, DeVine shares more on how tussling with a potentially untimely demise propelled him to pursue the intersection of what he loved and what he was good at—making people laugh—and the role cannabis plays in his creativity, his day-to-day life, and its influence in helping craft one of the most legendary stoner comedy shows of all time. >>

**“YOU COULD USE
MARIJUANA AS A
CREATIVE
TOOL, BUT
YOU
JUST
HAVE TO
KNOW
YOURSELF.”**

- ADAM DEVINE

HIGH TIMES MAGAZINE: GROWING UP IN NEBRASKA, DID YOU ALWAYS KNOW COMEDY WAS THE PATH YOU WANTED TO PURSUE?

ADAM DEVINE: I don't know if I chose comedy or if it chose me. It was something I liked, and I wasn't innately good at anything else.

When you're a kid and you're trying to figure out what you want to do in life, you have to look at what interests you one, and two, what you're innately good at. Hopefully those things align and what you're interested in is what you're innately good at. For me, I was always pretty good at making people laugh. I enjoyed doing it and it was an easy thing for me to get involved with.

You hear people all the time who are like, “My parents said ‘What are you doing?! Why don't you just become a doctor?’” When I told my parents I was going to pursue a career in comedy, they were just like, “Yeah, we see that for you.”

WAS YOUR PARENTS' SUPPORT ESSENTIAL IN MAKING IT OK FOR YOU TO PURSUE THAT PATH?

Yeah, it seemed less scary since my family had my back.

When I was 11 years old, I was hit by a 32-ton cement truck and couldn't walk for almost two years. I had 25 or 30 surgeries or something like that, and after having such a near death experience as a kid, comedy was my warm blanket. It was something that made me feel good, I liked making people laugh, and it was something I could do from a wheelchair. I didn't have to be an athlete to be able to make people laugh. Once I didn't die, I think my parents were like, “OK, if he wants to do comedy, more power to him. He's not dead so he can do whatever he wants.”

I honestly don't know if I would have gotten involved in acting or comedy if I wouldn't have had the accident. I'm from Omaha, Nebraska. I didn't know anyone who had a career in comedy or acting. It wasn't a “real” job to have. Overcoming a great obstacle like not being able to walk and almost dying, I think after that it was sort of like, “Anything is possible. You only have one life, you might as well try to live it the way you want to live it.” As much as it sucks—I'm still in residual pain from the accident—I wouldn't trade it for the world because I know I wouldn't be here doing the things I love to do if it weren't for it. >>

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DID THE NEAR DEATH EXPERIENCE ALSO EMBOLDEN YOUR PERSPECTIVE THAT IT'S A GIFT TO BE ABLE TO LIVE YOUR LIFE YOUR WAY IF YOU'RE ABLE TO?

At a young age when a lot of people are worried about what society expects of them or what their family expects of them, I didn't have that. After almost dying as a kid, it really puts everything into perspective like, "Look. It could all be gone tomorrow." So I'm not going to go to college to get a degree to do something that I don't love to do just to make my family happy or appease society in general.

A LOT OF TIMES, THAT AWARENESS AND PERSPECTIVE COMES MUCH LATER IN LIFE.

Yeah, it made everything click into place pretty young. That being said, it's not like I'm not driven or ambitious, I'm just driven and ambitious for the things I want to be driven and ambitious towards, not things that don't excite me just to make a living.

YOU ENDED UP GOING TO ORANGE COAST COMMUNITY COLLEGE AND MEETING YOUR MAIL ORDER COMEDY CREW. WAS THAT SORT OF THE JUMP OFF POINT?

I just knew I had to get to California to meet other people with similar interests as myself. So along with a friend of mine—Austin Anderson, who's a very funny stand-up in his own right—I moved to Southern California where we went to Orange Coast Community College. The plan was just to go for a few years and then transfer to UCLA. I told my parents the plan and I think they kind of knew if it was bullshit—I knew it was bullshit, but it was just kind of a thing I said to get out to California.

I ended up meeting Blake [Anderson] and Kyle [Newacheck] day one at Orange Coast Community College, which was sort of like meeting brothers. We spoke the same language, we thought the same kinds of things were funny, and we're the same age so we have the same cultural touchstones. It just felt right, and from then on, we all had the same ambitions of making a career of being funny. It seems like an insane thing to try and make a career out of, but again, we all had the same ambitions and all sort of pushed each other forward.

HOW KEY WAS THAT CREATIVE AND PROFESSIONAL ALIGNMENT BETWEEN YOU ALL?

Fuck, I think finding collaborators might be one of the most important things that a young person can do when they're trying to break into whatever business they're trying to break into. Finding people you can bounce ideas off of or that can help inspire you is crazy important. Without those guys, we would all probably be having a great time working in a factory somewhere.

AFTER YOU ALL MET, WAS THERE A MOMENT OR SET OF EXPERIENCES WHERE IT CLICKED THAT THE CAREER YOU WANTED IN THE AREA YOU WANTED WAS INDEED HAPPENING?

After two years, I realized I wasn't going to go to UCLA and broke that news to my parents, and Kyle had left the year prior

to go to Los Angeles Film School to learn how to be a director. I decided to move up [to Los Angeles] and live with Kyle and essentially try to break into the entertainment industry.

I got a job working the door at The Hollywood Improv Comedy Club and considered that one of my first big breaks because at that time I was seeing stand-up every day at work. Every night I was seeing some of the best comics in the world—the Chris Rocks, the Dave Chappelles, the Sarah Silvermans, the Zach Galifianakises—and then during the day, I would write with the guys and we would come up with different internet videos. At the same time, I'd just met Anders [Holm] in an improv class at the Second City Conservatory in Los Angeles, and it's after we met Ders that I think everything started to click into place.

Blake and myself have more of a performing background, while Ders had less of a performing background and more of a writing background. He was a few years older than us and was writing scripts, which we hadn't done yet. Seeing the work ethic he had with writing and realizing...

Ders is a very smart guy, but he's also just as dumb as the rest of us. Sometimes I think you build up a thing in your head of "Well, only the smartest people in the world write movie scripts," like you have to be a genius or something. But really it's just about sitting down and doing the work. Ders showed us that was possible, which sort of opened the doors for all of us to start writing together. I feel like with our powers combined, when one person is lacking in one thing, it's another person's strong suit. We really complimented each other well and that's when things started to click into place.



**“IT’S NICE TO JUST,
AT THE END OF THE DAY,
SMOKE A LITTLE JOINT. WHETHER
IT’S WITH FRIENDS OR JUST
SITTING BY MYSELF, IT’S A
NICE END-CAP TO THE NIGHT. AS**

**YOU EACH BROUGHT
A SKILLSET TO THE
TABLE THAT MADE YOUR
INDIVIDUAL BRAINS
MORE POWERFUL AS A
COLLECTIVE.**

And I still think that. I still think when I write with those guys it’s when I’m at my funniest. When the four of us are together or the three of us are on screen together, I think I’m at my funniest and I think those guys are also at their funniest when we’re all there to prod each other along.

**DO YOU LIKEN IT TO BEING
IN A BAND WHERE YOU’RE
INSPIRING EACH OTHER
TO TRY NEW THINGS
ARTISTICALLY?**

All the time. We actually mention that quite a bit, that essentially we’re just a band. Now it’s weird because now we’re a veteran band. We’re a band that’s been together for like 20 years, so we’re finding new ways to do the same thing differently while still giving the people what they like and expect from us.

**IN TERMS OF WHAT
THE PEOPLE WANT
AND EXPECT FROM
YOU, IS IT A PROCESS
WHEREBY YOU GUYS ARE
TAPPING INTO WHAT
YOU FIND FUNNY ON
AN INDIVIDUAL AND
COLLECTIVE LEVEL, AND
IT JUST SO HAPPENS
THAT WHAT YOU GUYS
FIND FUNNY RESONATES
WITH OTHER PEOPLE?**

We were very fortunate to be given the opportunity to come out with our show [*Workaholics*] at the time that we did and have it resonate with a lot of people who were within five to 10 years of our age on either side. So I think it really connected with a wide group of people who were either about to go into college and were like, “Oh, that [show] is what college life is like,” or who just gotten out of college and were like, “This is my life exactly,” or who had been out of college for years and then looked back and were like, “Wow, I remember when my life was so free and all I had to think about was how I’m going to get drunk and high that night,” instead of having all of these actual responsibilities. >>

**OPPOSED
TO DADS
FROM THE
1950S
WITH THEIR
SCOTCH
AND THEIR
RECLINER,
I FEEL LIKE
I’M THAT
NEW-AGE
WHERE I SIT
THERE AND
SMOKE MY
LITTLE
PRE-ROLLS
AT NIGHT.”**

- ADAM DEVINE



**“IF YOU CAN’T
CRACK A STORY OR
YOU’RE WORKING
ON A VIDEO THAT
YOU CAN’T GET
JUST RIGHT,
YOU’RE
ABLE TO
TWEAK
IT BY
SMOKING
A LITTLE
BIT”**

- ADAM DEVINE

**ON THAT TIP, WHAT ROLE
DOES GETTING HIGH PLAY
FOR YOU CREATIVELY AND IN
YOUR LIFE IN GENERAL?**

I feel like of all the guys, I probably was the biggest stoner. It’s a real battle royale between me and Kyle for that title nowadays. You could use marijuana as a creative tool, but you just have to know yourself. You have to know how much is too much, how it affects you as a person. It’s the kind of thing that is a tool in your toolbox, but it won’t make an unfunny person funny or a non-talented person talented. If you don’t have the goods to begin with, it won’t help you, but it can be used as a tool to free up your mind every once in a while.

If you can’t crack a story or you’re working on a video that you can’t get just right, you’re able to tweak it by smoking a little bit. You think about it, you free up your mind, you’re not married to what you’ve already written and what you’ve already worked on and you’re able to work on the problem from a different point of view. That’s how I’ve viewed marijuana and I think it’s helped me along the way.

**IS THERE A PARTICULAR
STRAIN OR TYPE OF
WEED THAT YOU ENJOY
UNWINDING WITH THE
MOST?**

I feel like the pre-rolled minis are perfect for smoking by yourself or with one other person. I smoke a lot of Lowells and I tend to like the energetic sativas. Even at night, I like that they get my mind moving in a good way. I also like Selfies, which are a nice little size, and a little smaller than Lowells as well.

I also drink Cann, which, full disclosure, I am an investor in, because I feel they’re remarkable cannabis beverages.

They have 2 mg THC, so you treat it like you’re having a glass of wine and you can have a few. I do like that ritual of having something to drink at the end of the night and Cann is a good way to not have the excess calories and the unneeded headache the next day.

The older I get, when I drink, I’ve been starting to get these gnarly hangovers. I used to pride myself on being the guy who never got hangovers who could pop up the next day and be like, “And I’m baaaaaack.” Admittedly, it is catching up to me, and it’s nice to just, at the end of the day, smoke a little joint. Whether it’s with friends or just sitting by myself, it’s a nice end-cap to the night, as opposed to dads from the 1950s with their scotch and their recliner. I feel like I’m that new-age where I sit there and smoke my little pre-rolls at night.

**JUST PUT YOUR DAD HAT ON
AND YOU’RE GOOD TO GO.**

Yup, get my cardigan on and enjoy my edibles. **HT**



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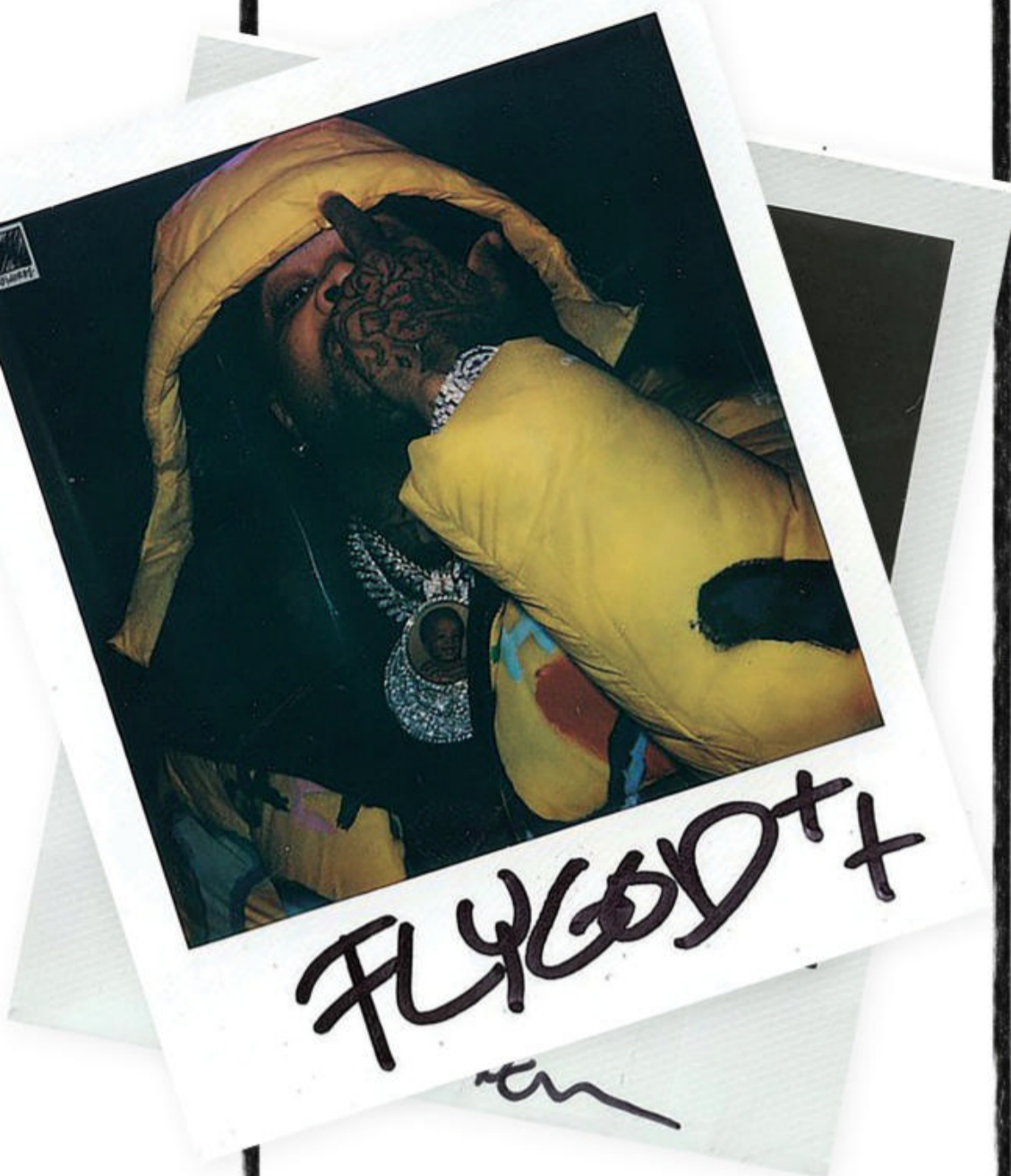


FLYGOOD STEEL

WESTSIDE GUNN TALKS HIS
OUNCE-PER-DAY HABIT AND
THE FINAL INSTALLMENT OF
HITLER WEARS HERMES.

BY KYLE EUSTICE





It's easy to forget you're talking to an accomplished artist who's collaborated with Kanye West, The Roots' Black Thought, Busta Rhymes, and a slew of other notable hip-hop heavyweights, but that's just who Westside Gunn is. He's the kid from Buffalo, New York who made it. Despite all odds being stacked against him, he's the one who escaped the perils of the streets and, in the words of Outkast, got up, got out, and got something. Along with his brother Conway the Machine and cousin Benny the Butcher, the Flygod took Griselda Records from a tiny, homegrown label to a partnership with Eminem and manager Paul Rosenberg's imprint, Shady Records. Even with all of his success, his respect for hip-hop's architects and pioneers shines through, while his humble demeanor and relatability remain intact.

Case in point, Westside Gunn just returned to Buffalo after a whirlwind trip to New York City and Philadelphia where he was shooting a music video for his final installment of the *Hitler Wears Hermes* series, *10*. His plans are to take his nieces and nephews to see *Black Panther: Wakanda Forever*, eat a lot of good food, and check in with his people. Clearly, Gunn isn't like other rappers. He didn't get his start at age 20 and have to go through the growing pains of becoming an adult in front of an audience nor did he struggle with any kind of identity

crisis as he encountered fame—he already knew who he was. Having just turned 40 in July, he was able to look at the music business with a different lens.

"I don't have to go through the problems of being young Westside Gunn and being immature," he said. "Not only just being mature, but you also gotta think, being at this age, I've been in every phase of hip-hop. So I was there in the Run-DMC days, the Slick Rick days, Ice-T, and N.W.A, all the way back as far as I can remember—LL COOL J, Salt-N-Pepa, Kool Moe Dee. I was there for MC Hammer, I was there for Kool G Rap, then Nas and Wu-Tang. I've been through every phrase. I'm really a student of the game. I'm born in 1982, so my whole life has been hip-hop."

Westside Gunn has been on a creative high for years now, releasing several projects back-to-back, including *Pray for Paris* and *Who Made the Sunshine*, both released in 2020. But interestingly enough, Gunn never set out to rap.

"I still don't want to rap," he said with a laugh. "But the thing about it is, every year I give 'em another classic. That's me not wanting to rap."

He'd tried before. In 2005, he released his first mixtape, but legal troubles kept him from seriously pursuing it. When Conway got shot in 2012, everything changed. That was the moment he decided to pick up the mic again.

"We was already living like rappers," he explained. "I tried to rap in '04. I tried once. It wasn't like I tried all the time. I didn't rap again from 2005 to 2012, but I knew how to rap. My style was the exact same. When I started back in 2012, I kept my same style and went big. I was trying to get Conway on and we was working. Once he got shot, I still knew people in offices and I was still getting my feet wet. If anybody's going to bet on me, it's going to be me. So I went extra hard and did something nobody else is doing. In 2012, Atlanta was heavy. There was a big Southern influence and I came out of nowhere with just the raw boom bap shit."

Gunn wanted to make an immediate impact—and he did. As he admitted, he was looking for "shock value" and chose to put Adolf Hitler, one of history's most controversial figures, on the cover of his mixtape.

"The title at first was *Devil Wears Prada* and I switched it because I was like, 'I'm not going to keep the same name, so let me think of some crazy shit,'" he recalled. "*Hitler Wears Hermes* was what came to my mind first. It wasn't like I thought of no other name. I didn't want nobody to know who I was, so I put out this mix CD with Hitler on the cover to see what would happen. Mind you, I hadn't rapped in seven years, and I made this project in like five days. I was on some fly shit though, and that was the first *Hitler Loves Hermes*. I wanted to see their reaction and what people were thinking. That's how it all started."

Ten years later, Westside Gunn has closed the door on the popular series but said he feels "good" about it. >>

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IF I DON'T GET
NO BIGGER THAN
WHAT I AM NOW,
FOR WHAT I'VE
DONE IN THESE
10 YEARS, I DONE
CARVED MY
OWN LANE, I
DID IT MY OWN
WAY AND I'M
SUPER HAPPY."

- WESTSIDE GUNN

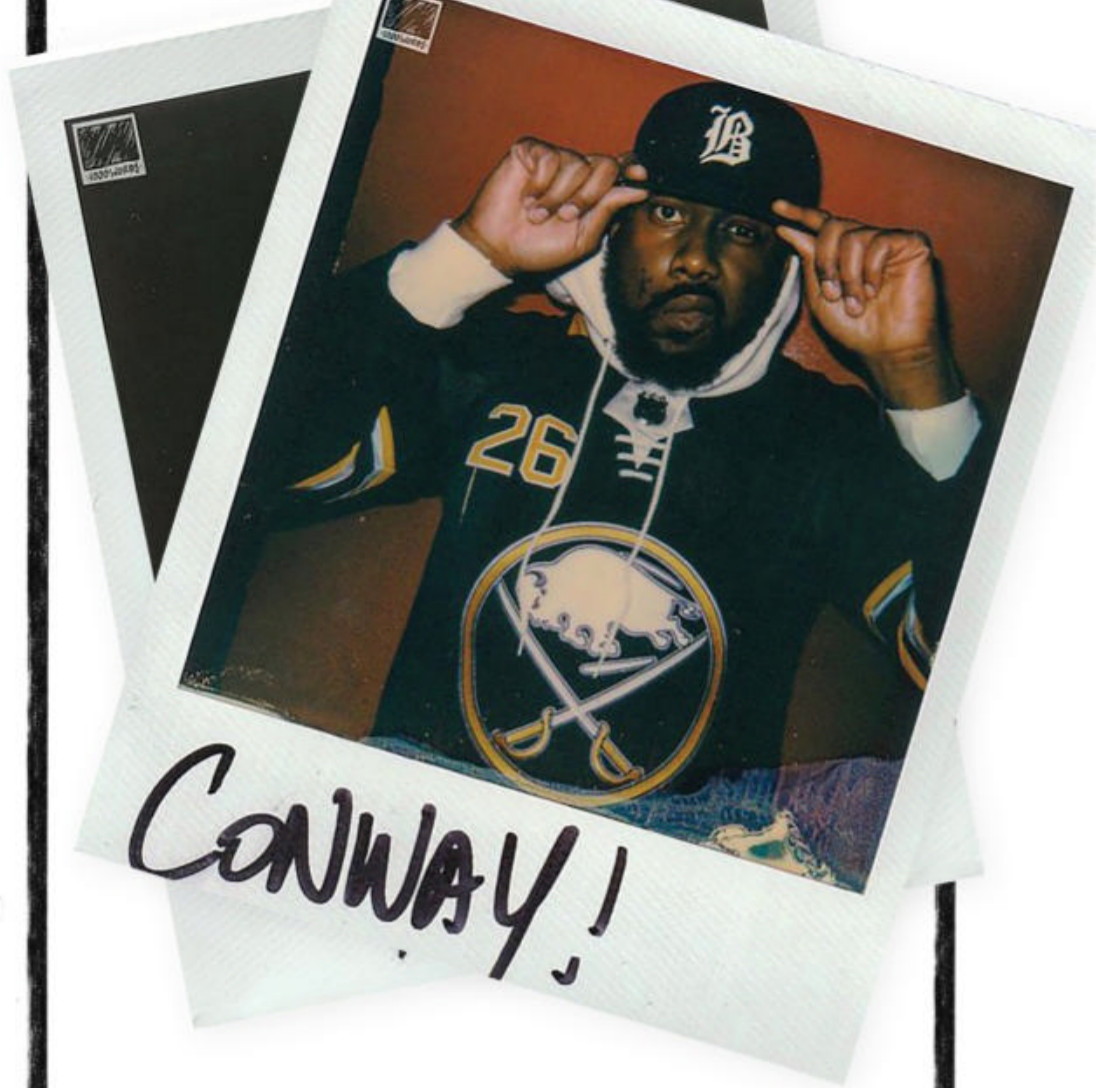


“A lot of people in this game, they come and go,” he continued. “For me to be able to say I did it 10 times is legendary in itself. That’s just let you know that I’ve been putting in work for a decade, and a lot people can’t say that. Even after a decade, I’m just now starting to get certain looks after 10 years of working. That just lets you know you just gotta work hard, stay consistent and don’t give up ‘cause there’s always another level. I carved my own lane, so I’m already happy. I don’t care if I don’t get no bigger than what I am now, for what I’ve done in these 10 years, I done carved my own lane, I did it my own way and I’m super happy.”

And it shows. Granted, it could be the weed. Gunn smokes an astonishing 28 blunts from sunrise to sunset, equating to about an ounce per day. In fact, he was rolling one up during the conversation. And like Snoop Dogg, he has a professional blunt roller on his payroll.

“I have some rolled up for me every day,” he said. “I got a professional blunt roller last month. I got ‘em on salary to do other things as well, so that’s not the only thing they do. They just get the part out of the way, but they’re definitely on salary. I might do two gram blunts or I might just do one gram blunts ‘cause I like chain-smoking. After a while, when you smoke blunts, you get used to it like smoking a cigarette. I smoke so much I like the one gram blunts but just back-to-back. But I’m trying to break out of smoking ‘cause I smoke so much, I wanna try to get cleaner. I smoke too much.”

Together with Chauncey Leopardi, who played Squints in the film *The Sandlot* in 1993 and is the owner of the cannabis and lifestyle brand Squintz, Westside Gunn took his love of weed and turned it into a business. The strain he was smoking is called “The Liz,” which was named after *The Liz 2* album by



Armani Caesar, one of Griselda’s artists, and inspired by Leopardi’s signature strain, “The Wendy.” (Wendy was the girl Squints had a crush on in the movie.)

“Squints is the mastermind,” he explained. “I’m just the good guy that markets the smoke well. Me and him grew a relationship and I said, ‘Hey, I wanna come with it, too. I just want something special.’ He had that one and he had four others just in case. I picked ‘The Liz’ and we got the bags together.”

If anything, the new business venture is yet another testament to Gunn’s unrelenting work ethic. Armed with a seemingly endless reservoir of self-motivation and determination, he’s created his own empire. Speaking to *The Joe Budden Podcast* in 2021, Gunn announced he’d severed ties with Shady Records, a bold move considering the weight Eminem’s name holds in the industry. But Gunn knew it was the right decision.

“I’m always going to be thankful for Paul [Rosenberg] and Marshall [Mathers],” he said. “I was with Shady Records and I dropped *Who Made the Sunshine* and *What Would Chine Gun Do*. It’s all love. We made our history together. It’s different chapters in life. It’s not one of those things to be upset or cry about or nothing. It’s chapters. It was just time for me to move on.”

For now, Gunn is focused on his pending projects, one of which is *Michelle*, named after his late Aunt Chelle who passed away in November 2021. As he explained in an Instagram post at the time, Chelle was like a mother to him and her death hit him hard, but he has a plan to continue honoring her.

“I’m doing a lot of things to keep her name alive,” he said. “Right now, I’m staying working, staying ahead. She was my biggest fan. She wanted me to turn up, so I’m going to keep turning up.” **HT**



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HERBAL SUGAR

THE HERBAL CHEF GETS SERIOUS ABOUT SWEETS.

by Sharon Letts

CHRIS SAYEGH HAS BEEN AN INNOVATOR of five-star, cannabis-infused fine dining since establishing his high-end food catering company The Herbal Chef in 2013. Since then, he and his team have been serving up artfully prepared healing dishes, catering, and creating within his infamous Secret Supper Club around the world. He launched Nostalgia Bar and Lounge in Santa Monica, California in 2021 and is also serving the East Coast with a

commercial kitchen in Miami, Florida. His first book, *Sugar High: 50 Recipes for Cannabis Desserts*, shares some of his most coveted desserts and treats from his elaborate 12-course infused meals.

Known for his Michelin-style recipes and presentations, this cannabis chef isn't beneath adding a classic weed brownie recipe to the mix, and doesn't expect his followers to rise to the five-star perfection from his kitchen, emphasizing, "no Michelin experience required." >>

“My goal in writing this cookbook was to make it easy for the home chef to make beautiful and delicious treats and sweets.”

- Chris Sayegh



“My goal in writing this cookbook was to make it easy for the home chef to make beautiful and delicious treats and sweets,” he said.

As with all 50 recipes provided, his space brownies recipe comes with a story from Sayegh on his first brownie experience in college.

“When I first started college, the only edibles I could find were cereal treats and brownies,” he penned. “These weren’t just any edibles. These were possibly the strongest edibles in California which, if you were a novice, would have you packing your bags and taking flight...”

Many share negative experiences from their first edible experience, but Sayegh, an expert in microdosing, isn’t in it for the extreme high. He’s added educator to his skillset and guides diners through terpenes, teaching of the beneficial

compounds in cannabis and other plants that produce flavor and scent.

Pairing cannabis with food involves the same process when choosing flower. The fragrance you are drawn to is more than likely needed for its benefits, biologically. It’s a synergistic relationship we have with plants. They have a scent because we have a nose.

And not just with cannabis. That vanilla added to your dessert also comes from a plant, and has its own list of benefits, including having a calming effect. Everything set in front of diners at Sayegh’s table is about fragrance or flavor, but he also wants guests to know that beneficial foods are medicinal—with terpenes leading your nose to the table, while putting your body into homeostasis—or a place where illness cannot dwell. **HT**



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Chocolate- Raspberry Torte

YIELD:
1 (10/11-INCH) TORTE, 12 SLICES

Recipe by Chris Sayegh

SOME OF THE BEST THINGS IN THE WORLD ARE IN THIS RECIPE: chocolate, coconut, and fresh berries. And what makes it even better is the texture. There is a delicate crust atop an incredibly moist flourless cake. The coconut cream and the raspberry coulis lighten the entire dish and balance the decadence with a lovely tangy note of acidity. Break this out for any potluck, and let yourself be known as the dessert whisperer.

FOR THE TORTE

2 c. dark chocolate chips (340 grams)

¼ c. (1 stick), plus 3 T. cannabis-infused butter, cut into small cubes (165 grams)

6 large eggs, room temperature (300 grams)

¾ c. granulated sugar (150 grams)

½ t. Kosher salt (3 grams)

1 t. Pure vanilla extract (4 grams)

FOR THE RASPBERRY COULIS

1 pint fresh raspberries (150 grams)

2 T. fresh lemon juice from 1 small lemon (30 grams)

¼ c. granulated sugar (50 grams)

Juice & zest of 1 orange (20 grams juice, 8 grams zest)

FOR THE WHIPPED COCONUT CREAM

¾ c. canned coconut cream (150 grams)

¼ c. confectioners' sugar (32 grams)

¼ t. Kosher salt

½ t. Pure vanilla extract (2 grams)

½ t. Fresh lemon juice from 1 lemon slice (2 grams)

MAKE THE CAKE:

1. Preheat oven 350° F. Line a 10/11" tart pan with parchment paper.
2. In double boiler, or medium heat proof bowl, set over small saucepan simmering water (do not let bowl touch water), add chocolate, stir occasionally w/ rubber spatula until melted. Add butter, continue stirring until blended. Remove from heat, let stand 5 min.
3. Meanwhile, in medium bowl, whisk eggs, sugar, salt, vanilla until light and fluffy.
4. Pour warm chocolate into egg mixture, mixing with spatula until everything blended. Add batter to prepared pan, bake until top of torte is cracking and center is barely jiggling, 15 to 20 min. Let rest for at least 30 minutes before slicing.

MAKE THE COULIS:

1. In medium saucepan over medium-low heat, add raspberries, lemon juice, sugar, orange juice and zest. Simmer, stirring occasionally until berries are completely broken down, about 15 min. Let cool slightly, process raspberry mixture in high-speed blender until smooth. Strain through fine mesh strainer. Allow to cool completely before serving.

MAKE THE WHIPPED COCONUT CREAM:

1. In bowl of stand mixer fitted with whisk attachment, or large bowl with a hand mixer, combine coconut cream, confectioners' sugar, salt, vanilla, lemon juice. Whip until light and aerated, about 5 min. Top torte with coconut cream and drizzle of coulis. Slice and serve immediately.

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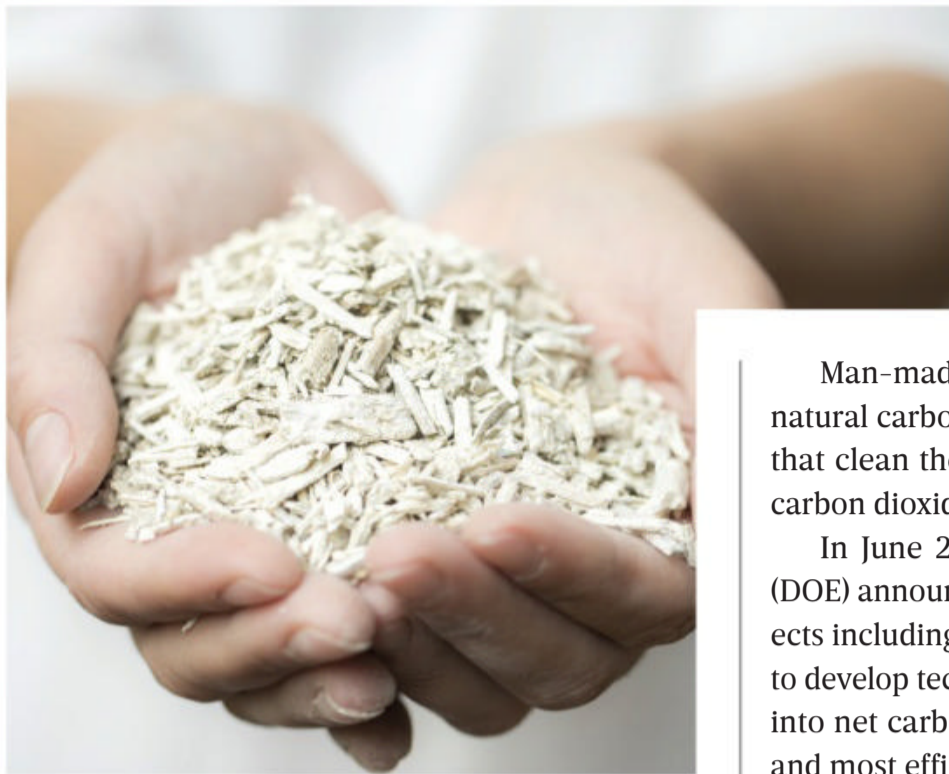
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HARNESSING HEMPCRETE

Researchers from Texas A&M University plan to 3D-print more efficient building materials.

by Benjamin M. Adams

The U.S. government is taking a more serious look into hempcrete due to its long list of benefits including its lower environmental impact when compared to other conventional construction materials.

Hempcrete is typically made by combining powdered hemp biomass, lime, and water, resulting in a lightweight building material that is green in color. It creates a strong composite material comparable to concrete, but it weighs just about an eighth the weight of regular concrete. It also doesn't shrink or warp when exposed to hot and cold temperatures.

Some of hemp's benefits are beginning to be noticed by officials at the federal level, and a lot of funds are being applied toward the development of hempcrete and other eco-friendly materials.

In December 2021, President Joe Biden announced a plan to reach net-zero emissions from all federal operations in the U.S. by 2050. Specifically, part of that goal led to an effort to lead the way in increasing the total amount of artificial "carbon sinks," which absorb more carbon from the atmosphere than the carbon released during the construction process—aka net carbon-negative structures. Some of the nation's top experts believe this will make an impact on climate change.

Man-made carbon sinks are designed to mimic natural carbon sinks, such as oceans or rainforests, that clean the air naturally and absorb or convert carbon dioxide.

In June 2022, the U.S. Department of Energy (DOE) announced \$39 million in awards for 18 projects including one involving hempcrete. The goal is to develop technologies that can transform buildings into net carbon-negative structures using the best and most efficient materials possible.

One acre of hemp can sequester several times more atmospheric carbon—primarily CO₂ (carbon dioxide)—compared to one acre of forest. Darshil Shah, senior researcher at the Centre for Natural Material Innovation at the University of Cambridge in England, said hemp is "one of the best" converters of CO₂—going beyond what other plants can do. That's only the beginning, however, because the abundant amounts of leftover industrial hemp biomass further substitute plastics, metals, and other materials that make it reduce CO₂ emissions further.

Led by DOE's Advanced Research Projects Agency-Energy (ARPA-E), selectees for the Harnessing Emissions into Structures Taking Inputs from the Atmosphere (HESTIA) program will focus on developing buildings, sometimes using scarce and geographically-limited building materials.

One of the most notable recipients of the grant program is Texas A&M University. Researchers associated with Texas A&M University plan to 3D-print strong buildings using hempcrete, with a lower environmental impact compared to traditional construction methods. It's also more affordable. The project will be funded by a \$3.74 million grant from the U.S. Department of Energy's program—more than the size of the grants most of the other projects received.

"There's huge, untapped potential in reimagining building materials and construction techniques as carbon sinks that support a cleaner atmosphere and advance President Biden's national climate goals," U.S. Secretary of Energy Jennifer M. Granholm said in a press release. "This is a unique opportunity for researchers to advance clean energy materials to tackle one of the hardest to decarbonize sectors that is responsible for roughly 10% of total annual emissions in the United States."

Beyond hempcrete's low environmental impact, it's also fire-resistant, water-resistant, and provides beneficial acoustic properties as well. >>



JUSTIN LONG HAS THE MUNCHIES
p. 120



EU RULES ON FOREIGN MEDICAL CANNABIS PATIENT
p. 122

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The project involves leading minds in architecture and engineering. Dr. Petros Sideris, assistant professor in the Zachry Department of Civil and Environmental Engineering, will lead the project as principal investigator.

“While production of conventional construction materials such as concrete requires large amounts of energy and releases large amounts of CO₂, hempcrete is a net carbon-negative material, which can provide major environmental benefits,” Sideris said in the school’s announcement. “Resilience to natural hazards is intertwined with environmental sustainability because building damage and subsequent repairs due to extreme events such as hurricanes result in major environmental impacts.”

Texas A&M’s recipe for hempcrete combines hemp powder, shives (the woody inner portion of stalks), lime, and water.

These concepts are by no means anything new: Hemp advocates like Jack Herer promoted industrial hemp as a replacement for a variety of materials decades ago, citing its ability to potentially reverse the Greenhouse Effect, clean the atmosphere, and slow deforestation. Herer believed hemp was the one single renewable natural resource that is capable of solving most of these problems.

“While production of conventional construction materials such as concrete requires large amounts of energy and releases large amounts of CO₂ (carbon dioxide), hempcrete is a net-carbon-negative material, which can provide major environmental benefits.”

- Petros Sideris

These concepts are being updated with modern technology—such as 3D printing, which didn’t become economically feasible for the average consumer until recently.

According to the project description included in the announcement, Texas A&M believes hempcrete and 3D-printing can significantly lower production costs, construction times, and environmental impacts from reduced construction waste. In addition, hempcrete can provide structures that withstand natural hazards better than wood.

The goal to reach zero emissions also incorporates the benefits of 3D-printing technology. 3D-printing technology makes up to 50% lighter than traditional methods, which makes it consume less energy and fuel during transportation. With fewer trucks delivering materials, less emissions are produced. The combination of the benefits of hemp and 3D-printing technology make hempcrete a powerful tool to help the environment. **HT**

HIGH FIVE

FIVE DISCOVERIES INSPIRED BY DRUGS

Sometimes it takes drugs to think outside of the box.

by Benjamin M. Adams

1 ↘

PSYCHOANALYSIS

Sigmund Freud discovered early on that cocaine proved to be a wonder drug in developing the foundation of psychoanalysis. It compelled people to open up and let go of their ego, at least until the high wore off. Freud first obtained cocaine from Angel’s Pharmacy in Darmstadt, Germany, in April 1884. The German military commonly used it, and around the same time, a pinch of cocaine was being added to Coca-Cola marketed as a health tonic in the U.S. Freud’s love-hate relationship with the drug evolved over time as colleagues began to become addicted. “I need a lot of cocaine,” Freud admitted in a letter to Wilhelm Fleiss in 1895.

2 ↘

BRAIN MAPPING

John C. Lilly had an intimate relationship with psychedelics as a devotee of Aldous Huxley since 1934 and later formed relationships with Timothy Leary, Allen Ginsberg, and Ram Dass. Lilly said that, inspired by psychedelics, he dropped his major in physics and eventually settled into neuropsychology. By the 1950s, he was experimenting with isolation tanks. In 1951, he discovered he could map brain activity using cathodes inserted into the brain. His discoveries in electrical stimulation led to modern neuroprosthetics. His interest in the brain and consciousness led to numerous trips on LSD, mushrooms, and ketamine. Amid his experiments, he also gave LSD to dolphins.

3 ↘

DISCOVERY OF DNA STRUCTURE

Nobel Prize-winning molecular biologist Francis Crick said LSD helped him unlock the mysteries of the DNA strand. He discovered

the twisted ladder, double helix structure of the DNA strand in 1953—running to tell friends at a pub. Years later, he said LSD helped him understand DNA much better. Also a devotee of Aldous Huxley, he regularly experimented with acid and likely obtained it from the Cavendish Laboratory in Cambridge, where he worked. Regarding other drug-related inspirations, Crick added his name to a public letter published in 1967 in London’s *The Times* demanding to legalize cannabis.

4 ↘

VENUS PREDICTIONS

Carl Sagan said cannabis helped him think outside of the box. He’s listed numerous epiphanies on pot, including one instance in the shower high with his wife when he suddenly had an idea on “the origins and invalidities of racism in terms of Gaussian distribution curves.” Sagan correctly predicted Venus’s surface temps before NASA confirmed it in 1962, and his longshot theory of alien life on Venus gained new steam in recent years. Under the pseudonym “Mr. X,” Sagan wrote about the virtues, not dangers, of pot in an essay published in 1971, *Reconsidering Marijuana*. In 2017 and 2019, astronomers detected phosphine in the inhospitable Venusian atmosphere, making it one of the best candidates in the solar system for microbial life.

5 ↘

PERSONAL COMPUTING

Tech genius Steve Jobs said LSD was “one of the two or three most important things I have done in my life.” Between 1972 and 1974—highly critical years in the development of modern computing—Jobs said he dropped acid 10-15 times, specifically when brainstorming how to build computers. While Jobs said he stopped dropping acid in 1977, he seemed to never stop talking about his “profound” experiences in candid interviews. Shortly after his death, it was revealed that after being questioned about drugs and gaining clearance with the U.S. Department of Defense, Jobs wrote to the Pentagon, explaining how LSD was a profound experience that should be tolerated.

It's a roach clip

YOU KNOW WHAT TO DO



H A R P



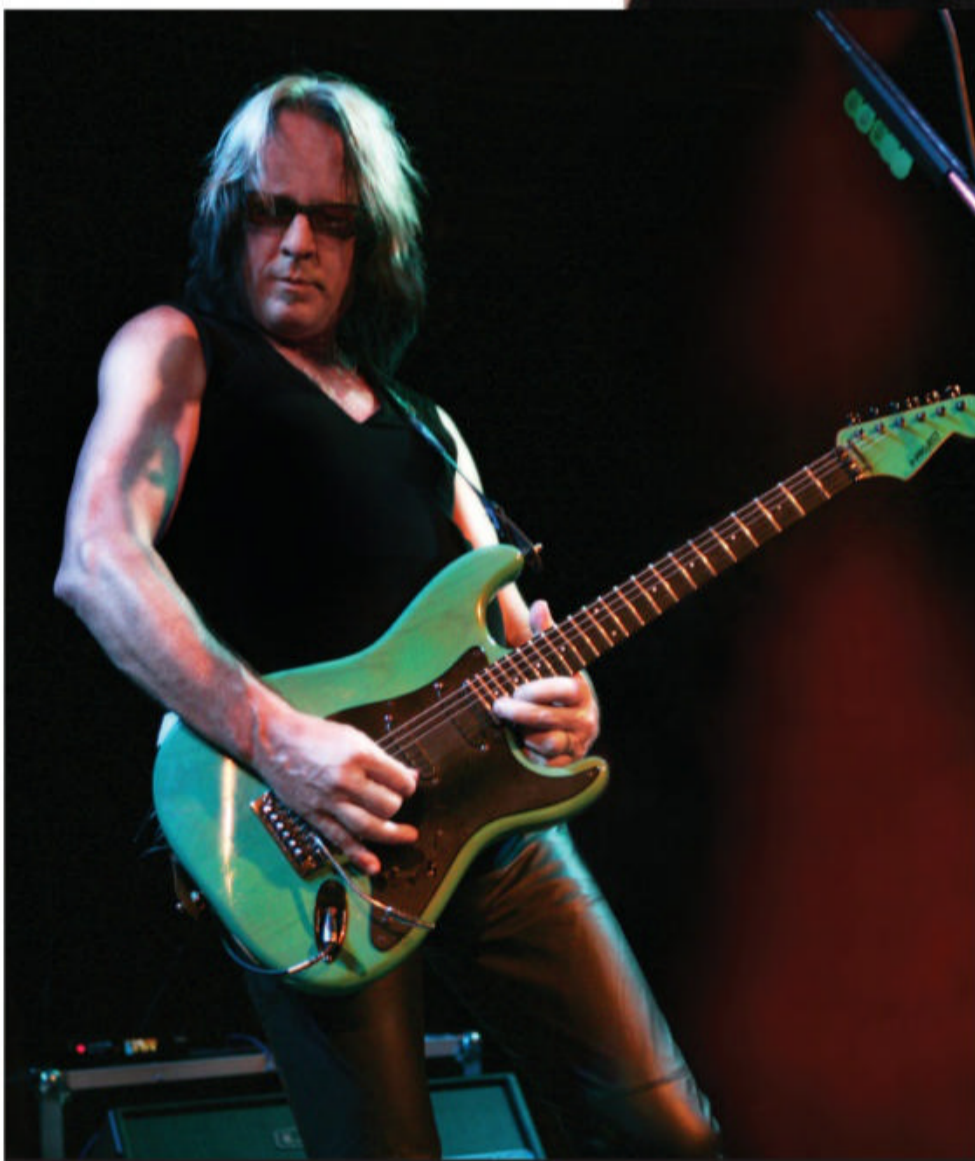
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"I REALLY ENJOY MARIJUANA."

A MAN OF THE PEOPLE

Actor Justin Long spoke with *Metro* about why he likes scary movies, his youthful appearance at age 40, and weed. "I really enjoy marijuana. It's legal where I am in the U.S. It's something I probably indulge in a little too much. Which is probably why I'm struggling with some of these questions! We could've cut this interview in half if I'd laid off the weed," Long said. "But I don't even want that one called a vice because I don't consider it all that taboo or shameful." He did note that cannabis could be considered a vice to other people though, but for him, cannabis is a "gateway" to junk food. "It's a gateway for me to eating things that I shouldn't—sugar and crap," Long said. He followed up in sharing that his girlfriend, actress Kate Bosworth, had recently made cookies that he just couldn't resist. "Kate made oatmeal cookies the other day and I actually got upset because if I know they're around and I'm stoned I have no willpower when it comes to things like a cookie or a cupcake."



HELLO, IT'S ME

Todd Rundgren, a musician with a multi-decade career who was added to the Rock & Roll Hall of Fame in 2021, recently launched his own line of cannabis called Hello, It's Weed (inspired by his hit song *Hello, It's Me*) in November 2022. The launch included two exclusive strains, Michigan Cookies and Soi Mintz, in partnership with the Michigan-based cannabis business, Cheef. Rundgren spoke with *The Oakland Press* about the new endeavor, and his previous experiences with cannabis. "I've long been, I guess, an advocate for some time. I don't necessarily say, 'Hey, everybody drop everything and go out and smoke some pot!'" Rundgren said. "But I've never been coy about the fact that I've used mind-altering substances for various purposes—often creative purposes." He said he has been consuming cannabis since his 20s, and often used it to boost his creativity. "It caused me to adapt my songwriting to my newly enhanced view of things," Rundgren said.



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NORTHERN DECLINE

Statistics Canada's cannabis sales data reported on Nov. 22, 2022 shows that adult-use cannabis sales only slightly increased between August 2022 (\$389,850 Canadian dollars) and September 2022 (\$389,869 Canadian dollars), showing a 12.2% increase in sales since September 2021. The provinces of Ontario (\$155,542), Alberta (\$68,646), and British Columbia (\$59,424) were the only regions that saw an increase in sales for September, while the other provinces saw declines in sales varying from -0.2% in Manitoba to -15.3% in Prince Edward Island. CTV News also reported in November that Canadians who have invested in cannabis businesses have lost more than \$131 billion. The data came from law firm Miller Thompson, which tallied the monetary losses between 183 licensed and publicly traded cannabis companies, and stated that each investor has lost an average of \$43,000. According to Miller Thompson lawyer Larry Ellis, the growth of the black market continues to affect the country's legal business owners. "It's an industry that has been created by the Canadian government and frankly set up to fail," Ellis told CTV News.

A DECADE OF DANK

Colorado voters approved cannabis legalization through Amendment 64 in November 2012, and adult-use sales started in January 2014. Over the past 10 years, the Colorado Department of Revenue reported that the state has sold more than \$13.4 billion in cannabis sales and collected \$2.2 billion in cannabis taxes. Amendment 64 co-director Brian Vicente, who is also a founding partner of the cannabis law firm Vicente Sederberg LLP told Denver NBC News that legalization in Colorado is "an unqualified success." Vicente Sederberg LLP also wrote a press release on Nov. 7, 2022 about the monumental achievement, explaining how the state's cannabis tax funds have been used to benefit people who live in Colorado. "More than \$400 million in state cannabis tax revenue has been allocated to a fund that supports public school construction projects, and more than \$226 million has been allocated to the state public school fund and programs aimed at early literacy, dropout prevention, bullying prevention, and hiring in-school health professionals," the law firm stated. "State tax revenue has also funded marijuana and hemp regulation, law enforcement, cannabis research, impaired driving prevention, 4-H and FFA programming, affordable housing grants and loans, and substance abuse prevention and treatment programs." Cannabis sales in the year 2014 totaled to only \$683,523,739, and tax revenue collected was recorded at \$67,594,323.



MARIJUANA MERCY

The Court of Justice of the European Union ruled on Nov. 22, 2022, that one Russian citizen seeking asylum in the Netherlands (whose application for asylum was denied in 2020) cannot be deported because he relies on the country's access to medical cannabis. According to the ruling, the individual (referred to in court documents as "X") uses medical cannabis as a treatment for a rare form of blood cancer they were diagnosed with at age 16. The court noted that the European Union prohibits the deportation of both citizens and non-citizens suffering from serious illnesses, especially if they would be deported to a country that does not offer the same type of treatment, or if it would "expose him or her to pain of such intensity that it would be contrary to human dignity in that it could cause him or her serious and irreversible psychological consequences, or even lead him or her to commit suicide." Cannabis consumption is illegal in Russia and consequences for possession and consumption are harsh.

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SEE YOU ON THE ICE

The Chicago Wolves, an Illinois-based American Hockey League team, recently partnered with Verilife (owned by PharmaCann) to allow cannabis ads during the team's games. According to a press release, the company will "have a significant presence" at the Allstate Arena in Chicago where the Wolves frequently compete, marking the agreement as one of the first to be made between a cannabis company and a Chicago-based sports team. The brand's logo and advertisements will be seen on the arena's jumbotron, scoreboard, digital banners, dashboards, LED screens, and TVs, which will also include on-air announcements about one Verilife dispensary located within walking distance of the arena—although the word "cannabis" will be omitted due to the presence of children and families. "The Chicago Wolves are a dynamic team in a city that really loves hockey," said PharmaCann Chief Marketing Officer Erika Salgado Guerra. "The close proximity of our Verilife Rosemont location to the games makes this sponsorship a natural fit. We have so many customers who follow the team, and we cannot wait to introduce Verilife to the rest of the team's fans. We're looking forward to being a part of each exhilarating game."

CANNABIS IN KENTUCKY

Kentucky Gov. Andy Beshear announced on Nov. 15, 2022 that he had officially signed two cannabis-related executive orders. The orders went into effect as of Jan. 1, 2023, and allow residents who are suffering from specific medical conditions (including "cancer, multiple sclerosis, post-traumatic stress disorder, muscular dystrophy or a terminal illness" and many more) to possess and consume small amounts of cannabis. "Kentuckians suffering from chronic and terminal conditions are going to be able to get the treatment they need without living in fear of a misdemeanor," said Beshear in a press statement. "With 37 states already legalizing medical cannabis and 90% of Kentucky adults supporting it, I am doing what I can to provide access and relief to those who meet certain conditions and need it to better enjoy their life, without pain." Beshear announced that Kentucky will also regulate the sale of delta-8 products. "Right now, there are no checks on how it is packaged and sold. We must establish a regulatory structure to ensure that delta-8 is sold and purchased safely in the commonwealth," he added in his statement. Beshear formed the Team Kentucky Medical Cannabis Advisory Committee in June 2022 to travel across the state and speak with citizens about cannabis legislation that didn't pass earlier that year. A summary of the committee's findings, published in September 2022, showed that citizens want the state to take action in regard to medical cannabis.



HEALING FUNGI

A study published in *The New England Journal of Medicine* on Nov. 3, 2022 found evidence that psilocybin could help target "treatment-resistant depression," which is defined when a patient's depression has not responded to at least two different types of medication. The phase 2 double-blind trial (which was funded by a mental healthcare company called COMPASS Pathfinder) randomly assigned patients with psilocybin doses at 1 mg, 10 mg, or 25 mg over a 12-week period—the largest dose of which was found to have most significantly reduced depression symptoms. COMPASS Pathfinder Chief Medical Officer Dr. Guy Goodwin explained in a statement why this trial is so monumental. "The publication of our COMP360 psilocybin therapy study in the most prestigious peer-reviewed medical journal in the world is a proud moment for everyone involved," said Goodwin. "We saw positive results in a particularly difficult to treat group of patients, and the highest dose of COMP360 psilocybin had the greatest impact on people's depression. This suggests that COMP360 psilocybin has a true pharmacological effect, a finding that is critical for it to be recognized as a new treatment option in the future."

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WAKE ME UP

telltheoriginstory.com

For many in the wake and bake nation, coffee and cannabis are a perfect combination to get the day started. Landrace Origins is a California-based company that's highlighting the paired rituals of coffee and cannabis consumption. Starting with offering coffee selections, Landrace plans to offer its coffees with types of landrace cannabis, or cannabis cultivars that are native to specific regions. For now, the company is focused on coffee selections such as beans sourced from South Kivu in the African Democratic Republic of Congo. The suggested pairing for this Congolese blend, which has notes of black tea, grape, and stone fruit, are the African landraces Red Congolese and Durban Poison. The company's mission is all about "championing the stories of inclusive supply chains from the origin of heirloom."

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BRAIN TEASER

talkingterps.com

Piece by piece, this colorful puzzle provides many hours of psychedelic fun. Featuring the mind-bending artwork of Talking Terps, illustrated by Sunflower Form aka Daniel Herwitt, the Brain Organizer 2.0 Puzzle is the perfect activity to do when you're beyond baked and exploring the inner workings of your mind. The art features the character Terp Crawford relaxing and holding a joint, along with towering shrooms and flowers with faces. Once you put together the 500 jigsaw pieces, it forms a 20-inch circle, and would look sleek when framed as art. Find more Talking Terps art like this one on various cannabis mylar packaging, the cover of the *High Times* September 2021 Art Issue, or the ultra-rare collectible holographic edition of the same issue.

\$55



TOOLS TO COMBAT THE OPIOID EPIDEMIC

Narcan and drug testing technology prevents overdoses.

THE FENTANYL EPIDEMIC CONTINUES TO WORSEN. THE TOXIC PAINKILLER THAT caused fewer than one thousand U.S. overdose deaths in 2001 ended up killing over 56,000 in 2020. Some of those who lost their lives didn't even know they were using fentanyl, a synthetic opioid that is stronger than heroin or morphine. An above-ground drug market with tested, pure products might help. So would a handy intervention for suspected overdose. Rational people would probably treasure any technology that could test purity and prevent lethal reactions. These tools could certainly save lives, but welcome to the U.S., where "rational" and "drug policy" rarely appear in the same sentence.

Many might wonder how this predicament grew so dire. The steps to the fentanyl epidemic seem predictable in hindsight. Take an addictive, inexpensive, potentially lethal product and restrict it primarily to an underground market with little quality control.



Then let capitalism run its course. Throw in sanctions against harm reduction technologies, and the bodies are bound to pile up. Depending upon people's dopamine receptors, some folks find fentanyl to be a nauseating, sedating bummer, while others find it irresistible. Most other toxic white powders, including cocaine and heroin, require that farmers harvest plants before processing. However, a crew with access to a bunch of chemicals in a lab can churn out fentanyl without waiting for crops to grow.

So, fentanyl is cheap. Pressing the powder and other adulterants into pills makes for a less expensive substitute for other drugs. The white color means that tossing fentanyl in with cocaine, MDMA, and heroin can cut a dealer's overhead, but still provide an altered state. The usual racist xenophobia applies, too. Media often emphasize that production of fentanyl (or bogus pills) is biggest in Mexico and China. These stories echo the tales that we heard about cannabis, but fentanyl is lethal. A 3 mg dose, roughly the weight of a mosquito, could kill most people.

Two useful tech tools could come to the rescue: naloxone and fentanyl test strips. Naloxone blocks opiates quickly, potentially keeping an overdose from becoming lethal. A few sprays up the nose of an overdosing person can literally mean the difference between life and death. Fentanyl test strips could detect the drug before anyone ingests it. A Canadian company developed the strips for testing urine samples. Fortunately, they also work on a crushed pill, line of cocaine, or sample of heroin or MDMA dissolved in water. The strips read much like a pregnancy test and research reveals that those who have them end up taking better care of themselves, too.

However, many U.S. citizens, especially lawmakers, balk at harm reduction strategies. They think that those who use drugs are "supposed to" quit cold turkey. Any tech that helps prevent negative consequences is "enabling" drug use. This "abstinence-only" strategy is inhumane. After a ton of effort, laws in most states now protect most people who might administer naloxone, so they won't be subject to criminal or civil liability.

Activists have had less success with the test strips. Even though plenty of people report that they would gladly use these strips to detect fentanyl and avoid it, more than half of U.S. states categorize them as "paraphernalia." And the punishments for paraphernalia can be harsh. To add an extra layer of irony, some states place fentanyl test strips in the category of paraphernalia, but then allow prevention programs to distribute them. And people wonder why those who use drugs feel confused. Improved cannabis laws have certainly raised the level of discourse about other substances, but the road ahead is long. In the meantime, let's spread the word about these life-saving technologies. **HT**



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