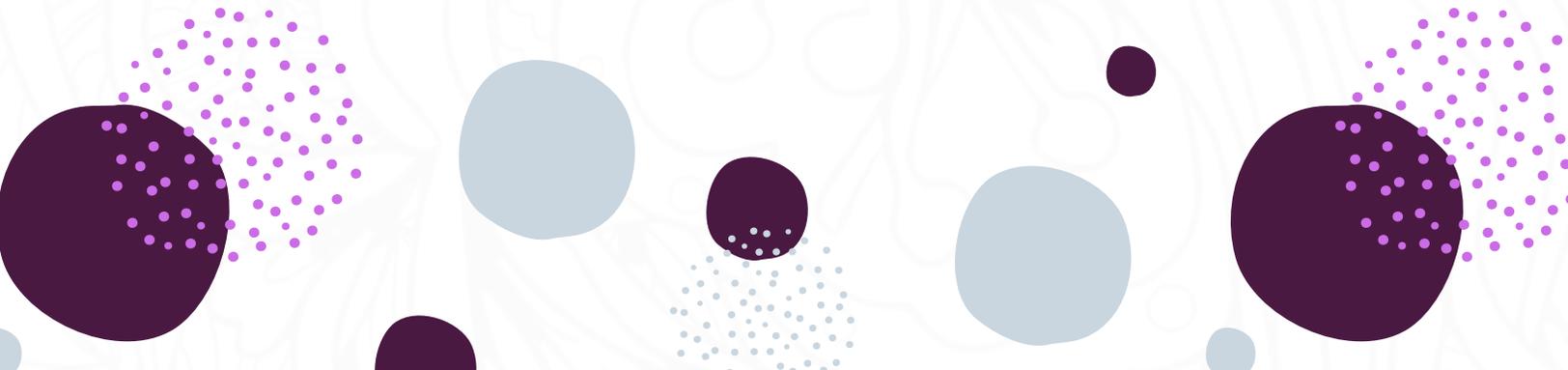




# verdecann



Photo Credit: House Brand via Natural Cannabis Company



# CONTENTS

04

## WASHINGTON REGULATORS SEEK CANNABIS INDUSTRY'S INPUT ON TESTING REGULATIONS

The collaborative approach to rule making is a signal of broader changes at the state's regulatory board.

07

## IS COLOMBIA POISED TO BE THE SEED BANK FOR THE WORLD?

As cannabis legalization spreads globally, the need for the well-established grey market genetics companies to go legal is crucial.

09

## LEGALIZATION IN CANADA SPARKS RALLY IN MARIJUANA STOCKS

Big beverage makers also jump into the fray, hoping to capitalize on growth.

11

## MEET THE BLISS MOLECULE ANANDAMIDE, A CANNABINOID YOUR BODY PRODUCES

Why do our bodies contain cannabinoid receptors that are capable of binding with external or cannabinoids such as THC or CBD?

15

## CANNABIS NURSES: AN EMERGING SPECIALIZATION AND VITAL RESOURCE FOR SENIORS

Nurses who specialize in cannabis medicine are increasingly stepping in to help seniors navigate that path.

15

## CANNABIS NURSES: AN EMERGING SPECIALIZATION AND VITAL RESOURCE FOR SENIORS

Nurses who specialize in cannabis medicine are increasingly stepping in to help seniors navigate that path.

17

## STUDY: MARIJUANA MOTIVATES PEOPLE TO EXERCISE, SMASHING LAZY STONER STEREOTYPE

18

## STUDY: CANNABIS MAY BE EFFECTIVE FOR RHEUMATOID ARTHRITIS, AND WHY IT MAY NOT MATTER

20

## STUDY: REGULAR CANNABIS USERS NEED MORE SEDATION FOR MEDICAL PROCEDURES

22

## PUT DOWN THE POT BROWNIES: A NEW CROP OF CANNABIS BOOKS IS BLAZING A PATH TO MORE REFINED COOKING

For the cultured cannabis user, the pot brownie has become passe. What has taken its place is something altogether more exciting, albeit complicated. In the new era of cannabis cookbooks, putting weed in your food can be an art, a science and a craft.

Sunita Arnold  
Editor & Publisher  
Chief Marketing Officer  
PCM Global S.A.S.  
sarnold@verdecann.com

Inquires, Questions & Comments  
Please email [info@verdecann.com](mailto:info@verdecann.com)

MARCH | APRIL 2019

# Quick Hits

cannabis news around the world

## news

## business

## culture

### New Report Offers First-Ever Overview Of Global Total Cannabis Market

The worldwide demand is massive, and understanding its vagaries and scale is critical to developing appropriate regulations which reflect the reality of this large prevailing consumer market.

[READ MORE](#)

### Why isn't Big Pharma more active in cannabis?

Megan Henderson, executive producer of The GrowthOp, moderated a panel of experts Wednesday at the Benzinga Capital Cannabis Conference in Toronto to explore big pharma's role in cannabis

[READ MORE](#)

### 9 industries being disrupted by cannabis and CBD

If you haven't noticed, even in states where recreational marijuana hasn't been legalized yet, cannabis and CBD are everywhere.

[READ MORE](#)

### Europe \$807.9 Mn Cannabis Testing Market to 2025: Market is Estimated to Grow with a CAGR of 10.8%

The growth of the cannabis testing market is primarily attributed to the European government is funding cannabis education for doctors, and increasing demand for research activities for cannabis quality.

[READ MORE](#)

### Cannabis Companies Are Thinking Ahead and Tackling Big Social Issues

The legal cannabis industry is learning from the past to make a better future.

[READ MORE](#)

### Generation Z Americans will be the ultimate cannabis consumers

That could eventually be a threat to alcohol sales.

[READ MORE](#)

### After Recent Setbacks, Will New York and New Jersey Legalize Pot?

The Northeast states both hit roadblocks passing recreational legalization bills this spring — but advocates vow they're not giving up

[READ MORE](#)

### Germany to launch cannabis farming as Canada's Aurora, Aphria win tenders

Germany has awarded contracts to supply domestically-grown cannabis to two Canadian companies, as it seeks to develop its own medicinal marijuana industry and reduce reliance on imports.

[READ MORE](#)

### The Highs And Lows Of LA Cannabis Cuisine

With California laws changing the way we buy, smoke and ingest marijuana, cannabis-laced foods are more elevated than ever.

[READ MORE](#)

### In a first, L.A. sues unlicensed cannabis dispensary, seeking millions

The city of Los Angeles is seeking millions in civil penalties from an unlicensed South L.A. cannabis dispensary accused of selling marijuana contaminated with pesticides.

[READ MORE](#)

### Federally produced marijuana is closer to hemp than commercial cannabis, study shows

Research-grade marijuana that's supplied by the only federally authorized cultivation site in the United States is genetically closer to hemp than cannabis varieties sold.

[READ MORE](#)

### Earth Day Begg The Question: Is Cannabis Farming Sustainable?

The lack of sustainability, vast amounts of water and electricity necessary for cultivation is the elephant in the room of any smoke session.

[READ MORE](#)

# WASHINGTON REGULATORS SEEK CANNABIS INDUSTRY'S INPUT ON TESTING REGULATIONS

The collaborative approach to rulemaking is a signal of broader changes at the state's regulatory board.

REPOST: MELISSA SCHILLER / CANNABIS BUSINESS TIMES / APRIL 18, 2018

The Washington State Liquor and Cannabis Board (WSLCB) has appointed a new rules coordinator who has a new approach to rulemaking. Her first order of business: considering new testing regulations for the state's cannabis products.

Katherine Hoffman, the WSLCB's new cannabis rules coordinator, brings a collaborative approach to the agency's rulemaking process, allowing industry stakeholders to provide comment on proposed changes. She transitioned from the Washington Department of Health in October.

"There was a contrast in the way that LCB had previously engaged in rulemaking and it was a little faster paced, I think," Hoffman told Cannabis Business Times.

"The approach that I brought to LCB was to slow down that process a little bit and do a little more work ... on the front end, exploring all of the different positions that our stakeholders bring to a particular rulemaking project."

So far, it seems this approach is well-received by the industry. "What's neat about Kat is she has her master's in public administration, so she approaches rulemaking in a very different way than our prior rule coordinator, who came from a legal training background," said Crystal Oliver, co-owner and founder of Washington's Finest Cannabis, an outdoor cannabis farm in Eastern Washington, and executive director of the Washington Sun growers Industry Association (WSIA).

"Part of what Kat's been doing with her approach to rulemaking is she really wants it to be a collaborative and transparent process, and so this is the first time that they're doing the rulemaking in this fashion, where she has released draft conceptual rules for the industry to weigh in on." (Oliver is a member of Cannabis Business Times' editorial advisory board.)



PHOTO: © MITCH | ADOBE STOCK

continued on page 5

**“I got applause when I closed the meeting. That’s not the typical response we get when we close a meeting.”**

-Katherine Hoffman, Cannabis Rules Coordinator, WSLCB

The Cannabis Alliance, a nonprofit advocacy group, has made pesticide and heavy metal testing of all the state’s cannabis, not just medical product regulated by the Department of Health, one of their legislative and regulatory priorities, Oliver said.

The rules, known as the Quality Assurance Testing and Product Requirements, will include possible changes to lot and batch sizes for testing; fields of testing and pass/fail level adjustments; potency testing requirements; pesticide testing requirements for all cannabis products; heavy metal testing requirements; sample deduction requirements; general testing rule adjustments; product and THC serving limits; and packaging requirements.

The WSLCB held a Listen and Learn Forum April 9 to get input from cannabis licensees, testing labs and others on the proposed rule change, and it is also accepting written comments.

“I got applause when I closed the meeting,” Hoffman said. “That’s not the typical response we get when we close a meeting. So, if that speaks to how the industry receives us, then it was very well-received.”

The WSLCB held a Listen and Learn Forum April 9 to get input from cannabis licensees, testing labs and others on the proposed rule change, and it is also accepting written comments.

“I got applause when I closed the meeting,” Hoffman said. “That’s not the typical response we get when we close a meeting. So, if that speaks to how the industry receives us, then it was very well-received.”

“I drove five hours each way to attend the QA Listen and Learn session in Olympia last week, and I was really glad I made the drive,” Oliver said.

“I was one of very few people there testifying there on behalf of farmers with my role as executive director of the Washington Sun growers Association.

The vast majority of folks in the room were representatives of various testing labs in Washington. The majority of those folks testified in opposition to the increase in lot size.”

One of the more interesting comments at the session, Oliver added, was on transitioning the regulatory language away from referring to THC and CBD potency, and instead calling it cannabinoid concentration, which is more scientifically accurate, she said.

“Part of what Kat’s been doing with her approach to rule making is she really wants it to be a collaborative and transparent process, and so this is the first time that they’re doing the rule making in this fashion, where she has released draft conceptual rules for the industry to weigh in on.” (Oliver is a member of Cannabis Business Times’ editorial advisory board.)

In the next phase of the rulemaking process, WSLCB staff will draft proposed changes based on public input and present them to the board for consideration. Hoffman might also consider establishing a work group, made up of labs and farms, to help fine-tune the details of the rules.

[continued on page 6](#)

“The next step would be to look at this comment matrix and decide where we’re going to take this next,” Hoffman said.

“Are we going to incorporate these comments? Which comments are going to be incorporated into a potential rule proposal? That will really drive where we go next with this. Do we need to do more listen and learn sessions? Do we need to establish some sort of group that is looking at how this is going to impact labs in terms of the heavy metal and pesticide testing?”

Because this rule change will have a significant impact on the industry, Hoffman is drafting a Small Business Economic Impact Statement, which is required by Washington law, to quantify the affect the new regulations might have on licenses cannabis businesses.

She is also required to create a Significant Analysis, which analyzes rules that include any type of cost on the industry.

“That could be an administrative cost where you have to fill out an extra form, or it’s going to require a business or other regulated entity to engage in some other sort of activity that might somehow change their workflow,” Hoffman said.

“So, what the analysis really does is look at what the existing rule does, what the new rule is proposing, and how that will impact a regulated community. ... That works in tandem with the Small Business Economic Impact Statement.”

Both statements become part of a CR-102 package, which is the next step in the rulemaking process.

“Come the CR-102, the draft that’s been issued should be pretty well-vetted and there should be minimal pushback from the industry,” Oliver said.

The final version of the rules—and the impact they will have on the state’s licensed cannabis businesses—remain to be seen.

“As far as the short term and the long term, it’s really going to depend on what the final rules look like,” Oliver said. “I know at the Washington Sungrowers Association, we’re going to continue to engage in the conversation and advocate for no increase in operating costs for our farmer members.” 🌱



# Is Colombia Poised to be the Seed Bank for the World?

Will Colombia be a global provider of cannabis seeds?

REPOST: LISA CAMPBELL / HIGH TIMES / APRIL 10, 2019

As cannabis legalization spreads globally, the need for the well-established grey market genetics companies to go legal is crucial. Original landrace strains have been crossbred to create thousands of strains, yet many legal markets are often limited to sourcing genetics from Canada, Israel, Spain, or Bulgaria. In the United States, the grey market for seeds has exploded, with some of the hottest genetics coming out of legal recreational states including California, Colorado, Oregon, Alaska, and Washington.

After collecting and crossbreeding genetics around the world, many of these grey market seed banks have transitioned into legalization. In other words, they've been eaten up by the world's largest legal cannabis companies looking to attract talented breeders. Canopy Growth Corporation alone has acquired Green House Seeds, DNA Genetics, and now Canada's international gem, House of the Great Gardner.

Legalizing genetics from the grey market is now possible in countries like Canada, Jamaica, and Colombia. Yet unlike Canada and Jamaica, Colombia is the only country in the world to provide phytosanitary certificates for cannabis seeds.

"This certification acts as the passport for seed export to other countries," explains Javier García, Technical Director of Global Agronomical Procedures for Colombian licensed producer Pideka SAS.

"All companies wishing to produce medical cannabis must be approved by three ministries: Justice, Agriculture and Health. Each of them gives its own approval to initiate cannabis production. The Ministry of Agriculture, through the National Plant Protection Organization (NPPO), requires cannabis companies to demonstrate their know-how and test their genetics through biological experimentation and technical information, before they are allowed to produce commercially their cannabis crops.

*continued on page 08*

Once they comply with these requirements, cannabis companies can mass produce and commercialize their seeds to the local market and they are able to apply for the phytosanitary certification, as the legal document accepted for trading negotiations among countries.”

Colombia has 126 companies licensed for cannabis production. Only 16 companies were selected to produce seeds, allowing them to register 10 batches of genetics at a time.

The phytosanitary test requires them to grow a test batch and measure its characteristics before coming to market in order to register the genetic. Many famous Colombian landrace strains will be included from Punto Rojo to Mango Viche.

The seed companies of the world are watching. And they’re jumping at the opportunity to register large seed banks in this new legal market that will be available for the world.

As new countries legalize cannabis, they will need to source their genetics from the legal market. The challenge for many of the existing producers is to produce seeds for global export. To do this, they first need to do a test in every single province as most companies grow outdoor.

Pideka SAS is the one exception to the rule and is working with NPPO to develop a test for indoor growth which will accelerate approval and, as such, increase genetic diversity.

Unbeknownst to most cannabis companies, Colombia’s standards for agriculture are some of the highest in the world. All seeds exported from Colombia must have the phytosanitary certificate, making them a preferred seed provider globally from everything from vegetables to flowers.

“Pideka is the first indoor licensed producer in Colombia cultivating and processing cannabis at the same standards as Canada. Colombia will be the genetic seed bank for the world, as we have the highest quality standards for seeds globally with phytosanitary certificates,” said Pideka SAS Global Director of Operations, Borja Sanz de Madrid.

Pideka is located in an industrial park just north of Bogota with adjacent warehouses filling up rapidly to meet the global demand. Each facility will be built to EU-GMP and GPP standards to satisfy both the Canadian and European markets. One warehouse can produce 3 million seeds every quarter, providing some of the best margins in the industry for investors.

For decades, the seed industry has been one of the most lucrative markets, yet the legal risk meant some of the top distributors in the industry have faced heavy penalties. Now with legalization occurring globally, this is a chance for genetics to cross over into the light. 🌱

# LEGALIZATION IN CANADA SPARKS RALLY IN MARIJUANA STOCKS

Big beverage makers also jump into the fray, hoping to capitalize on growth

REPOST: JESSICA MENTON / WALL STREET JOURNAL / APRIL 5, 2019

Shares of marijuana companies have been on a tear this year, a sign that the cannabis craze isn't letting up.

The ETFMG Alternative Harvest exchange-traded fund, which invests in some of the most notable medicinal-marijuana firms and holds stocks such as cannabis producers Cronos Group Inc. CRON -1.07% and Canopy Growth Corp. CGC 3.99% and Aurora Cannabis Inc., ACB 0.45% has soared 46% in 2019.

Pot stocks have been on a wild ride since Canada legalized marijuana for recreational use in October. Strong revenue growth since then and the potential for easing limits on banks' ability to work with marijuana firms helped push shares higher in 2019, with Aurora and Canopy surging 81% and 58%, respectively.

Many highflying shares of smaller marijuana companies—which are often volatile—have sold off recently, while bigger medical producers have continued to power higher.

Marijuana companies have also attracted the attention of several beverage giants, such as Constellation Brands Inc. and Anheuser-Busch InBev SA and Molson Coors Brewing Co., that have made forays into the sector through investments or partnerships as they look to hedge against cannabis potentially disrupting the beer industry.

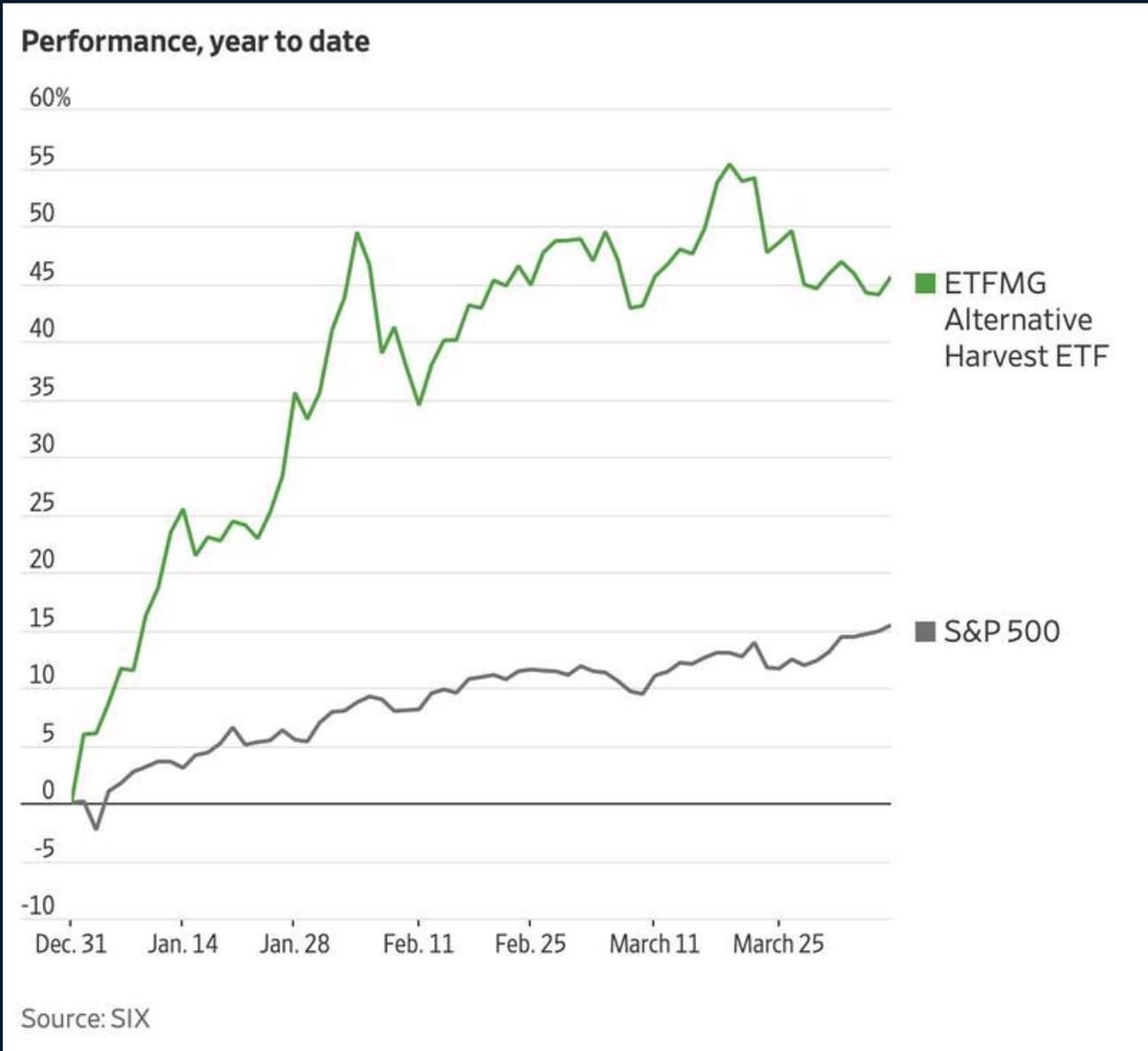
The concern among brewing executives: Legalized marijuana could hurt beer sales as cannabis-infused beverages are set to become legal in Canada in the fall.

“The food-and-beverage world isn't sitting back and letting these guys steal their market,” said Art Hogan, chief market strategist at National Securities. “Here comes an industry that could disrupt theirs to a certain extent. If that is the case, why not have a stake in the early incumbents and participate in the growth?”

Constellation made a big wager on cannabis-infused drinks in August, investing roughly \$4 billion in Canadian marijuana grower Canopy Growth, the world's largest publicly traded cannabis firm by market capitalization. The deal helped send shares of Canopy up 30% on Aug. 15 after the announcement. Pot stocks, though, are still a speculative bet.

Although cannabis remains illegal at the federal level in the U.S., it has been legalized for medical use in 33 states and for recreational use in 10. Over the long term, global annual sales for legal cannabis products are estimated to be from \$250 billion to \$500 billion, with a near-term market of \$15 billion to \$50 billion a year, according to Piper Jaffray. The firm expects outside investment from alcohol and beverage companies to continue.

continued on page 10



“The cannabis space has attracted a lot of interest from investment advisers,” said Kip Meadows, founder and chief executive at Nottingham Management Co. “But we’re still treading new territory and the precedent hasn’t been established yet.”

The alternative-harvest ETF, which made its debut in December 2017, tumbled 38% in the volatile fourth quarter, a sharp reversal after jumping 36% in the prior three-month period. The fund was previously called theTierra XP Latin America Real Estate ETF and tracked real-estate companies when it launched in 2015. Speculative plays tend to perform well when broader markets are soaring, and major U.S. indexes sit near all-time highs amid the perception that the Federal Reserve is turning more dovish on interest rates and thawing U.S.-China trade tensions. 🌱

# meet the 'bliss molecule' anandamide



AKINDO/STOCK

## A Cannabinoid Your Body Produces

REPOST: PATRICK BENNETT / LEAFLY / APRIL 17, 2019

The endocannabinoid system (ECS) is a complex network of receptors, molecules, and enzymes that work together to help maintain cellular balance, or homeostasis, within our bodies. This balance allows cells, organs, and systems to function optimally. Humans and vertebrates all have an endocannabinoid system, and it has evolved within us over time.

continued on page 12

The discovery of the endocannabinoid system in our bodies came out of an attempt by scientists to understand the effects of cannabis on the human body. Through research, it was discovered that cannabinoids exist outside of our bodies (exogenously), like THC and CBD, which are found in cannabis, and that our bodies actually produce cannabinoids of their own (endogenously).

Endogenous cannabinoids act as keys to a network of receptors within us and have the potential to unlock some impressive properties. They help our bodies regulate a number of functions ranging from appetite, sleep, mood regulation, neuro-protection, and immune function.

One of these endogenous cannabinoids is anandamide (pronounced “a-NAN-da-mide”), which is an important pillar of our endocannabinoid system. In our bodies, it behaves similarly to the cannabinoids from cannabis, fueling our endocannabinoid system so it can perform its crucial function of maintaining homeostasis.

## What Is Anandamide?

The word “anandamide” originates from the sanskrit “ananda,” which roughly translates to “bliss” or “joy,” an indication of the cannabinoid’s properties as a mood enhancer. Also called N-arachidonylethanolamine (AEA), anandamide interacts with the body’s CB receptors similarly to cannabinoids like THC.

It’s a neurotransmitter and cannabinoid-receptor binding agent that functions as a signal messenger for CB receptors located in the body.

Esteemed chemist Dr. Raphael Mechoulam, known for his groundbreaking pharmacological research on cannabinoids (including the discovery of delta-9-THC in the 1960s), first discovered anandamide when attempting to answer the question: Why do our bodies contain cannabinoid receptors that are capable of binding with external or cannabinoids such as THC or CBD?

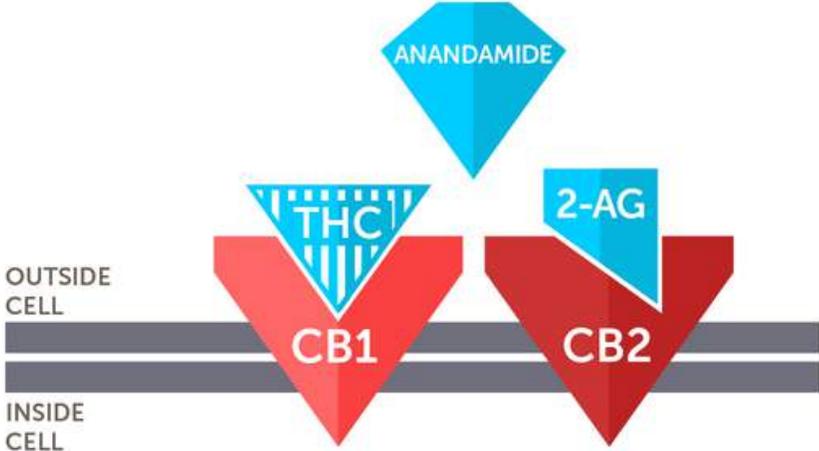
Our bodies create anandamide on-demand, to be used when needed to maintain homeostasis. Anandamide does this by helping to regulate inflammation and neuron signaling. As it is created, it binds primarily with our cannabinoid receptors CB1 and CB2 just as a cannabinoids such as THC would upon ingestion. Anandamide’s molecular fragility lends itself to be broken down quite easily. It doesn’t stick around in the body for long.

continued on page 13

### CANNABINOIDS

 ENDOCANNABINOIDS	 PLANT CANNABINOID
<p><b>ANANDAMIDE</b></p> <chem>CCCCCCCCC/C=C\C/C=C\C/C=C\CCCCCCCCC(=O)NCCO</chem>	<p><b>THC</b></p> <chem>CCCCC1=CC=C2C(=C1)OC(C(C)C)C2=O</chem>
<p><b>2-AG</b></p> <chem>CCCCCCCCC/C=C\C/C=C\C/C=C\CCCCCCCCC(=O)OC(O)CO</chem>	

CANNABINOIDS BIND TO CANNABINOID RECEPTORS





(AMY PHUNG/LEAFLY)

## Why Is Anandamide Important?

Anandamide’s ability to bind to CB1 and CB2 receptors can profoundly impact a host of physiological mechanisms, including appetite stimulation, mood fluctuation, pain management, and even fertility.

Activation and binding of anandamide to our cannabinoid receptors results from our body’s constant pursuit to achieve and maintain homeostasis. When our cells, organs, and systems begin to shift away from their balance points, our endocannabinoid system kicks in.

continued on page 14

Our bodies shift to balance themselves into the “Goldilocks Zone” (or homeostasis), where the conditions of our systems need to be just right in order to maintain optimal cellular performance.

One way that anandamide contributes to this homeostatic regulation is by binding to CB receptors and encouraging the development of nerve cells in the brain. This process is known as neurogenesis, which is important because the formation of new nerve cells in the brain is imperative for functions such as memory and learning.

## The Benefits of Anandamide

Since the discovery of anandamide, several studies have indicated interesting results when subjects are exposed to high levels of it. A 2015 study on humans and mice found that high levels of anandamide were catalysts for both mood enhancement and fear reduction. In both mice and humans, an inhibited production of the enzymes responsible for breaking down anandamide also led to a decrease in fear and anxiety during times of perceived threat.

Additionally, a 2009 study showed that high levels of anandamide are imperative for ovulation and that the fluctuation of anandamide over the gestational period can affect fetal development. The study concluded that higher levels of it during ovulation can contribute to a successful pregnancy.

Increased levels of anandamide have been found in the bloodstream of those who have just experienced rigorous exercise, giving credence to the theory of a “euphoric high” that comes with vigorous, prolonged physical activity.

Oddly enough, anandamide may also be present in black truffles, although it is unsure why or what biological effect consuming truffles may have on the ECS. 

# CANNABIS NURSES: AN EMERGING SPECIALIZATION AND VITAL RESOURCE FOR SENIORS

Cannabis can be a game-changer for older adults suffering from chronic pain, anxiety and insomnia. But with cannabis, finding the sweet spot that does the trick – that highly personal mix of delivery method, dosage and timing, can be too daunting for many older adults.

REPOST: ABBIE ROSNER / FORBES / APRIL 18, 2019

Nurses who specialize in cannabis medicine are increasingly stepping in to help seniors navigate that path.

Eloise Theisen, a board-certified geriatric nurse practitioner based in Walnut Creek, California, has been helping older adults find relief with medical cannabis for over five years through her private practice, Radicle Health.

A regular at the Rossmoor senior living community's Medical Marijuana Club, Theisen is a trusted figure and caregiver for many of the members.

Theisen: With legalization here in California, many seniors go straight to the dispensaries, where the staff aren't necessarily trained to understand the needs of an older adult.

They also tend to be on a lot of pharmaceuticals, and no one's really looking out for potential drug to drug interactions, considering how to get them off their pharmaceuticals when they start cannabis, and really guiding them.

Often they will come out of a dispensary with a product that doesn't work for them, and then they just give up on it all.

The average age of my clients is 76, and 85% are women. Cannabis isn't like the medicines they are used to, where you take a pill and that's all there is to it.

We need to teach them the method that will help them find the best dose to address their symptoms without undesired side effects. So education is a large part of my work.

## WHY A NURSE?

Many of my clients are truly cannabis naïve and have a lot of fears and misconceptions. They don't want to smoke and don't want to get high. Nurses can work with them to help them overcome those fears.

Operatively, a nurse can provide guidance on what routes of administration will be most beneficial, whether inhalation, a tincture or a topical.

*continued on page 16*

They can explain potential side effects, evaluate possible interactions with their other medications, and show them how to read a product label to determine the appropriate serving size. And a nurse can walk them through the incremental process involved in reaching the optimal dose.

## **A PROFESSIONAL ASSOCIATION FOR CANNABIS NURSES**

In December 2018, Theisen was elected as president of the American Cannabis Nurses Association – a grassroots professional organization that is working to formalize cannabis nursing as a certified specialization.

Established as an educational, advocacy and networking platform, the association currently has some 1200 members in 47 states. It offers an online continuing education core curriculum, educational webinars, and hosts an annual conference. But what the ACNA also provides is a safe and supportive forum for nurses who are afraid to discuss cannabis within their state and their health care organizations.

The ACNA provides them with position papers they can bring to their states, as well as brochures and other educational materials. Access to a cannabis research data base is also in the works.

## **STILL NO CANNABIS NURSE CERTIFICATION**

The National Council of State Boards of Nursing has issued the National Nursing Guidelines for Medical Marijuana, for nurses who are caring for patients who are using cannabis. The guidelines call on nurses to possess a comprehensive understanding of their local medical marijuana legislation and programs, the relevant science, research and safety considerations, and the need to remain non-judgmental over a patient's cannabis use.

Yet they fall short of actually instructing nurses on how to guide their patients to achieve a beneficial cannabis treatment regimen.

In the meantime, the ACNA is in the process of securing credentials for its training program from the American Nurses Credentialing Center – a two-year process that Theisen hopes will be completed soon.

Considering the growing rate of older medical cannabis users needing guidance, this an opportunity that career-planners and job-seekers should note. ✨

## STUDY

# Marijuana Motivates People To Exercise, Smashing Lazy Stoner Stereotype

REPOST: KYLE JAEGER / MARIJUANA MOMENT / APRIL 15, 2019

Most people who use marijuana report that consuming before or after exercising improves the experience and aids in recovery, according to a new study. And those who do use cannabis to elevate their workout tend to get a healthier amount of exercise.

Researchers at the University of Colorado surveyed more than 600 marijuana consumers in states where it is legal to assess how people use cannabis in relation to exercise. Their results, published this month in the journal *Frontiers in Public Health*, poke yet another hole in the lazy, couch-locked stoner stereotype.

Almost 500 participants said they endorse using marijuana one hour before, or up to four hours after, exercising. And based on data from the questionnaire, those who did use cannabis in that timeframe worked out longer than consumers who didn't pair the activities. Specifically, those who engaged in co-use worked out an average of 43 minutes longer for aerobic exercise and 30 minutes longer for anaerobic exercise.

## What's behind the trend?

There are a few known barriers to exercise that researchers have identified: a lack of motivation, difficult recovery after working out and low enjoyment of the activity. Cannabis seems to help lift those barriers for some individuals.

Seventy percent of respondents said they agree or strongly agree that "cannabis increases enjoyment of exercise," 78 percent said that marijuana "enhances recovery from exercise" and just over 50 percent said that it "increases motivation."

"To our knowledge, this is the first study to survey attitudes and behavior regarding the use of cannabis before and after exercise, and to examine differences between cannabis users who engage in co-use, compared to those who do not," the study authors wrote. "Given both the spreading legalization of cannabis and the low rates of physical activity in the US, it behooves public health officials to understand the potential effects—both beneficial and harmful—of cannabis use on exercise behaviors."

While it might seem counterintuitive given how cannabis consumers have typically been portrayed in media, there's a growing body of research showing that many marijuana enthusiasts engage in active lifestyles and that cannabis is associated with positive health outcomes. For example, another recent study found that people who use marijuana are less likely to be obese compared to non-users. 🌿

## STUDY

# Cannabis May Be Effective For Rheumatoid Arthritis, And Why It May Not Matter

REPOST: KYLE JAEGER / MARIJUANA MOMENT / APRIL 15, 2019

A recently published review, "Joints for Joints – cannabinoids in the treatment of rheumatoid arthritis," cautiously concludes that "cannabinoids could be a suitable treatment for RA." The authors also suggest a series of molecular approaches that merit future clinical studies. But while scientists continue to debate the potential suitability of cannabis for RA, outside the ivory tower, countless millions are already using cannabis to treat their aching joints and muscles, as people have been doing for millennia. This reversal of the typical drug-development process is characteristic of the peculiar evolution of cannabis medicine, which is now legal in 33 states and the District of Columbia, while still prohibited by federal law.

As a plant-based medicine with a high safety profile and a molecular complexity that defies big pharma economics, cannabis is increasingly living up to its potential as a medicine of the people, for the people. And Baby Boomers and older adults suffering from RA and other inflammatory conditions of the joints are benefitting from it in ever increasing numbers, even without the science.

Dr. Benjamin Caplan, a family physician, cannabis specialist and founder of the CED Foundation and Clinic in Boston, has helped thousands of patients over the age of 65 treat their arthritis with cannabinoid formulations. I spoke with him about this aspect of his practice.

*Abbie Rosner: How much of your practice focuses on patients with RA?*

**Dr. Benjamin Caplan:** RA and osteoarthritis are quite prominent in the general population: the lifetime risk of RA in adults is about 3.6%, with women being at a higher risk. And RA tends to peak between the ages of 50 and 75. They are both common, however in the case of osteoarthritis, it can happen to us all since one of the risk factors is simply the march of time. In my practice, we see a select slice of the general population, with rates of RA that are closer to 27% in patients over 52, and varying degrees of severity. I have patients with mild joint pain that can be satisfactorily addressed with a topical cannabis treatment. Others are nearly incapacitated, taking multiple medications for incomplete relief, and welcome any additional option that will help them cope with the pain and anxiety associated with their condition, and improve their quality of life.

*Rosner: How does cannabis measure up to the standard treatment options?*

**Caplan:** We don't quite understand all the details of how it works, but we do know that cannabis is a powerful anti-inflammatory agent, and that it operates in a different way than other anti-inflammatory drugs such as ibuprofen, steroids, or even the biological options available for treating RA and other autoimmune diseases. These traditional drug treatments can cause severe side-effects, many of which we do not see with cannabis.

As a natural option with the ability to quell the type of inflammation specific to RA, cannabis is not new; it has been used as a treatment for various ailments across the globe for thousands of years, including being prescribed by knowledgeable clinicians here in the US prior to its prohibition in the 1930s. But it is a gratifying option for people who have been very limited in their choices.

continued on page 19

Rosner: *How does cannabis differ in its mode of administration?*

Caplan: As with any medicine, treatment results depend on not just the medication product but also the degree that the patient adheres to a regime, and their willingness to explore the different alternatives and variations. In terms of the many types of cannabis dosages and delivery systems available, one of the nice things about cannabis is that the wide range of choices at reputable dispensaries creates a lot of opportunity for flexibility and success for many different types of people with a wide range of ailments. Best of all, this is just the beginning. We are learning more every day, and the industry is growing tremendously, with ever-increasing potential to help more and more people, in ways that are individualized and effective. Fortunately, all of these options and opportunities for flexibility rest on cannabis' high safety profile. From this foundation of safety, armed with education, the potential benefits to patients often outweigh the risks.

Rosner: *How are your patients embracing this paradigm shift?*

Caplan: In my experience, everybody is longing for this. We are stuck in a paternalistic medical system that is dehumanizing people. We have a broken medical system that strips patients of autonomy and power over their own illness, and that in and of itself is unhealthy. We all know it, but it has been a very difficult thing to fix. Healing with cannabis does not follow a traditional model, where a physician authority decides what the right choice is for a patient. Instead it's a process undertaken by the patient with the physician's guidance. Philosophically, if a patient can look back at their own choices as resulting in their own success, they are empowered by that process. I even teach patients how to make their own cannabis-infused lotion that is more effective than anything they will be able to find in a dispensary.

Rosner: *On social media, you share and critique the newest research related to cannabis. How do you reconcile between the relatively limited amount of scientific data and your own cannabis practice?*

Caplan: Effective clinical medicine requires applying the best available knowledge to unique, personal scenarios. These are all important pieces of a larger puzzle. Yet, in many respects, we have turned off our skepticism of dogmatic science, and I think that's dangerous. The cannabis movement epitomizes the resistance to traditional medical culture, but I believe there is value to incorporating strong elements of both; clinicians are taught to learn from the science, and how to apply it to new scenarios. We can read about chemical reactions or findings in animal models, and we can incorporate that, with appropriate caution and consideration, into a human medication or therapy treatment plan where the benefits of safe exploration clearly outweigh the potential risks.

Medicine is not a mathematical formula, and individuals aren't machines. If you don't know how to read the literature and educate yourself about what is available, you won't be able to practice the best possible clinical medicine. Every person has unique attributes, and exploring with them an optimal treatment regimen with cannabis brings a critical element of art to the regimented science of medicine. 

## STUDY

# Regular Cannabis Users Need More Sedation For Medical Procedures

Could this small study lead to a longer period of research?

REPOST: A.J. HERRINGTON / HIGH TIMES / APRIL 15, 2019

A small study by Colorado researchers has determined that regular cannabis users may need more sedation during medical procedures. A report on the two-year study, conducted by researchers at Community Hospital in Grand Junction, Colorado, was published on Monday in *The Journal of the American Osteopathic Association*.

The authors of the study noted that the continuing legalization of cannabis “has created both challenges and opportunities in medicine. More patients are using cannabis, and more patients are now willing to admit cannabis use than in the past, which increases the likelihood that they will be forthcoming about use during medical questioning. Cannabis use may have implications during medical care, including procedural sedation.”

To conduct the study, researchers reviewed the medical records of 250 patients who had undergone endoscopic procedures during 2016 and 2017 and reviewed the amount of three anesthesia drugs, fentanyl, midazolam, and propofol, that were used.

“Researchers found that compared with people who did not regularly use cannabis, people who regularly used cannabis required an amount of sedation for endoscopic procedures that was significantly higher,” according to the results of the study.

*Patients who reported that they used cannabis on a daily or weekly basis needed on average 14 percent more fentanyl, 20 percent more midazolam, and 220 percent more propofol to reach the optimum level of sedation. The difference was so significant that the researchers recommended that anesthesiologists discuss cannabis use with patients before sedation.*

continued on page 21

“Determining cannabis use before procedural sedation can be an important tool for planning patient care and assessing both medication needs and possible risks related to increased dosage requirements during endoscopic procedures,” they wrote.

Researchers also noted that the “continued increase in legalization and use of cannabis, the field of anesthesia and sedation needs further studies with greater depth.”

### **MORE STUDY NEEDED**

Dr. Roderic Eckenhoff, a professor of anesthesia at the University of Pennsylvania who did not participate in the research, agreed that the subject needed further research. He characterized the results of the study as “really tenuous at best” for several reasons. He said that the amount of sedation surgeons determine to be enough is subjective and researchers should have instead studied the effects for specific quantities of medication. He also believes that the sample size of only 25 cannabis users is too small.

“I would consider this a pilot study that maybe somebody should pick up on and do a more complete trial,” said Eckenhoff. He noted that some patients can be unreliable and may not inform their doctors about “everything else that they take,” which may have skewed the results of the study.

“Some people who use marijuana also take other drugs recreationally,” Eckenhoff said.

He also said that the amount of resistance to propofol cited in the study was not consistent with his knowledge of the drug.

“Even if you give someone propofol for a long time, they get a little tolerant to it, but not by 200 percent,” Eckenhoff said. He said that while more than 200 percent resistance might be “possible, I’d be surprised if that held up in a bigger study.”



## Put down the pot brownies: A new crop of cannabis books is blazing a path to more refined cooking

REPOST: MAURA JUDKIS / VORACIOUSLY - WASHINGTON POST / APRIL 18, 2019

Before you get to a single recipe in “Bong Appetit,” a recent cookbook from the editors of Vice’s Munchies, there are 56 pages of instruction, five charts, a brief lesson on trichomes (the resin glands of the cannabis plant), and a recommendation for serious weed enthusiasts to acquire a decarboxylation machine or pellet smoker. Flip through the book and you’ll see recipes for weed-infused yogurt-marinated lamb, kale salad with coconut bacon and a creamy cannabis cilantro dressing, home-cured “pot pepperoni,” and a three-day method of making gravlax that uses dill and, yes, another type of herb, if you catch my drift.

For the cultured cannabis user, the pot brownie has become passe. What has taken its place is something altogether more exciting, albeit complicated. In the new era of cannabis cookbooks, putting weed in your food can be an art, a science and a craft.

“I think it says a lot about this . . . industry that we are all moving in this sophisticated direction,” said cannabis cookbook author Robyn Griggs Lawrence. Cannabis is becoming “just another ingredient.” It’s not just any ingredient, though. Wanna get high? If you buy a cannabis cookbook, get ready to learn chemistry, botany and math.

continued on page 23

People have been putting weed in their food as long as people have been cooking. Lawrence's forthcoming book "Pot in Pans: A History of Eating Cannabis" begins with a chapter titled "Cavepeople Ate Cannabis," citing research suggesting that humans began cultivating the crop in the Mesolithic era. Bhang, an Indian cannabis drink with spiritual associations, was referenced in scriptures dating to 1000 B.C. A Moroccan cannabis confection, majoun, also has historic roots.

But many Americans' introduction began in 1954 with Gertrude Stein's partner, Alice B. Toklas, whose "Alice B. Toklas Cookbook" famously included a recipe for hashish fudge (the author reportedly did not realize the recipe contained cannabis, and didn't test the recipe before submitting it to her publisher).

That recipe evolved into the pot brownie after a famous scene in the Peter Sellers film "I Love You, Alice B. Toklas," in which a hippie character puts a special ingredient in her brownie mix.

One of the earliest cannabis-themed cookbooks – really, a pamphlet – is 1967's "The Hashish Cookbook," by Panama Rose, a nom de plume of the artist Ira Cohen.

But the cannabis cookbook wave kicked off with the 2012 publication of "The Official High Times Cannabis Cookbook," from the editors of the cannabis-themed publication. Though a few came before it, the High Times book remains a top seller in the niche, with NPD BookScan reporting 27,000 copies sold.

High Times "was really the first publication to treat this as something other than 'throw some weed into brownies' and have it work," said Lawrence. "They were the first ones to really start educating."

Because, despite how they do it in the movies, you're not actually supposed to put weed directly into your brownies. Time for a chemistry lesson: Every book will give you one, with varying levels of detail and dense, academic language.

To activate the psychoactive properties of THC, it must go through a process called decarboxylation: the removal of CO<sub>2</sub> according to the book "Sweet Mary Jane," or "removing the carboxyl molecule found in THCA (the non-psychoactive acidic form)" in "Bong Appetit."

These are all very scientific ways to say: Heat your marijuana up. The classic way is to bake it for 30 minutes at low heat – too hot, and you'll burn off some of your weed and waste money. You can also use a sous-vide circulator. (Or you can buy a device called the Magical Butter.)



A SPREAD OF INGREDIENTS IN "EDIBLES" BY STEPHANIE HUA. (LINDA XIAO/CHRONICLE BOOKS)

But you don't simply stick that decarboxylated weed into brownies, either. "Cannabinoids are hydrophobic" but fat-soluble, write the "Bong Appetit" editors. "Absorbing cannabis into your body along with fat also makes it more bioavailable, meaning it feels more potent in your body." In layman's terms: infuse it in butter, oil or cream, a process that will take several hours and require a mesh strainer and cheesecloth. The stoners have all become scientists.

"They're just trying to fight the stigma," said Ngaio Bealum, of Netflix's culinary cannabis show, "Cooking on High," and a former purveyor of edibles. "So it's, 'We're not just stoners, we're all very fancy-a- cooks up in here. We're very precise and scientific, and these recipes are state of the art,' or whatnot." The precision isn't just for show. Edibles makers need to get the dosing right. Eating cannabis is not like smoking it, and it takes much longer to have an effect. Many make the rookie mistake of eating too much, or drinking alcohol with their edibles, and the results can be unpleasant. Most recipes are designed to give people a very low, exact dose – typically three to seven milligrams. Authors recommend starting slow.

But if you get the dosing right, you still have to nail the recipe, which can be complicated. You could make the tower of maple-cream cannapuffs in "The 420 Gourmet." Or infused blueberry-lemon macaroons – a confection that can be hard for regular cooks to master even without the weed – from "Edibles." Having company over? "Bong Appetit" suggests you make an infused whole sea bream stuffed with cannabis leaves, or poach a four-pound octopus in infused cannabis oil.

Are home cooks actually stewing whole octopuses in cannabis? In the Venn diagram of stoners and excellent cooks, it's impossible to know how large the overlapping sliver is. And there are always cooks who love an intense project – weed cooking intersects nicely with 2017's sous-vide craze in that way. But the books are also a novelty and a gift that can be given to people who may never cook from them.

They're for "people who are merely curious who want to look cool, and the people who just want to buy a gift for their Woodstock-going parents," said Rux Martin, the editorial director of Houghton Mifflin Harcourt.

"There are probably some books on my bookshelf that I haven't cooked from, but I bought because [they're] inspiring," said Stephanie Hua, one of the authors of the recently published "Edibles" and the founder of Mellows, a cannabis marshmallow company. "There may be a disconnect. But I think that isn't really cannabis-specific."

That said, the books all contain intro-level tinctures and infusions, and easy dishes such as mac and cheese, too. "It isn't going to be the French Laundry," said Hua.

Besides, any fussiness is a deliberate counterbalance to perceptions of cannabis food: that it's all gummy bears and brownies. The more sophisticated the recipes, the more they inspire people to think about cannabis like wine, and the more respectability it earns.

Still, every book still has a brownie recipe. Sometimes, reluctantly.

*continued on page 25*



MENNLAY GOLOKEY AGGREY, AUTHOR OF "THE ART OF WEED BUTTER." (JAKE LINDEMAN)

"We actually originally presented our manuscript without a brownie recipe in it," said Hua. "We have a killer blondie recipe, and we were like, 'Let's make a point. Like, not put a brownie in there.' And our publisher was like, 'No, this has to have a brownie in it.'"

Hua's Booty Call Brownies have become one of the most popular recipes from the book. The cookbook publishing industry's enthusiasm for cannabis is a recent development.

Martin recalled that only four years ago, her company turned down an opportunity for a weed cookbook.

"Fast forward about a year and a half later, and the entire landscape changed, and every publisher got in and was racing to catch up," she said. Including her: Next year, her company will publish "The Essential Scratch and Sniff Guide to Becoming a Cannabis Connoisseur," by Richard Betts.

Earlier books skewed toward hippie-inspired recipes. Their covers were usually green, with prominent cannabis leaves. But the new books are stylish, emphasizing pink with splashes of green (preppy!), and with gorgeous photography that mimics the aesthetic of Instagram. They're marketed toward women and moms, and they would look perfectly at home on a coffee table with some scented candles. They reflect the latest Pewdata: Majorities of millennials (74 percent), Gen Xers (63 percent), baby boomers (54 percent) and women across age groups (56 percent) support cannabis legalization.

Lawrence also wrote "The Cannabis Kitchen Cookbook" and said she hoped it would find an audience of women like her. "We really wanted it to be something that a volleyball mom like me could have out on her counter and not feel weird about," she said. "No fluorescent green."

Many of the books' recipes tend to be American or European, and while there are authors of color – including Hua, cannabis chef Andrea Drummer and Cedella Marley, daughter of musician Bob Marley – cannabis cookbooks seem to be increasingly geared toward white upper-middle-class moms. It's something that Mennlay Golokey Aggrey was trying to remedy with her recent book, "The Art of Weed Butter."

Aggrey is an African American cookbook author who lives in Mexico. Along with the recipes for brownies and mac and cheese, her readers will also learn how to make West African fried chicken and chachhua coconut beans and rice.

She says the target audience for her book – middle-aged black women – has responded to seeing themselves reflected in the book's origins, including the photos of Aggrey demonstrating recipes.

A reader told her that “coming from another black woman, like, that felt more safe, even just to [see] your brown hands infusing something,” she said.

Aggrey also doesn't shy away from politics and race in her book. She outlines the history of mass incarceration for cannabis offenses and its disproportionate effect on African American communities in a section that ends with the statement: “Sorry for the buzzkill.”

As legalization continues to spread, we'll be seeing more and more cannabis cookbooks – and they'll continue to evolve. Some will become more health-oriented, as patients explore medicinal cannabis.

Others might dip further into chemistry and botany – particularly terpenes, the naturally occurring chemical compounds that create cannabis's distinctive taste and smell – for readers who really want to nerd out.

And once more people grasp the basics, those lessons in the beginning of each book might become shorter.

“There's a level of understanding. So you don't have to go back to square one each time,” said Marc Gerald, a literary agent who represented the author of “Sweet Mary Jane” and the rapper/chef/author/stoner Action Bronson. “The books are probably [becoming] more specific.”

And more authors and personalities – not just Bronson, Martha and Snoop Dogg – will distinguish themselves. Bealum, who is pitching a cannabis food and travel show, hopes to be one of them.

“There's approximately umpteen-kajillion people who want to be the Anthony Bourdain of weed,” Bealum said. 🌿



ROBYN GRIGGS LAWRENCE, AUTHOR OF “THE CANNABIS KITCHEN COOKBOOK” AND THE FORTHCOMING “POT IN PANS: A HISTORY OF EATING CANNABIS.” (TRACEY ELLER)



# A WINNING FORMULA

## WHO WE ARE

FCM Global is a Colombian-based producer/supplier of medical grade cannabis extracts, oils, isolates, and microemulsions to pharmaceutical, nutritional, and cosmetic companies, research organizations, product distributors, and wholesalers in legal markets worldwide.

We are proud to serve these critical sectors and to help support our clients as they create new cannabis-based medicines and wellness products that meet the highest international standards for quality at accessible prices.



FCM Global's 'Co-Sourced' Colombia model translates Colombia's unique comparative advantages in medical cannabis into sustainable competitive edges for each of our clients, enabling them to:



LOWER PRODUCTION COSTS



FOCUS ON STRATEGIC PRIORITIES



KEEP PACE WITH CHANGE

## FCM'S 'CO-SOURCED' COLOMBIA MODEL

FCM Global is proud to have been Colombia's first fully licensed producer and exporter in non-psychoactive cannabis for medical and research purposes. With our psychoactive license application submitted, FCM Global is well-positioned to produce and supply a wide range of CBD and THC extracts, seeds, and strains for domestic and international distribution.

## FCM'S VALUE-ADDED SOLUTIONS INCLUDE:

Every FCM product benefits from rigorous in-house quality testing at each process stage, as well as independent HPLC testing from a leading licensed 3rd party lab. Each shipment includes a comprehensive independent certificate of analysis (CoA) which includes full cannabinoid potency and terpene profiles, as well as testing for residual solvents, microbiology, pesticides, and heavy metals.

FCM also offers complementary R&D services to clients, underpinned by our experienced formulation professionals and modern lab facilities, for collaboration on proprietary and white label product development.



FULL SPECTRUM OILS



PURE CBD ISOLATES



MICRO EMULSIONS



TARGETED CANNABINOIDS (CBN, CBG, ETC)



TERPENES

For more information please send us an email to [info@verdecann.com](mailto:info@verdecann.com) - thank you.

**Headquarters**  
Calle 7 Sur #42-70  
Oficina 1412  
Medellin, Colombia

**Operations + R&D**  
FCM Finca Brujas  
Vereda San Nicolas  
La Ceja, Colombia

**Distribution Group**  
161 Bay Street, Suite 2700  
Toronto, Ontario  
M5J 2S1, Canada