



# verdecann



JANUARY 2019

# Quick Hits

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Rep. Earl Blumenauer filed a bill on Wednesday to remove marijuana from the federal Controlled Substances Act.

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The Distilled Spirits Council also used their analysis as an opportunity to plug their policy recommendations to lawmakers in states considering marijuana legalization.

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Canopy announced it would begin exporting cannabis products to the UK, which could have a dramatic impact on market progress.

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Hemp legalization allows the EPA to label pesticides for use on hemp, but government red tape, time and money could cause significant delays.

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# U.S. CANNABIS COMPANIES SET TO STEAL CANADA'S THUNDER IN 2019

The Canadian growth story is flattening amid supply shortages and disappointing earnings, while the U.S. is accelerating

Kristine Owram / Bloomberg News / December 18, 2018



Since Canada legalized recreational pot in October, investor interest has been rapidly shifting south of the border on the expectation that it won't be long before the U.S. follows suit.

Ted S. Warren/AP Photo files

If 2018 was the year of Canadian cannabis, 2019 will be America's time in the marijuana spotlight. Since Canada legalized recreational pot in October, investor interest has been rapidly shifting south of the border on the expectation that it won't be long before the U.S. follows suit.

Currently, recreational marijuana is legal in 10 states, plus Washington D.C., but remains banned at the federal level. "Investors' imagination is being captured more by what's possible in the U.S.," said Alfred Avanesy, managing director of investment banking at Cormark Securities Inc., which counts cannabis as its biggest source of business in Canada.

"The U.S. is a couple years behind us from a regulatory perspective and it's also by definition 10 times larger than we are."

U.S. consumer spending on legal cannabis is expected to reach US\$20.9 billion by 2021 compared with US\$4.5 billion in Canada, according to a June report from Arcview Market Research and BDS Analytics.

That's already being reflected in the financing data from the Canadian Securities Exchange, the only stock exchange in either country that will list cannabis companies with U.S. operations.

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In the first 10 months of the year, U.S.-based cannabis issuers raised \$1.5 billion (US\$1.1 billion) on the CSE, or about 60 per cent of the total raised by all pot firms, according to data provided by the exchange. By comparison, there was one U.S. cannabis listing on the CSE in all of 2017 which raised \$145,000.

The trend has only accelerated since October, with notable listings from Acreage Holdings Inc., Harvest Health & Recreation Inc., MJardin Group Inc. and Cresco Labs Inc. – and more to come.

“We have applications in hand from a number of significantly sized U.S. issuers and we’ve been talking to a number of folks who don’t have applications in yet but it seems a certainty that they will be showing up on our doorstep at some point in the first or second quarter of next year,” said Richard Carleton, chief executive officer of the CSE.

The U.S. issuers are also providing a more compelling story to investors, coming to market with “a significant operating history, revenue in place and a significantly higher degree of maturity than we saw from the Canadian producers back in the day,” Carleton said.

The sense from investors is that the Canadian growth story is flattening amid supply shortages and disappointing earnings, while the U.S. is accelerating as more states legalize and the federal government shows growing acceptance of cannabis, including legalization of hemp and its extracts in its farm bill.

The Horizons Marijuana Life Sciences Index ETF has lost about 38 per cent since the day before Canada legalized pot.

“There are hundreds of businesses in the United States that are just getting their act together relative to accessing the capital markets and building their business plans, so there’s a lot of runway left for the U.S. industry,” said Steve Winokur, managing director and head banker for the cannabis sector at Canaccord Genuity Group Inc., one of the leading investment bankers in the industry.

U.S. investors are also playing a bigger role, becoming the second-largest funding source for CSE-listed cannabis companies behind those from Ontario, Canada’s most populous province. Americans invested \$417.4 million in the first 10 months of the year and new U.S. cannabis listings have also attracted investors from Europe and Asia, according to Carleton.

This presents a challenge to the Canadian licensed producers, or LPs, who are just coming to market now, said Avanesky at Cormark.

“As a new Canadian LP trying to go public now, you need to offer a differentiated story to attract that new capital, otherwise it’s always safer for an investor to just put money to work with someone that’s already public,” he said. 🌿



# CANADA'S BLACK MARKET WON'T DIE, U.S. SURGEON GENERAL WANTS TO RESCHEDULE POT

Repost: Chris Moore / Leafly / January 8, 2019

It's only a week into the new year, but federal and state lawmakers are already working to change the country's antiquated cannabis laws. On the first day of the 116th session of Congress, lawmakers introduced two different cannabis reform bills to protect states' rights to legalize medical marijuana.

The U.S. Surgeon General has also spoken up for cannabis reform, arguing that the federal government needs to reclassify marijuana's legal status to make it easier for researchers to investigate pot's healing properties. In Pennsylvania, the fight for legalization is occurring on a smaller scale, where legislators are planning to introduce two different bills to legalize full adult-use cannabis this year.

Up north, Canada is still struggling to get its recreational retail market off the ground. The country's government-operated cannabis producers have not yet been able to meet the massive demand for legal pot, sending many Canadians back to the black market to buy weed. But on a brighter note, Health Canada recently released its draft regulations for edibles, which are slated to become available later this year.

And in other news, a recent study has discovered that while fans of various genres of music have specific drugs of choice, fans of every genre are united by their love of weed. Dig into the week in weed news below.

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### **Federal Lawmakers Have Already Filed Two Cannabis Reform Bills in 2019**

On the very first day that Congress went into session this year, lawmakers proposed two different bills seeking to preserve individual states' rights to legalize medical marijuana. Last Thursday, Reps. Steve Cohen (D-TN) and Don Young (R-AK) reintroduced the Compassionate Access, Research Expansion and Respect States (CARERS) Act.

This bill, which was originally introduced in 2015, would give each state the freedom to establish their own medical cannabis programs, free of federal interference.

"The national consensus on medical marijuana is solid and bipartisan, but our federal drug laws continue to treat patients and their doctors like criminals," Cohen said in a press release. "Our bill would bring federal medical marijuana policy in line with the views of the overwhelming majority of Americans by allowing states to set their own marijuana laws, allowing patients, including veterans, to receive the treatments they need from their doctors and improving opportunities for research on marijuana."

On the very same day, Rep. Morgan Griffith (R-VA) reintroduced a bill that would reschedule cannabis from Schedule I to Schedule II and explicitly prevent federal authorities from prohibiting or restricting state-legal medical cannabis programs. "Isn't it cruel to not allow real doctors, real drug companies, and real pharmacists to use marijuana for legitimate medical reasons for real patients?" Griffith said when he originally introduced the bill in 2014. "We use all sorts of opioids under the same scenario that this bill would allow us to use marijuana." To date, almost every single cannabis-related bill proposed before Congress has faltered, but the recent rebalance of power following last year's midterm elections could greatly increase the chances that one or both of these bills might succeed this year.

### **U.S. Surgeon General Calls for Federal Rescheduling of Cannabis**

Rep. Griffith is not the only one who believes that cannabis is in dire need of federal reclassification. At a recent press conference on addiction recovery, U.S. Surgeon General Jerome Adams called for the rescheduling of cannabis, arguing that researchers need greater freedom to explore the medical uses of the misunderstood plant.

Rep. Griffith is not the only one who believes that cannabis is in dire need of federal reclassification. At a recent press conference on addiction recovery, U.S. Surgeon General Jerome Adams called for the rescheduling of cannabis, arguing that researchers need greater freedom to explore the medical uses of the misunderstood plant. "We need to look at the way we schedule different medications across the board, because one of the concerns that I have with marijuana is the difficulty that the folks have to do research on it, because of the scheduling system," Adams said, according to the State House News Service.

Even though 33 states have legalized medical marijuana, the DEA still classifies cannabis as a Schedule I drug – a category reserved for dangerous drugs that have no medical use. This classification has made it exceptionally difficult for American researchers to study the benefits or risks of medical marijuana, allowing more progressive countries like Israel, Canada, and even China to surpass the U.S. in medical innovation and research.

"The relevance of the Surgeon General's call to reschedule cannabis cannot be understated," Dr. Mark Rosenfeld, CEO of ANANDA Scientific, told Forbes.

"The chemistry found only in cannabis plants can provide relief across an incredible array of adverse health states. It does this with minimal side effects and with the prospect of being eminently cost-effective in its use."

## Pennsylvania Lawmakers Pushing to Legalize Adult-Use Pot This Year

Pennsylvania just might be joining New York, Rhode Island, New Jersey, and Connecticut in bringing legal weed to the East Coast this year.

Lawmakers in both chambers of the state's General Assembly are planning to introduce comprehensive bills that would legalize adult-use cannabis in 2019.

Last Wednesday, State Senator Daylin Leach tweeted a photo of himself, state Sen. Sharif Street, and a team of lawmakers "working on the final mark-up of the adult use marijuana bill." Leach wrote that his team has been "focusing on this for months and will soon unveil what we think will be the best, most progressive, and just bill in the nation." The following day, state Rep. Jake Wheatley Jr. released a co-sponsorship memo seeking support for an adult use bill that he has called "the most comprehensive legalization legislation to date," Marijuana Moment reports.

In order to succeed, the bills would need to pass both chambers of the state's Republican-dominated General Assembly, but GOP leaders are already gearing up to oppose the new bills. Top Republican State Senator Jake Corman told PennLive that legalizing pot "has the makings of a catastrophe," repeating unscientific claims that weed "will harm our youth, as it is a depressant and a gateway to other illegal substances."

## Canada's Black Market Weed Scene Is Still Thriving, Despite Legalization

Pot has been legal in Canada for almost three months now, but the Trudeau administration's promise to destroy the country's illegal pot market has yet to materialize. Delays in drafting retail sales regulations left most provinces woefully unprepared to handle the vast demand for legal product, and the few retail stores that were ready to open their doors by October 17th had run out of product by the end of the day.

A poll conducted the following month found that around a third of all Canadian cannabis consumers had returned to buying black market weed, and two months later, the situation hasn't gotten much better.

In the U.S., many canna-legal states addressed the issue of black market sales by giving small-time dealers a chance to participate in the legal pot industry.

But in Canada, most provinces have chosen to sell pot exclusively through government-run stores, making it nearly impossible for black market dealers to transition to legal retailers.

"That's a huge difference," cannabis consultant Lewis Koski said to the Washington Post. "I can't think of a state here in the U.S. that has a government-control model similar to... Canada's."

In Toronto, there are currently sixteen illegal cannabis stores, and city officials have said that shutting all these stores down is a "complex process involving a number of steps," CBC News reports.

The Ontario government has announced that it will only be able to issue 25 retail licenses by April, and only five of these licenses are reserved for Toronto.

Unlike other provinces, Ontario does allow private cannabis retailers, and some of Toronto's illegal stores have applied for legal licenses.

But with only five such licenses available, many of these existing stores will eventually be forced to close, making it even harder for the city's legal pot industry to meet the demands of its customers.

## Canada Releases First Draft of Regulations Covering the Sale of Edibles

Another major problem that Canada's legal pot stores face is the fact that they are also prohibited from selling edibles, extracts (including vape pens), and topical products.

Fighting against the clock to create a retail sales framework for legal weed, Canadian lawmakers decided to delay the sales of these products for up to a year in order to ensure that their regulations properly addressed public safety concerns.

In the last weeks of 2018, Health Canada released the first draft of new regulations "governing the production and sale of additional cannabis products, namely edible cannabis, cannabis extracts, and cannabis topicals." The regulations will be open for public commentary, either online or via regional roundtable discussions, until February 20th.

The drafted regulations would limit edibles to a maximum dose of 10mg of THC per package, and mandate that all edibles be covered in plain packaging that will not appeal to children. Beverages mixing pot and alcohol will be prohibited, but drinks with pot and caffeine will be allowed. Each individual province would also have the right to create its own regulations on these products, or even ban them entirely.

The exact date that edibles will be permitted for legal sale is currently unknown, but Health Canada has promised that sales will start "no later than October 17, 2019." 🌿

# Scientists Are Trying to Breed Cannabis Plants With Consistent Cannabinoid Levels

Agricultural science firms want to develop and patent cannabis strains with consistent cannabinoid levels and well-defined characteristics.

REPOST: ADAM DRURY / HIGH TIMES / DECEMBER 12, 2018

Agriculture technology companies are competing to develop new strains of cannabis plants that can produce consistent cannabinoid levels and thus offer consumers repeatable, predictable effects. The goal is far from new—and likely ancient. Only now, top plant scientists are working toward it in multi-million dollar labs for massive retail cannabis companies, instead of underground breeders and growers.

Not that craft breeders haven't perfected their craft; indeed, many of today's most commercially successful strains are the result of efforts to produce high-quality, consistent effects for consumers. But the historic developments in the global cannabis industry have created huge incentive for companies to patent their own strains. And with competition from cannabis extracts and concentrates that offer more predictable effects and a higher degree of control over dosage, the demand for dependable flower is higher than ever.

## SCIENTISTS QUEST AFTER CANNABIS' HOLY GRAIL: FLOWER WITH CONSISTENT CANNABINOID LEVELS

Cannabis sativa is a plant with an incredible variety of smells, tastes, looks and of course, effects. And breeders have always tried to harness that variety to grow strains that bring out a particular feature set, giving rise to the astounding proliferation of cannabis strains that exists today. Growers and retailers try to make sense of all this variety with a kind of ad hoc classification system. If a strain makes you sleepy and relaxes you, call it an indica. If it energizes you and stimulates your perceptions, call it a sativa. Piece together its genetic heritage to come up with a new strain name portmanteau: Ghost Train Haze, or Thin Mint Girl Scout Cookies. Variation within a given strain is, however, often greater than variations between them. And that makes much of today's strain nomenclature meaningless, save for marketing.

There's nothing in the DNA of a particular strain, or in how those genes express themselves in a plant, that relates to its name. For example, a particular breeder's strain of Lemon Kush might consistently offer the same citrusy flavors and heavy sedation. But another variety at the dispensary down the street could just as well hit a little softer and emphasize more pungent terpenes. As a result, consumers often have no idea just what they're getting when they buy flower. For some consumers, inconsistency isn't a big problem. Others, however, find flower's lack of predictability disconcerting. Those consumers are moving onto other products, like oils, edibles, tinctures, concentrates, and capsules.

## AMID CONCENTRATE CRAZE, FLOWER'S FUTURE IS ANYTHING BUT CERTAIN

Market forecasts of the regulated U.S. cannabis industry show consumer trends are coming to a fork in the road. Some consumers are sticking with what they know and smoking traditional flower. But an increasingly large portion of the market is moving toward cannabis concentrates that offer more consistency and discretion. Flower sales aren't declining, of course; far from it. In fact, BDS Analytics projects an \$8.5 billion retail flower market by 2022, representing a compound annual growth rate of 14.8 percent.

But what about flower's long-term fate? Will smoking weed ultimately become obsolete, surpassed by vape pens, dab rigs and elixirs? Companies like Front Range Biosciences and Phylos Bioscience are employing top plant scientists to make sure that doesn't happen. These scientists are trying to pioneer new genetic breeding techniques that can develop strains with both consistent and well-defined characteristics.

"No one ever knows what they're getting, and it's a huge problem," Mowgli Holmes, chief scientific officer of Phylos, told NBC News. "Often it's way too strong. It's Russian roulette. New customers get burned and don't come back." 🌿

# TERPENOIDS IN MARIJUANA ALSO HELP REDUCE INFLAMMATION, NEW STUDY FINDS

Repost: Kyle Jaeger / Marijuana Moment / January 2, 2018

Marijuana's anti-inflammatory effects could be bolstered by non-cannabinoid compounds in the plant called terpenoids, according to a recent study published in the journal *Cannabis and Cannabinoid Research*. While most studies have focused on how THC and CBD affect inflammation, terpenoids seem to share that anti-inflammatory property. The compounds are generally associated with the fragrance of cannabis, but little is known about their therapeutic potential.

In the new study, researchers in Israel extracted oils rich in terpenoids from three marijuana varieties and tested them on cells and in mice. The first experiment showed that the compounds partly suppress the production of free radicals associated with inflammation. And the second, in mice, revealed "moderate anti-inflammatory activities."

That said, the terpenoids did not seem to be as effective as purified CBD when the researchers compared them. CBD works longer, making it a more appropriate choice for individuals suffering from chronic pain. Curiously, the terpenoids seemed to mitigate inflammation through a different mechanism than cannabinoids.

"Different chemotypes of cannabis have a distinctive composition of terpenoids," the researchers wrote. "These essential oils do have anti-inflammatory and antinociceptive activities that vary according to their composition, but they had no effect on TNFα titers [antibodies]."

"We suggest that terpenoids may be used to diminish acute inflammation effect, whereas the cannabinoids to inhibit chronic inflammation symptoms," they concluded. 🌿



# BENEFITS OF EPIDIOLEX FOR EPILEPSY MAY FADE WITH TIME: STUDY

Repost: Dennis Thompson / HealthDay / December 2, 2018

A marijuana-derived drug that helps control epileptic seizures appears to become less effective over time in some patients, a new Israeli study reports.

Cannabidiol (CBD) liquid has been proven effective against seizures, but about one-third of patients develop tolerance that blunts the drug's effectiveness, according to research presented Sunday at the American Epilepsy Society's annual meeting, in New Orleans.

The study was led by Dr. Shimrit Uliel-Sibony, head of the pediatric epilepsy service at Tel Aviv Sourasky Medical Center's Dana-Dwek Children's Hospital in Israel.

Cannabidiol became available in the U.S. market early in November, under the name brand Epidiolex. The U.S. Food and Drug Administration approved Epidiolex for treatment of two rare and severe forms of epilepsy, Lennox-Gastaut syndrome and Dravet syndrome.

Epidiolex, a twice-daily oral solution, is the first FDA-approved drug to contain an ingredient derived from the marijuana plant. CBD does not produce a high; that's caused by another compound in pot called THC.

To see how well CBD works in treating epilepsy, researchers recruited 92 children and adults whose seizures were not responding to other medications. All had used CBD for an average of nearly 20 months.

In this new study, CBD was used in a broader pool of patients, ranging from those with Lennox-Gastaut and Dravet to people with epilepsy caused by stroke.

About 57 percent saw their monthly seizure frequency cut in half while taking CBD, indicating that the treatment is effective.

But tolerance developed in about one-third of those patients after an average of seven months.



Doctors needed to increase the dose by 30 percent to get the same benefit; otherwise, the seizures increased by more than 30 percent on the same dose, the findings showed.

Doctors increased the dose of CBD for all patients who developed tolerance, and 12 people responded well while 15 did not.

About one-third of patients stopped taking CBD due to lack of effectiveness or because of side effects, which included sleepiness and gastrointestinal issues, such as nausea, decreased appetite and vomiting, the researchers reported.

These results indicate that CBD is a valuable new epilepsy drug, but is not a magic bullet for treating seizures, epilepsy experts said.

"We often talk about a honeymoon period when patients start a new medication. Many of those patients then relapse," said Dr. Fred Lado, Northwell Health's regional director of epilepsy for Queens and Long Island in New York.

"In this study, tolerance decreased after about seven months, which is similar to the honeymoon period we see with other medications."

Dr. Shlomo Shinnar, president of the American Epilepsy Society, agreed that epilepsy drugs tend to lose some effectiveness in patients over time.

"This is not really a big shock: All the drugs we have and use, even when they work, a year later we're frequently moving on to the next drug," said Shinnar, director of the Comprehensive Epilepsy Management Center at the Montefiore Medical Center and the Albert Einstein College of Medicine in New York City.

"This study should temper one's enthusiasm but it should not eliminate one's enthusiasm," he added. "It's still a good drug. I intend to be using it in my patients."

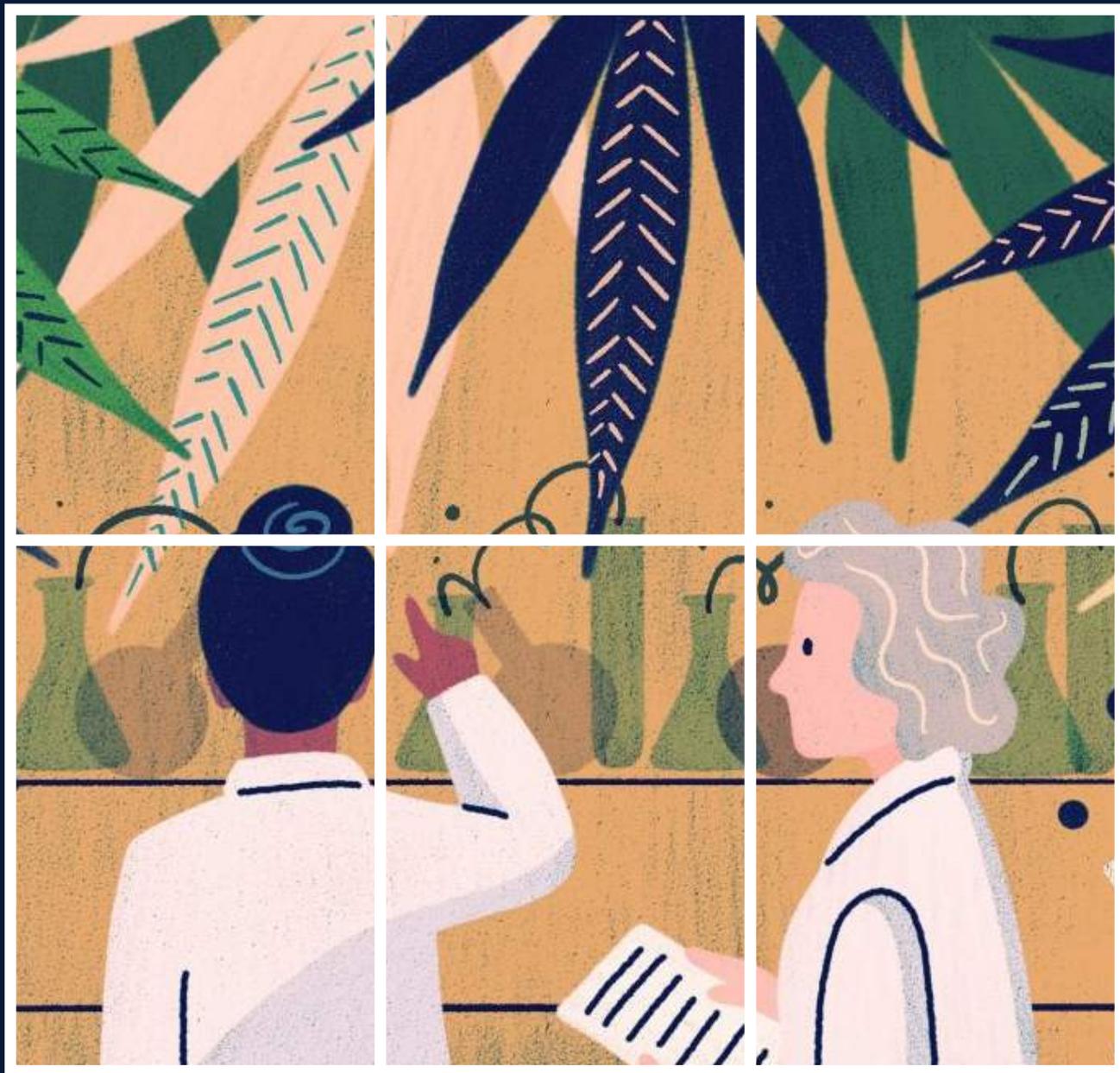
There was hope that CBD might have been different from other epilepsy drugs, since the substance promotes increased activity in cannabinoid receptors in the brain, said Dr. Ruben Kuzniecky, director of research and clinical trials at Lenox Hill Hospital in New York City.

Given that, it would have made sense that increases in tolerance would have been limited, he noted.

"This is an important observation given the long-term data," Kuzniecky said. "CBD is a welcome addition to the treatment of certain forms of epilepsy, but long-term use and larger populations will be needed to understand its limitations."

Research presented at meetings is typically considered preliminary until it is published in a peer-reviewed journal. 





THE MOST IMPORTANT

# Cannabis Studies

OF 2018

David Bienenstock / Leafly / December 27, 2018

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## Cannabis Safely, Effectively Provides Pain Relief to Seniors

By all accounts, those 65-and-over are the fastest growing demographic of cannabis consumers, but seniors still remain the largest voting block against legalization.

Often finding out that other seniors benefit from cannabis is the key to changing their opinion.

So if you've got a grandparent who's on the fence, hearing about a study published in February 2018 in the European Journal of Internal Medicine could give them the nudge they need to consider trying cannabis, or at least to agree it should be legal for others.

In the study, over 900 elderly Israeli patients (75% of whom had no prior history with cannabis consumption) used medical cannabis for at least six months, with 93% of patients reporting that cannabis improved their symptoms—particularly chronic pain sufferers, who on average reported that cannabis reduced pain from an 8 (on a scale of 10) to a 4.

[LINK TO STUDY](#)

## Cannabis Enhances Pain-Relief from Opioids

Those opposed to cannabis still fall back on the long discredited “gateway theory” to argue that legalization will lead users down a slippery slope to more dangerous drugs. While those in favor of legalization point to a plethora of data indicating just the opposite, like a November 2018 study that showed cannabis dispensaries significantly reduce the number of opioid overdoses in their immediate vicinity.

What's less often understood, however, is that cannabis can be combined with prescribed opioids to create a synergistic effect.

A February 2018 study published in *Neuropsychopharmacology* showed that in a double-blind, placebo controlled study, “cannabinoids combined with opioids produce synergistic antinociceptive effects, decreasing the lowest effective antinociceptive opioid dose (i.e., opioid-sparing effects) in laboratory animals.” In other words, by adding cannabis to their treatment plan, pain patients can get the same amount of relief from smaller doses of opioids, thus reducing dependence and other potential harms.

[LINK TO STUDY](#)

## CBD Has Profound Antidepressant Effect in Rodents

Cannabidiol (CBD) has gone from being obscure to trendy in just a few years, an incredible story that continues to unfold as the compound's future legal status is hotly debated. Best known as a key component of the cannabis oil given to children with Dravet Syndrome and other severe seizure disorders, CBD also has proven pain relieving and anti-inflammatory properties. And now, according to a study published in *Molecular Neurobiology*, we may soon add antidepressant to the list. Researchers in Brazil working with rodents noted that CBD reduced depression associated behaviors after a single dose, improvement that lasted a full week after the treatment.

[LINK TO STUDY](#)

## Cannabis Enhances Sex

In a 2010 article, *Psychology Today* looked at what limited data exists on cannabis and libido, and determined that while “the sexual effects of every other mood-altering drug—alcohol, amphetamines, antidepressants, cocaine, narcotics—are well-documented, fairly consistent, and not particularly controversial... oddly, marijuana's sexual effects are highly unpredictable, from strongly sex-inhibiting to strongly sex-enhancing.”

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Three new studies published in 2018 have greatly expanded our knowledge since then, and they all point to cannabis enhancing sexual pleasure and increasing sexual frequency.

The first two studies, conducted by researchers at St. Louis University in Missouri, surveyed hundreds of women and found that among those who had used cannabis immediately prior to sex, 3% called it sex-ending, 65% called it enhancing, 23% said it made no difference, and 9% expressed no opinion.

In the final study, researchers at Stanford University extracted data on tens of thousands of American adults taken from the National Survey of Family Growth, and found that compared with abstainers, men who consumed cannabis weekly reported 22% more sex, and women reported 34% more, with sexual frequency even higher among those who used more than once a week.

[LINK TO STUDY](#)

## **CBD May Help Treat Methamphetamine Addiction**

While much study has gone into determining the potential of cannabis to lessen the damage of the current opioid epidemic, there's also a growing push within the addiction recovery movement to recognize that cannabis could play a positive role in recovery from all kinds of addictions, whether as a replacement therapy to curb cravings, or as a safe and natural way to deal with the symptoms of withdrawal.

Researchers at the University of Sydney and Macquarie University in Australia in September 2018 published a study that found cannabidiol (CBD) in doses of 80mg per kilogram of body weight reduced the motivation of rats "to self-administer methamphetamine and relapse to methamphetamine-seeking behavior following abstinence."

This was the first study to ever look at addiction to meth specifically, and it joins recent research showing similarly positive results for cannabis as a potential treatment for opioid addiction and tobacco smoking.

[LINK TO STUDY](#)

## **CBD Restores Brain Changes Caused By Regular Cannabis Use**

In 2003, the US Department of Health and Human Services was granted a patent on "cannabinoids as neuroprotectants," based on evidence that compounds found in the cannabis plant are effective in "limiting neurological damage following...stroke and trauma, or in the treatment of neurodegenerative diseases, such as Alzheimer's disease, Parkinson's disease, and HIV dementia."

But that doesn't mean that every way cannabis changes the brain is entirely positive. One potentially troubling result of frequent THC-rich cannabis use is a reduction in size of the hippocampus, which is involved in cognitive performance, controlling anxiety, and tamping down stress.

Neuroscientists in Australia recently sought to determine if cannabidiol (CBD) could restore that loss, and found that after 10 weeks of giving four 50-milligram CBD capsules per day to regular cannabis smokers, their hippocampus anatomy had been markedly restored—even among subjects who'd continued to consume THC-rich cannabis throughout the test period.

[LINK TO STUDY](#)



# SUSTAINABILITY

## Cannabis Companies Struggle To Become More Sustainable

Repost: Nick Kovacevich / Forbes / January 9, 2019

Despite the bad press millennials receive, as a cohort they have committed to sustainability. A full 70% of millennials will pay more for products made sustainably, while 83% consider a product's environmental or social impact before making a purchase. They are bringing that sense of responsibility for maintaining a livable planet to the cannabis industry which is populated with young, progressive entrepreneurs.

But while cannabis is a business based around agriculture, there aren't clear rules for how to make it more sustainable. Because cannabis production and consumption have been illegal for nearly a century, there is limited data to support the design of best practices for the industry.

And unlike other valuable agricultural crops, there has been virtually no publicly-funded research on how to produce cannabis most effectively and efficiently, nor which of the various cultivation methods has the smallest carbon footprint.

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In fact, some current building and energy codes actually force indoor growers to use more energy than necessary with requirements that can be damaging to plants unless they use high-energy consumption mitigators. Indoor cultivation uses the least amount of water, a boon for water-poor states such as California. But it's also the most energy-intensive growing method. For example, even before legalization, 1% of all electricity used in the entire United States was consumed by cannabis.

Today, almost 4% of Denver's total electricity usage can be attributed to the crop. But that energy use in part is the result of residential and commercial building codes which haven't considered cannabis' unique requirements. Codes that maximize insulation requirements and are designed to improve HVAC efficiency increase the need for air filtration and dehumidification for indoor growers, leading to increased energy consumption. Many cannabis companies are doing their best to reduce their carbon footprint while continuing to meet local regulations. Some are switching to more efficient and ecologically sound methods, including LED lighting, solar power and water reclamation systems. State-of-the-art greenhouses, that rely on technology to control everything from the amount and intensity of light to the ambient temperature and moisture level, are also helping with sustainability at the plant level.

Another way cannabis companies are hoping to become more sustainable is through packaging changes. To date, state regulators have been concerned with a contaminant-free supply chain, appropriate labeling and keeping cannabis products out of the hands of children. That's led to state laws, such as one in Washington state, that mandates requirements such as every product being individually wrapped. So, multi-serving packages of edibles and concentrates must have each serving be self-contained.

Bottles with liquid products must provide serving cups, such as those found with cough syrup, instead of simple hash marks on the bottle. Los Angeles mandates that so-called "exit bags" for edibles be made of unrecyclable Mylar. Labeling requirements also contribute to the need for excess packaging.

Despite its small size, an edible single serving in Washington state still must include two state-mandated caution logos, various written warnings and information on the licensees and product, not to mention any branding info the producer wants to include. In Massachusetts, wording on edibles labels must be at least 1/16th of an inch, and include the patient's name; the producer's name, registration number, telephone, mailing address and website; the name of the product; the quantity of cannabis contained in the package; the amount of THC; a list of ingredients, including the cannabinoid profile; the date it was produced and its expiration date; plus seven other pieces of information. After that, each label also must include a 49-word warning statement, some of it in all caps.

Industry groups and producers are hoping technology in the form of QR codes, a type of matrix barcode which can be read by smartphones and stores URLs and other information, can help. While Indiana has not legalized cannabis, it does allow CBD products produced from hemp as long as they include QR codes. While a lot of data must still be printed directly on the label, Indiana consumers can find lots more info by scanning the code. Other states might soon follow suit, eliminating some of the excessive plastic required to cram all the mandated information onto each package.

At the same time, cannabis industry groups are taking the lead on sustainability, recommending the creation of packaging recycling programs, which offer small discounts to customers for returning bags and containers. They're also searching for ways to incentivize producers and processors to switch to sustainable containers, including biodegradable hemp plastic. Trade groups such as the Cannabis Alliance, a non-profit dedicated to the advancement of an ethical and sustainable cannabis industry, are working to help find and develop compostable packaging. Companies such as TerraCycle are springing up specifically to deal with recycling cannabis packaging. As cannabis continues to grow, and emerge from prohibition in more parts of the country, the industry will continue looking for ways to decrease its carbon footprint and working toward more environmentally sound packaging from the fields to store shelves. 

# How To Read a Cannabis Label Like a Pro



Repost: Danelle Guercio / Miss Grass / December 21st, 2018



Scrutinizing cannabis products doesn't have to be a complicated process. Once you know your way around a label, shopping for anything from flower to food will be easy as pie.

Really understanding any given cannabis product is a whole lot more nuanced than just knowing how much THC (tetrahydrocannabinol) or CBD (cannabidiol) is in it. But that doesn't mean that gathering intel on your chosen products has to be overwhelming. There are a few simple things to know that will make the whole familiarizing-yourself-with-weed thing a lot easier.

To create repeatable and comfortable experiences, it's important to educate yourself around what you like and what works for your composition in which situations. Without properly understanding that, you're bound to have a few less than desired experiences.

The idea is to get you equipped with a basic understanding because, in the end, getting to the point where you can scan a label and be ready to make a decision is more than a time saver: It's the key to having a consistently good experience.

## TERPENES

Until we're sure of every part of cannabis' function, too many variables can define a strain or cultivar. One such variable is the terpene profile. Terpenes are the natural, aromatic oils from plants which affect taste and fragrance. You'd recognize the presence of terpenes in things like citrus, mangoes, flowers, peppercorns, and clove, for instance. When paired with cannabis, terpenes can impact your overall experience — which is known as the entourage effect. Of the 200 or so terpenes that have been found in cannabis, the most common ones provide the scents we love to huff straight out of the jar like limonene, myrcene, pinene, piperine, eugenol, and linalool. But, they also drive the high.

If you familiarize yourself with the most popular terpenes, it gives you the baseline you need to infer the taste as well as the head and body effects you'll be working with.

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## TERPENES

Ratio is the thing to focus on when self-testing cannabis products. Precise cannabinoid ratios are easy to achieve in tinctures, vapes, and edibles where concentrates and isolates form the active dose. But in flower — the unprocessed part of the plant we smoke — it's much more dependent on the cultivation and curing process.

Ratios can look like this:

- 1:1 THC to CBD is a balance that won't overly intoxicate
- 2:1 THC to CBD is for more of a 'stoned' effect; you can flip that ratio and have a high CBD result that's great for undoing too much THC

This is the most important part for those looking for a balanced high. Many people respond differently to THC, and finding the percentage that gives you the perfect dose is important.

Cannabinoid percentages range from low fractions to 37% in some of the highest potency cultivars. Depending on your needs, THC potency can be a dealbreaker when it's not spot on. If you're a novice, staying under 20% THC is advisable.

While strains are now hitting the upper 30th percentile, most of the 'strong' stuff you see on the market is in the 21-26% range. CBD will get into the 20s in an engineered CBD rich strain, but typically it reaches around 4% in a common cultivar.

## LAB TESTING

Regulations are beginning to catch up with the demand for clean cannabis that's not harmful to those who consume it.

States are using lab testing to ensure compliance with all pesticide rules, and oftentimes, the label is the place to find this information — unless you buy from a shop like Miss Grass that is committed to doing that vetting for you.

Beyond pesticides, you'll want to look out for all manner of contaminants such as mold, solvents, pollution, animal waste, and even bugs.

This information may not be presented on the label, but it doesn't hurt to inspect your cannabis flower for contamination and keep a keen eye out for product recall, especially for vape cartridges. Don't let the excitement to try a new product stop you from doing your homework.

## HARVEST DATE

The harvest date of your cannabis is certainly not a sell-by date, but it can raise questions if its not lining up with the shelf life of a product.

When consuming products made with isolates and concentrates, the harvest date is relatively irrelevant, as concentrates don't degrade.

But for smokeable flower, seeing anything with a harvest date that's older than six months can be a little alarming. In pre-rolled joints or loose flower, it would be best to avoid anything over half a year, as the cannabinoids and flavor can degrade after this much time. But sealed products like those canned in nitrogen or in vacbags, are better for much longer — sometimes up to a year.

So, off you go. Take this information and buy the best cannabis you can find. It doesn't always have to be the most potent, the freshest, or the most expensive. Just make sure it's the right product for you. 



FCM GLOBAL S.A.S.

# PREMIUM QUALITY INDEPENDENTLY TESTED VALUE-ADDED PRICING

VERDECANN

## full spectrum

raw + winterized oils (high CBD, low THC)

### Why Full Spectrum ?

A Full Spectrum oil delivers the benefits of the entire cannabis plant and preserves the plant's profile of bioactive compounds and ratios as close as possible. This approach enables the cannabinoids to interact synergistically with the human body's endocannabinoid system in a natural way known as the "entourage effect". Full Spectrum oils also capture more of the hundreds of known therapeutic compounds contained within the cannabis plant and are a key driver behind the rapidly expanding, high-potential field of whole plant therapies.

VERDECANN

## cbd isolate

crystal / powder (up to 99.95% CBD)

### Why CBD Isolate?

CBD Isolate is cannabidiol in its purest form and contains only one cannabinoid (CBD), making it a perfect option for those seeking a THC-free product. CBD Isolate is produced by individually isolating CBD and then further refining to remove the remaining cannabinoids, terpenes, and other natural components within the cannabis plant. FCM's CBD Isolate is available in crystal form, is odorless and tasteless, and is a versatile component easily integrated with a high degree of control into a wide range of finished products.

COMING SOON

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# ORION

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NUTRACEUTICALS

Orion Nutraceuticals will be setting a new standard within Cannabis Life Sciences by producing and developing innovative products with key strategic partners, such as FCM Global, in the industry.

In conjunction with its professional sports alliances, Orion is poised to advance research and development in the plant science sector, deliver science-based products & services that are better and more effective than anything else that is currently in the market, and market CBD therapies to the mainstream, with proprietary brands and products.

Orion Nutraceuticals is publicly listed  
on the Canadian Stock Exchange

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# 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 (anticipated early Q4 approval), 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.

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