

***Medical Cannabis in the
Caribbean: a discussion of
the issues from the
viewpoint of the Nagoya
Protocol***

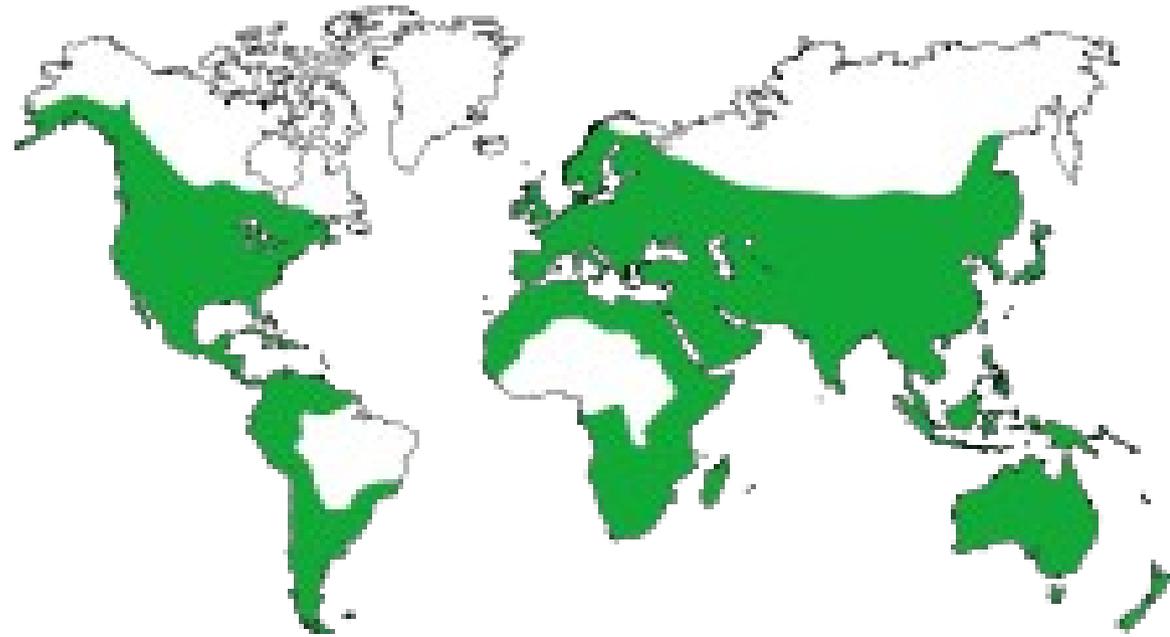
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Summary

http://hemphealthytoday.blogspot.com/2012_08_01_archive.html

- Update on Jamaica
- What is Cannabis?
- History of use
- Regulatory history
- Recent developments in the USA
- Recent developments in Jamaica
- Issues from the viewpoint of the Nagoya Protocol



Growing region of hemp
– *Cannabis sativa*



Unravelling a 3 prong
cord – *Cannabis sativa*



Convention on Biological Diversity

- The Convention on Biological Diversity entered into force on **29 December 1993**
- The Convention on Biological Diversity was inspired by the world community's growing commitment to sustainable development.
- It represents a dramatic step forward in the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of benefits arising from the use of genetic resources.

Cartagena Protocol

- The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international treaty governing the movements of living modified organisms (LMOs) resulting from modern biotechnology from one country to another.
- It was adopted as a supplementary agreement to the CBD and entered into force on **11 September 2003**.

Nagoya Protocol

- The Nagoya Protocol on ABS was adopted on **29 October 2010** in Nagoya, Japan and entered into force in 2014.
- Its objective is the fair and equitable sharing of benefits arising from the utilization of genetic resources, thereby contributing to the conservation and sustainable use of biodiversity.

Jamaica's status @ 25.11.14

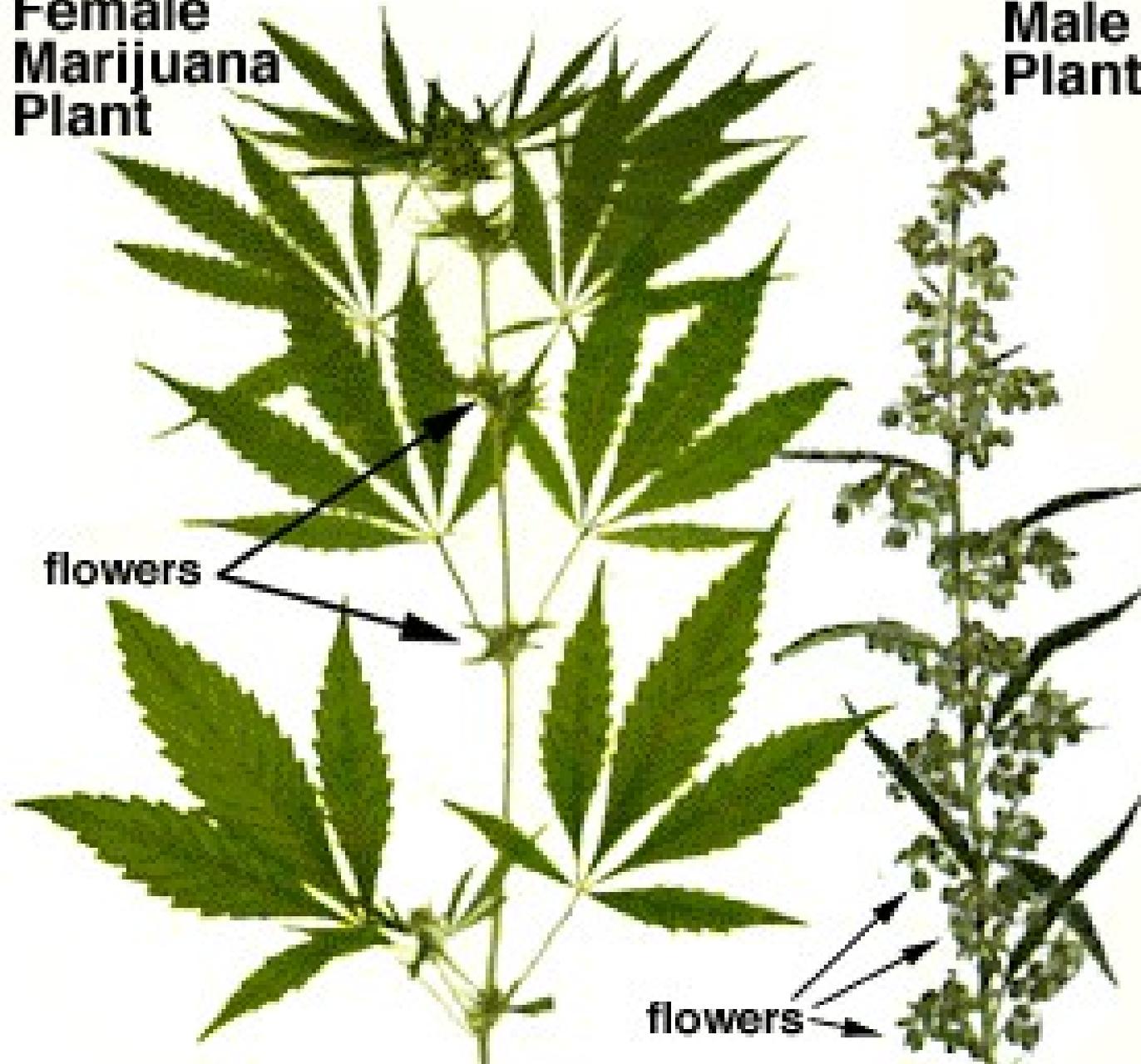
- ***CBD***: Party since 1995-01-06 by Ratification
- ***National Biodiversity Status and Action Plan (NBSAP)***: 4th National Report submitted July 2013 for period 2005-2009.
- ***Aichi Targets***: ??
- ***Cartagena Protocol***: Party since: 2012-12-24 by Ratification
- ***Kuala Lumpur Protocol***: Non-Party
- ***Plant Variety protection***: None
- ***Nagoya Protocol***: Non-Party

<http://www.cbd.int/countries/?country=jm>

Why the interest in *Cannabis*?

ABS 2014 – St Lucia

**Female
Marijuana
Plant**



**Male
Plant**

flowers

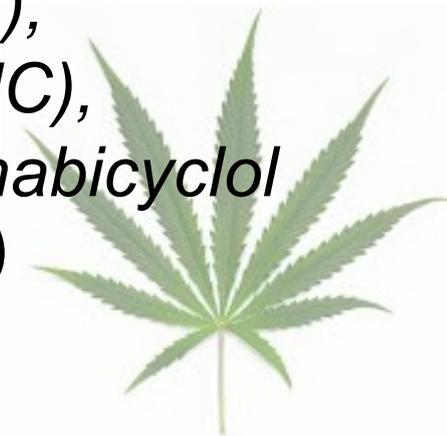


Why the interest in *Cannabis*?

While the use of cannabis (marijuana) goes back many thousands of years, medicinal uses and the brain chemistry that makes this herb so intriguing to humanity is just beginning to be understood.

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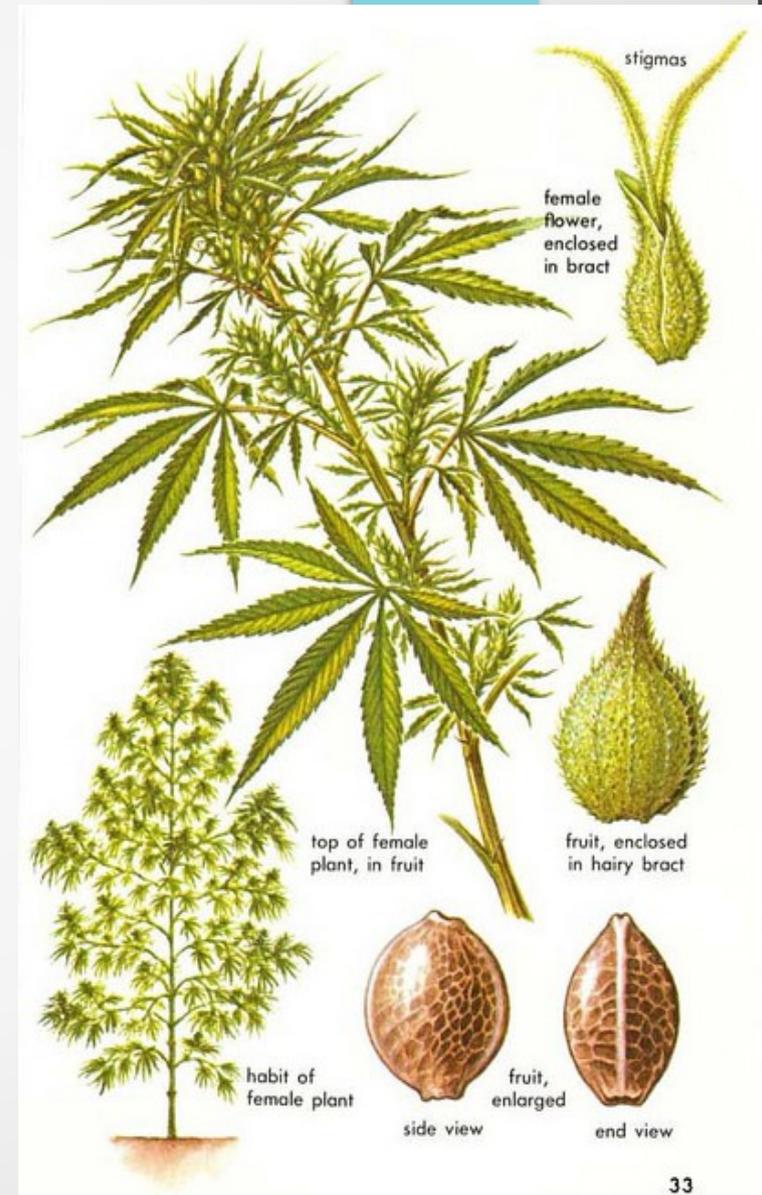
Many cannabinoids are now known and have been divided into subclasses. Most common: Cannabidiols (CBD), Cannabigerols (CBG), Cannabichromenes (CBC), Cannabidiols (CBD), Tetrahydrocannabinols (THC), Cannabinol (CBN), Cannabinodiol (CBDL), Cannabicyclol (CBL), Cannabielsoin (CBE), Cannabitriol (CBT)



Jamaica's ethno-medicinal use of ganja

<http://www.jaherbs.com/>

- In Jamaica ganja is traditionally used to treat colds, flu, asthma, stomach problems and to improve eyesight.
- Oil or alcohol based extracts and infusions are used in many traditional herbal remedies.
- Ganja is soaked in rum with ginger, garlic and pimento and used to treat diarrhoea and for the relief of joint pains.



ON THE MARKET



- Chemicals from *Cannabis sativa*
- **Canasol**: being sold for the treatment of **glaucoma** – Certified as a Drug in Jamaica in 1983 by Jamaican scientists
- **Asmasol**: to treat **coughs, colds** and **bronchial asthma** – Certified as a Drug in Jamaica in 1990 by Jamaican scientists



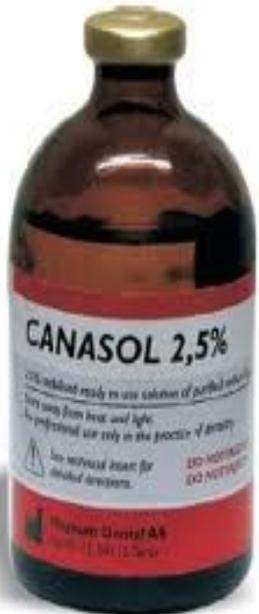
Sylvia Mitchell (c) 2014

GLEANER August 24, 2003

Dr West & Lockhart



- Medi -Grace Limited - average of 400 units sold per "There is a great demand for the product," Mrs. C. Law a pharmacist at Dolphin's Pharmacy in Kingston said, adding that persons even send from abroad to get it.
- According to her, they had a customer from Canada who usually orders a six-month supply and have it delivered by airmail. She says the pharmacy usually orders 1,500 bottles of Canasol at a time, as supplies normally sell fast.
- No patent but formulation is a trade secret.





Unravelling prong one
(harmful effects) of a 3
prong cord – *Cannabis
sativa*

Eyes: _____

- Reddening
- Decreased intra-ocular pressure

Mouth: _____

- Dryness

Skin: _____

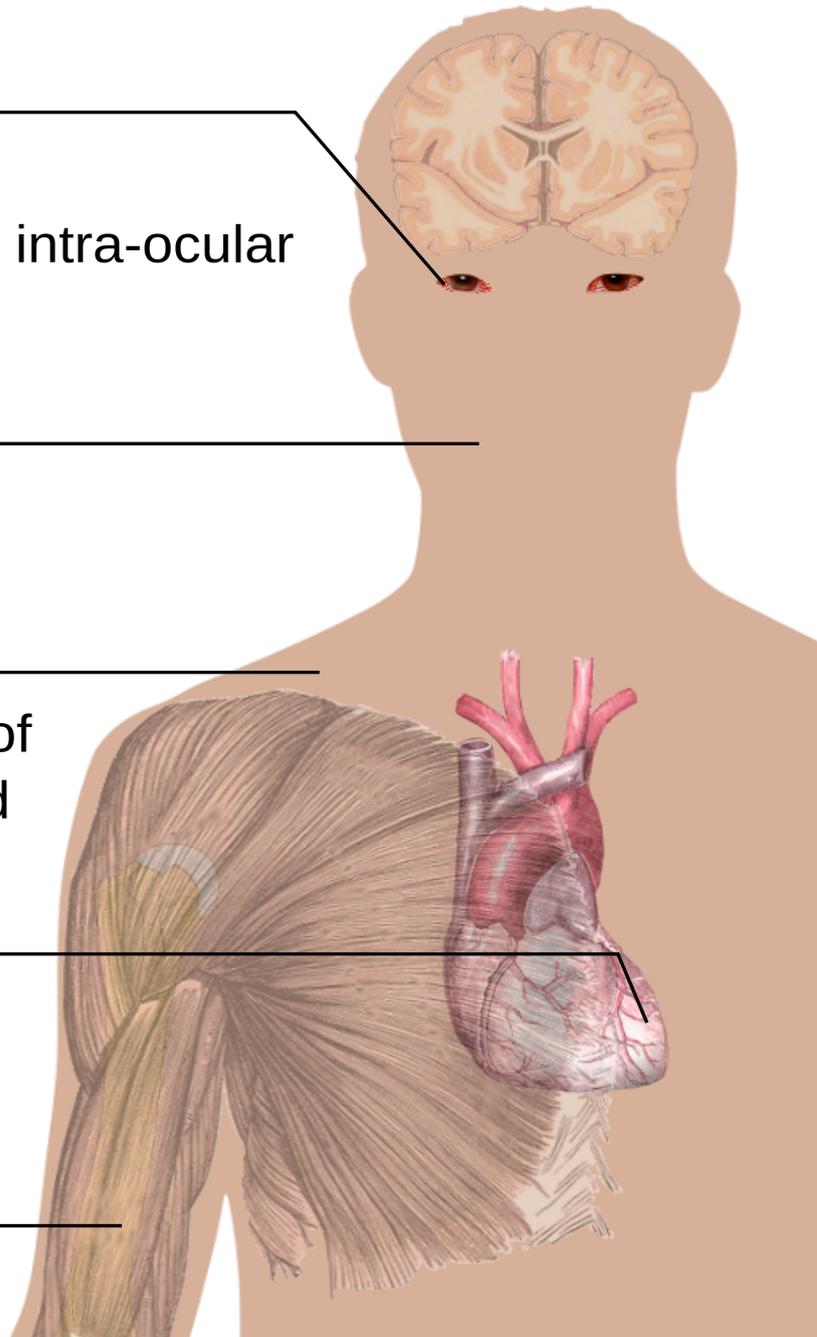
- Sensation of heat or cold

Heart: _____

- Increased heart rate

Muscles: _____

- Relaxation



According to U.S. Attorney General Eric Holder, "It will not be a priority to use federal resources to prosecute patients with serious illnesses or their caregivers who are complying with state laws on medical marijuana, but we will not tolerate drug traffickers who hide behind claims of compliance with state law to mask activities that are clearly illegal."



The Long Term Effects of Cannabis

(when smoked with tobacco the risks are increased)

http://www.nt.gov.au/health/healthdev/health_promotion/bushbook/volume2/chap1/cannabis.htm

Eyes

- Sleepy looking
- bloodshot eyes with dilated pupils

Respiratory System

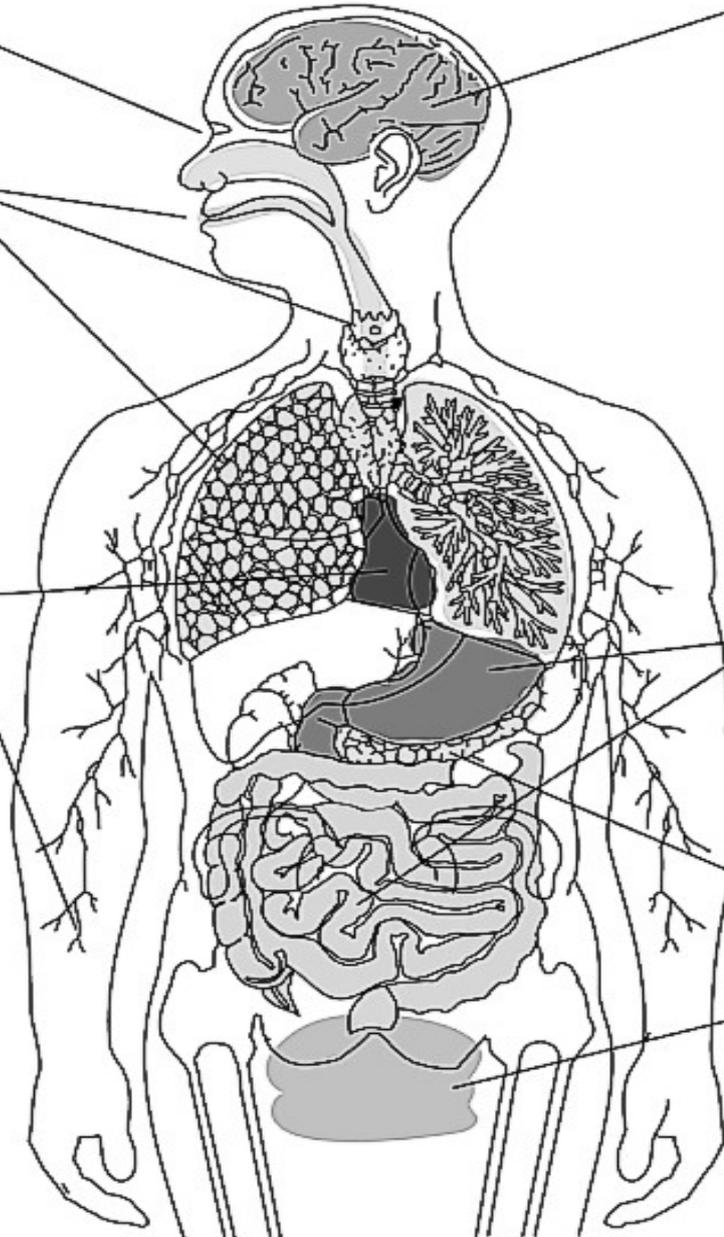
- increased risk of chest infections
- increased risk of lung, mouth & throat cancer
- chronic bronchitis, and emphysema (damage to the air sacs in the lungs)

Circulatory System

- increased heart rate and blood pressure
- increased risk of heart failure
- poor circulation - blood flow (arms & legs)

Pregnancy and Babies

- REGULAR USE DURING PREGNANCY CAN CAUSE:
- lowered birth weight
 - fetal abnormalities
 - small head, irritability, poor growth and development



Central Nervous System (brain and spinal cord)

- psychological disturbances
- exacerbation of schizophrenia and psychosis
- short term memory loss
- imagining and seeing things
- impaired ability to learn new things or do complex tasks
- sleep disturbances
- slower reactions
- anxiety or panic attacks
- loss of motivation
- poor concentration
- change in personality

Stomach and Intestines

- Lining becomes tender
- bleeding
- ulcers
- may lead to cancer

Pancreas

- increased risk of cancer

Reproductive System

Male and Female

- decreased sperm count and movement
- lowered sex drive
- egg damage
- irregular menstrual cycle and altered hormone levels
- impaired fertility

Long term effects of *Cannabis sativa*



Marijuana's Effects on the Brain

HYPOTHALAMUS

Controls appetite, hormonal levels and sexual behavior

BASAL GANGLIA

Involved in motor control and planning, as well as the initiation and termination of action

VENTRAL STRIATUM

Involved in the prediction and feeling of reward

AMYGDALA

Responsible for anxiety, emotion and fear

BRAIN STEM AND SPINAL CORD

Important in the vomiting reflex and the sensation of pain

NEOCORTEX

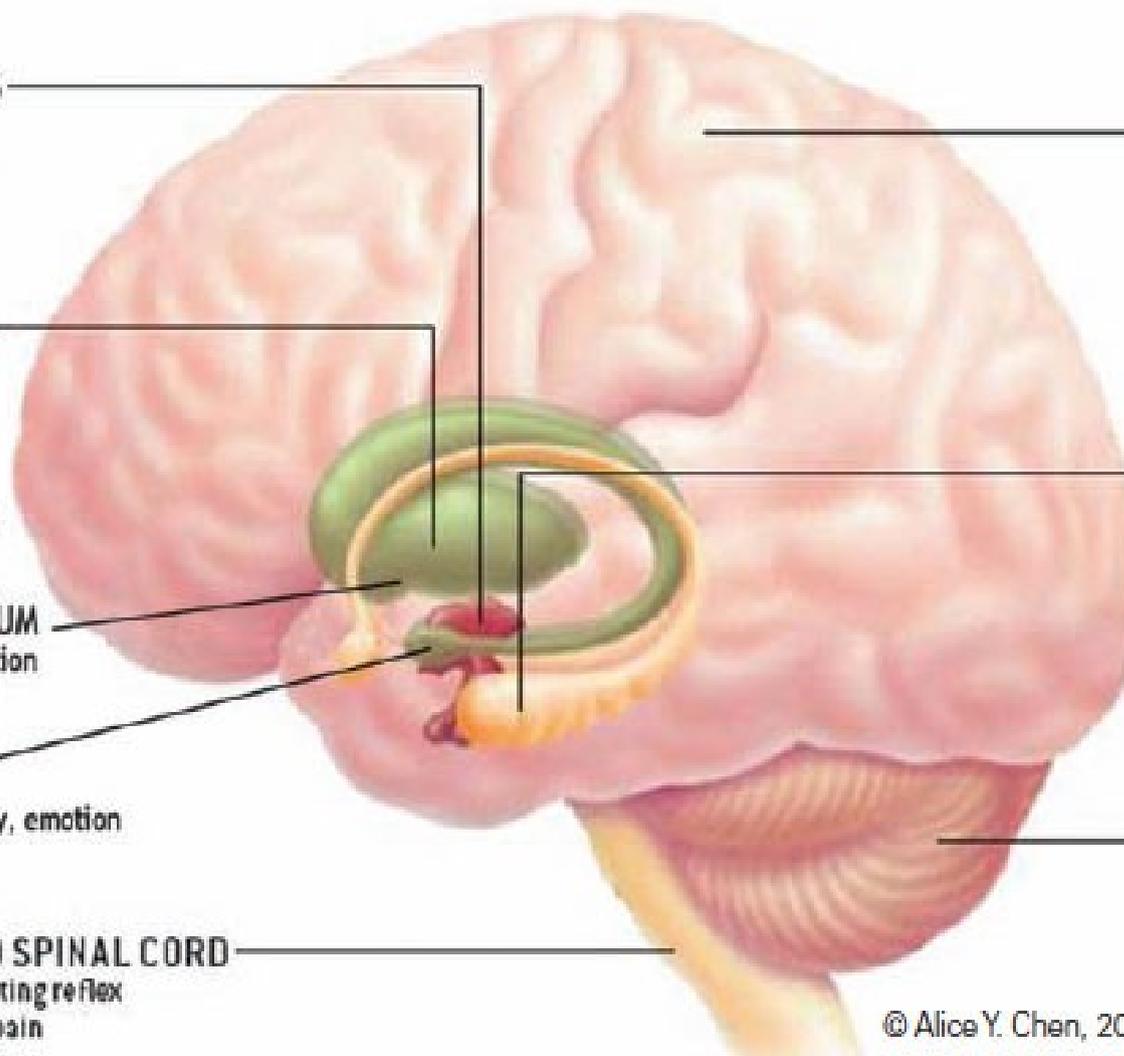
Responsible for higher cognitive functions and the integration of sensory information

HIPPOCAMPUS

Important for memory and the learning of facts, sequences and places

CEREBELLUM

Center for motor control and coordination



© Alice Y. Chen, 2004. Adapted from *Scientific American*.

When marijuana is smoked, its active ingredient, THC, travels throughout the body, including the brain, to produce its many effects. THC attaches to sites called cannabinoid receptors on nerve cells in the brain, affecting the way those cells work. Cannabinoid receptors are abundant in parts of the brain that regulate movement, coordination, learning and memory, higher cognitive functions such as judgment, and pleasure.

SUMMARY



Weed effects include losing interest in health, life, school activities, old friends and goals. But the use of weed creates a lowered awareness that very often prevents a weed abuser from being able to see his or her own impairment.

One of the most distinctive effects of weed use is the loss of motivation. Students lose interest in school perhaps in part because their ability to think clearly becomes impaired. They may struggle to remember things they are trying to learn. Long-term use is associated with a condition that includes apathy, impairment of judgement, lower ability to concentrate and loss of motivation and ambition. This condition may be accompanied by panic attacks and confusion.



THC - psychoactive

Hash oil: concentrated extract of plant

Sinsemilla: flowering tops of the female Cannabis plant with no seeds

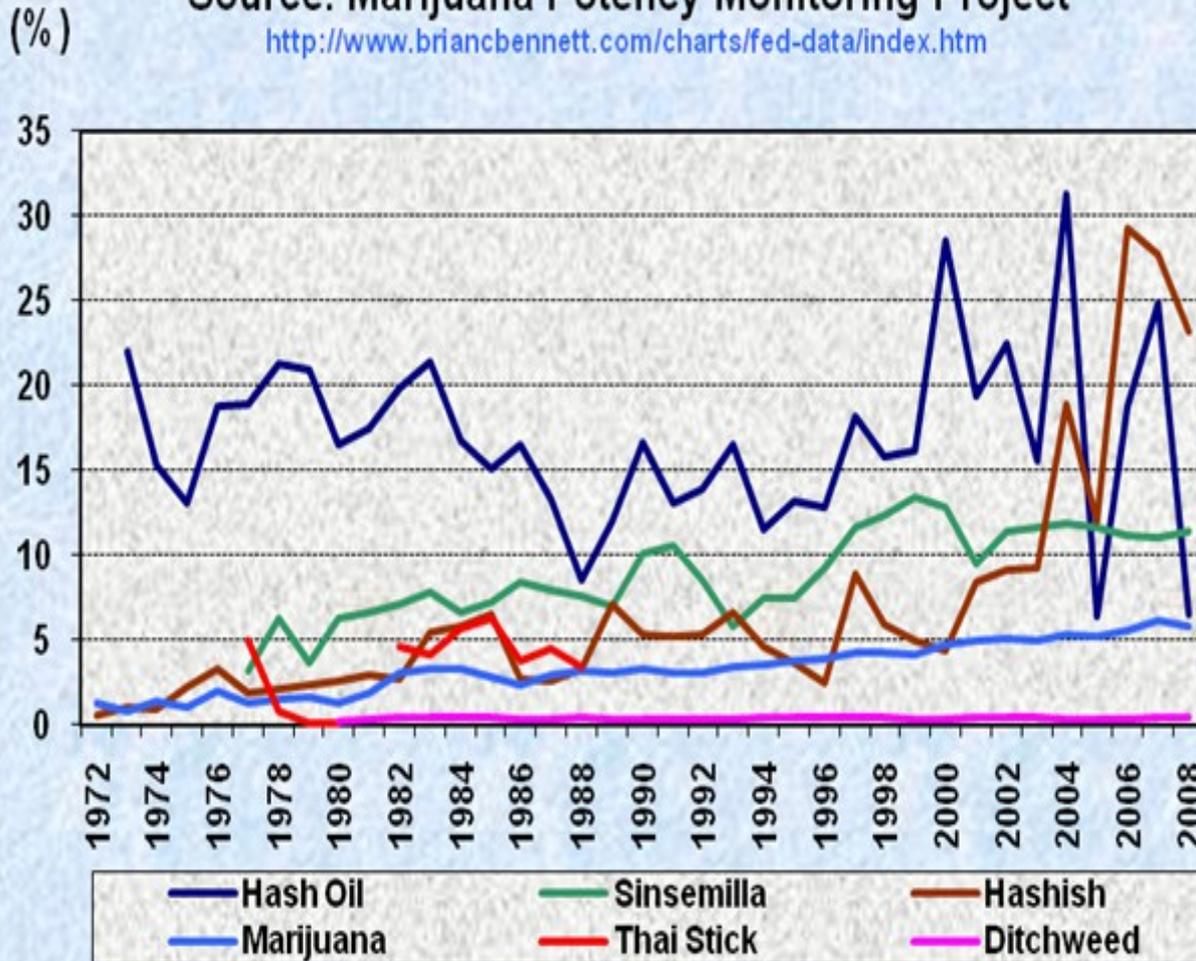
Hasish: resin

Marijuana: cannabis plant material with leaves, stems and seeds

Thai stick: leafy material tied around a small stem

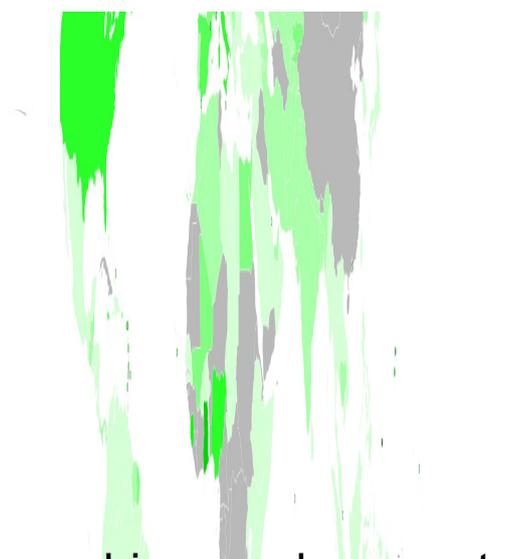
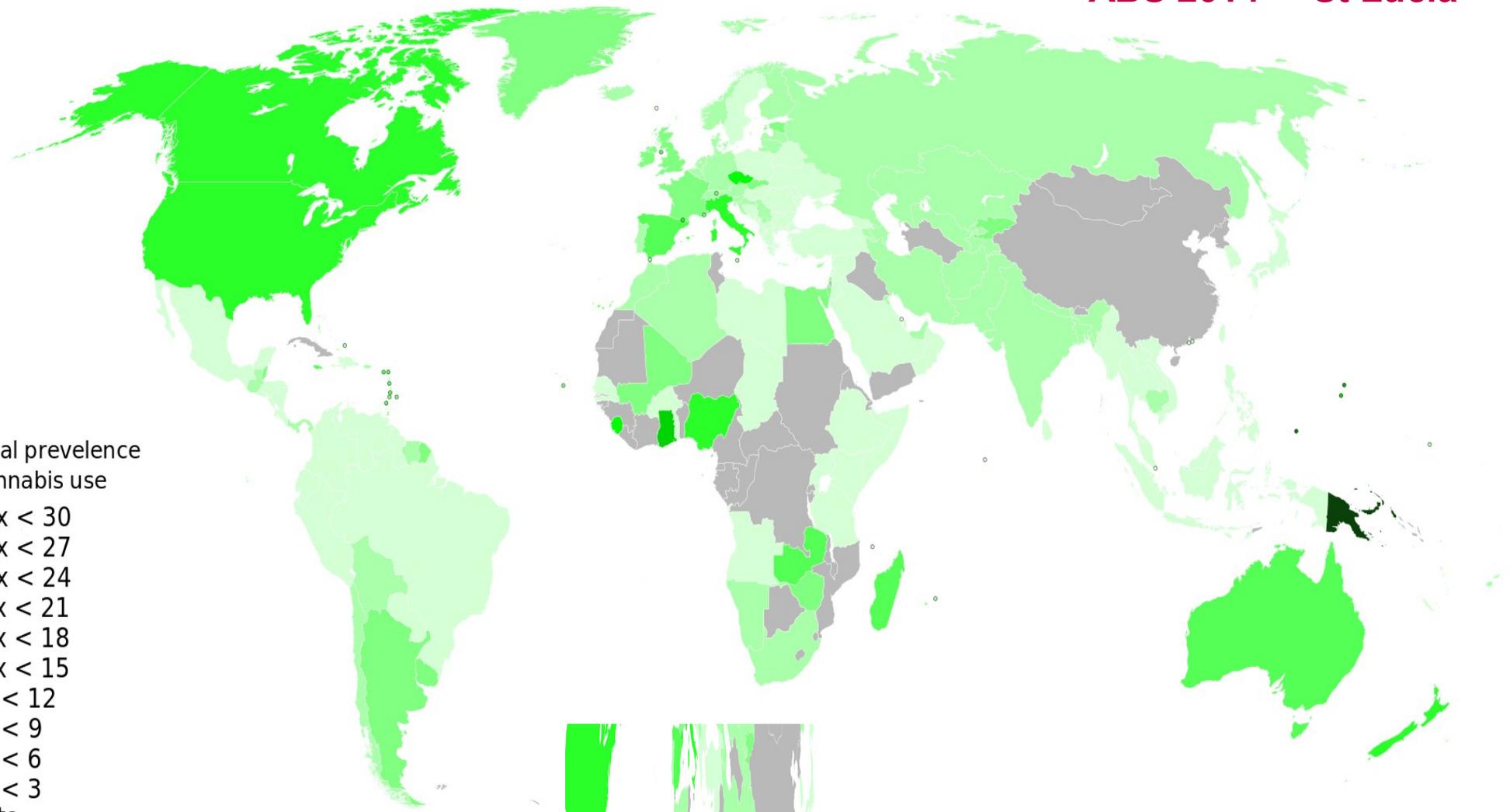
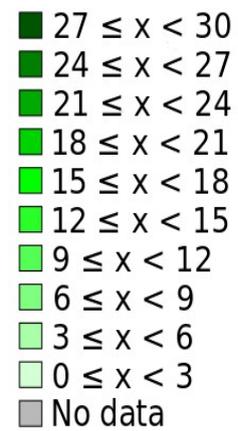
Ditchweed: fiber type cannabis
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Average THC Content
Source: Marijuana Potency Monitoring Project
<http://www.briancbennett.com/charts/fed-data/index.htm>



Avg % THC from seized samples

x = annual prevalence
of cannabis use



What is Cannabis?

PROS and CONS **Medical marijuana**

PROS

Prevents nausea caused by chemotherapy.

Helps HIV patients **regain appetite**.

Reduces seizures associated with epilepsy.

Reduces pressure in the eyes related to glaucoma.

Mild **pain reliever**.

Alleviates tremors, muscle spasms and pain of multiple sclerosis.



Image:
CBD Depot

CONS

Impairment of problem-solving skills, memory and balance.

Structural changes in the brain.

Risk of heart attack, chronic cough and hallucinations.

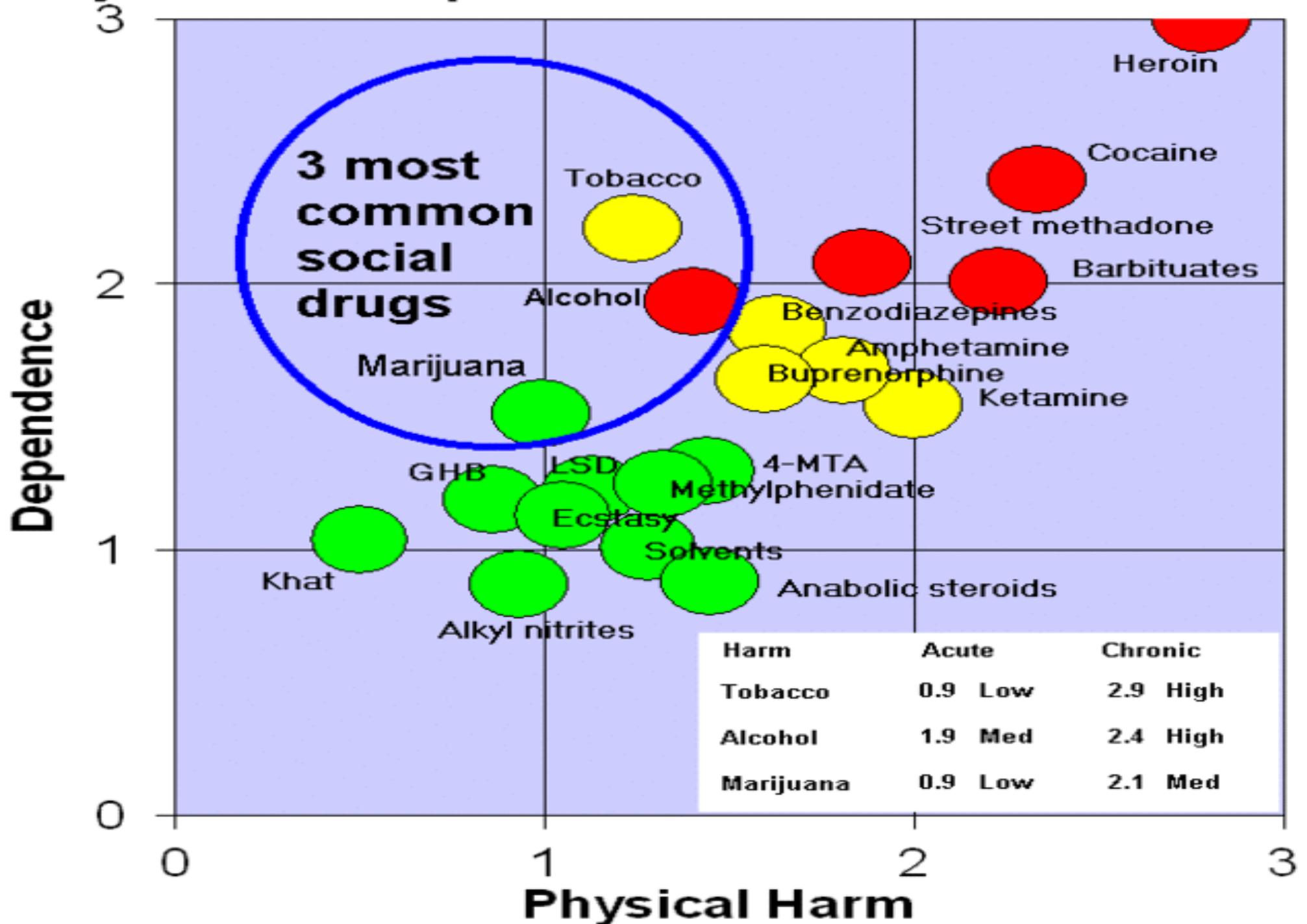
Potentially addictive and can lead to harder drug use.

Weakens respiratory systems.

Compromises immune systems.

Information from the Mayo Clinic Health Library and other sources.

Marijuana in comparison to Alcohol and Tobacco



Harm	Acute	Chronic
Tobacco	0.9 Low	2.9 High
Alcohol	1.9 Med	2.4 High
Marijuana	0.9 Low	2.1 Med



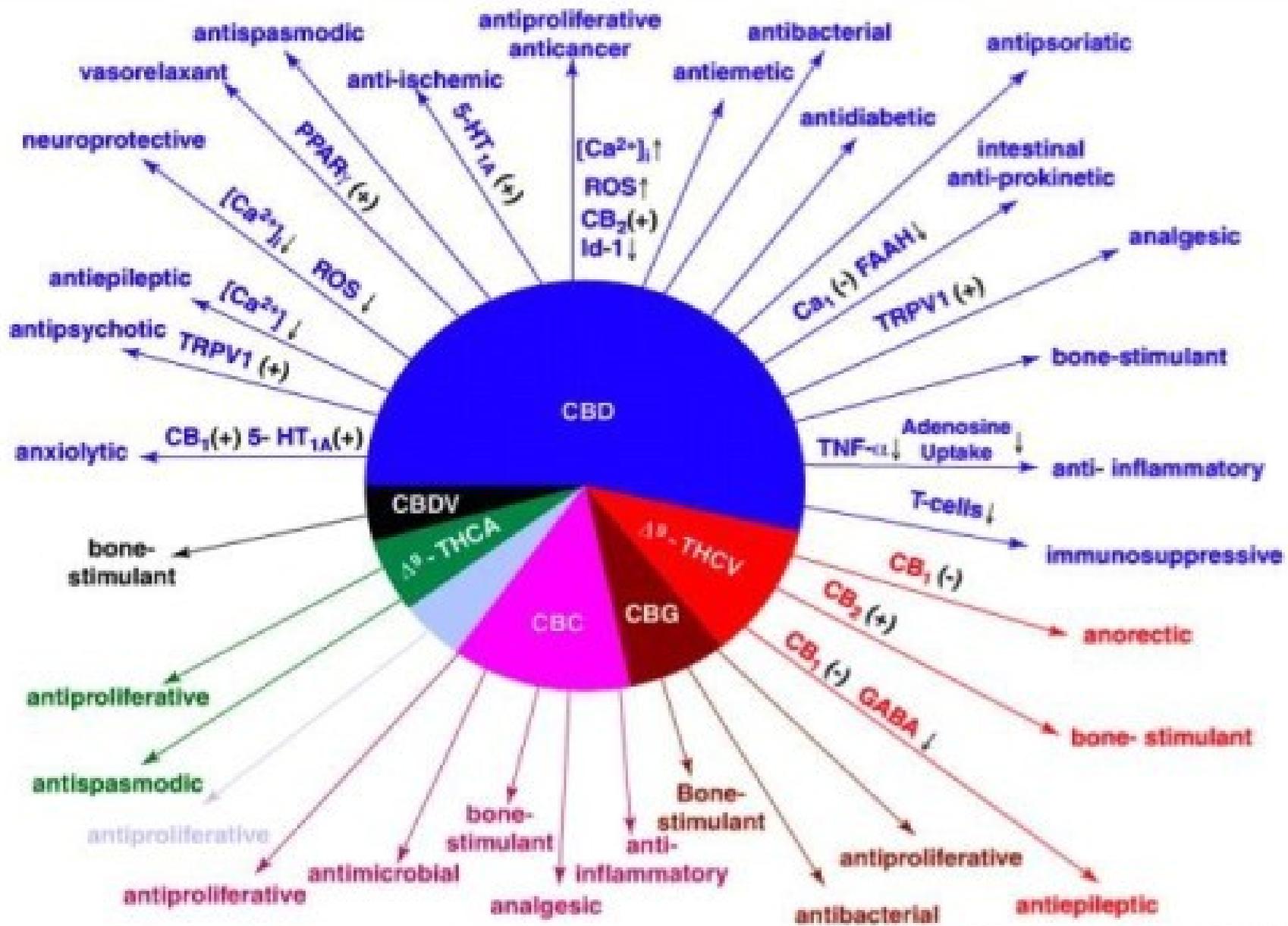
Unravelling prong two (medical effects) of a 3 prong cord – *Cannabis sativa*

What is Medical Marijuana?

Cannabidiol —CBD— is a compound in Cannabis that has medical effects, is non-psychotic and counters some of the effects of THC. CBD is one of the most abundant cannabinoids, contributing up to 40% of cannabis resin.

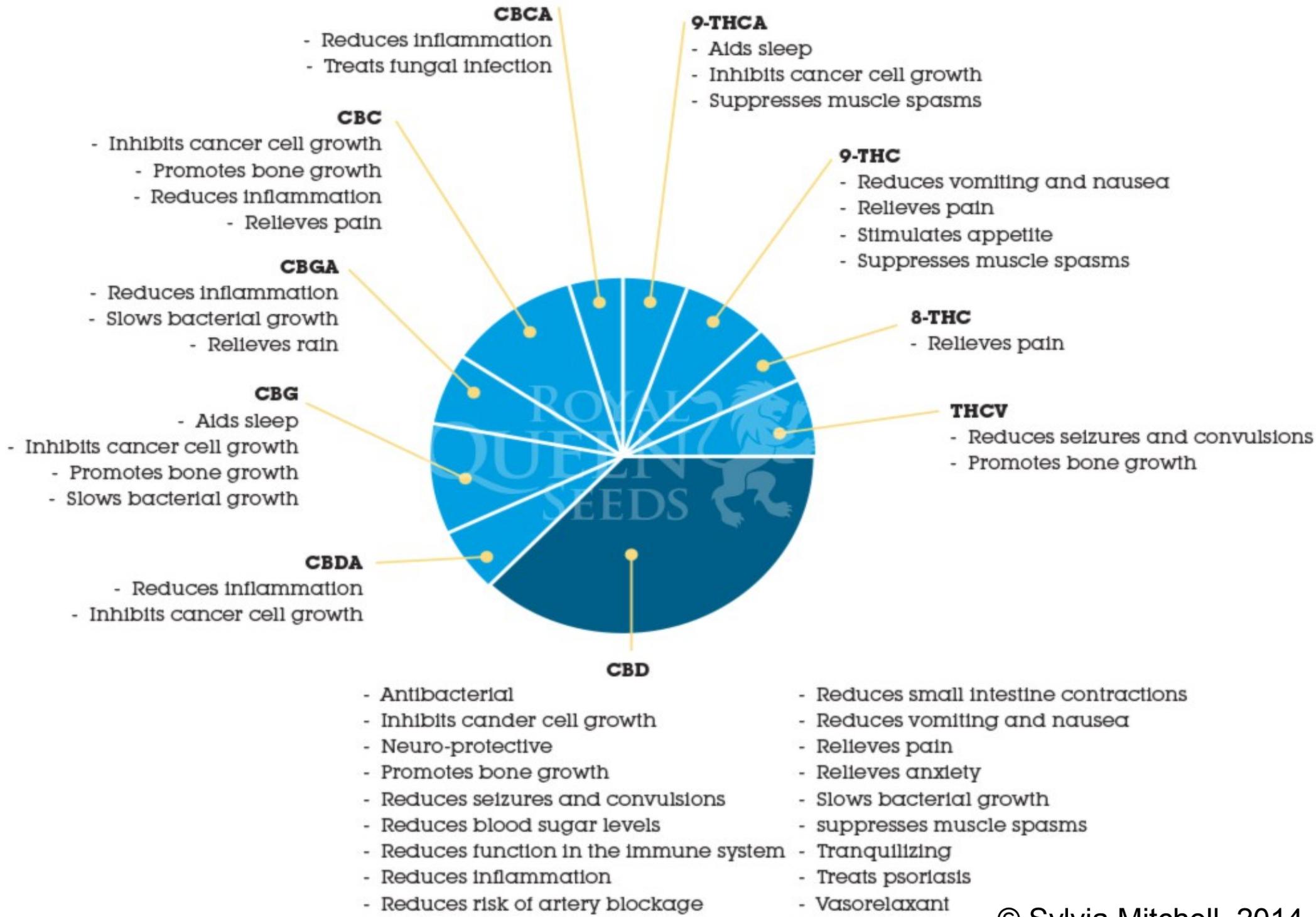
Combining THC and CBD have been found to increase clinical efficacy while reducing adverse effects. CBD works synergistically with THC, bolstering its medical effects while moderating its psychoactivity.

After decades in which only high-THC Cannabis was available, CBD-rich strains are now being grown by and for medical users.



TRENDS in Pharmacological Sciences

Figure 1. Pharmacological actions of non-psychoactive cannabinoids (with the indication of the proposed mechanisms of action).
 Abbreviations: Δ^9 -THC, Δ^9 -tetrahydrocannabinol; Δ^8 -THC, Δ^8 -tetrahydrocannabinol; CBN, cannabiniol; CBD, cannabidiol; Δ^9 -THCV, Δ^9 -tetrahydrocannabivarin; CBC, cannabichromene; CBG, cannabigerol; Δ^9 -THCA, Δ^9 -tetrahydrocannabinolic acid; CBDA, cannabidiolic acid; TRPV1, transient receptor potential vanilloid type 1; PPAR γ , peroxisome proliferator-activated receptor γ ; ROS, reactive oxygen species; 5-HT $_{1A}$, 5-hydroxytryptamine receptor subtype 1A; FAAH, fatty acid amide hydrolase.
 (+), direct or indirect activation; \uparrow , increase; \downarrow , decrease.



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Two viewpoints

MEDICAL MARIJUANA

THIS SIMPLE DRIED
HERB IS ILLEGAL



HOWEVER, IF A MULTINATIONAL
DRUG COMPANY GRINDS UP THAT
HERB, EXTRACTS THE CANNABIS
SATIVA AND CREATES SYNTHETIC
DELTA-9-TETRAHYDROCANNABI-
NOL, COMBINES IT WITH
GELATIN, GLYCERIN, IRON OXIDE
RED, IRON OXIDE YELLOW, TITA-
NIUM DIOXIDE, MARKETS IT TO
DOCTORS AND HOSPITALS UN-
DER THE NAME MARINOL AND IN
THE PROCESS MAKES A BUNCH
OF WEALTHY WALL STREET IN-
VESTORS EVEN RICHER, THEN
IT'S LEGAL.

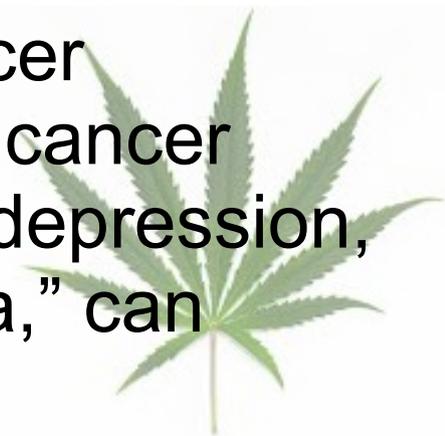


Mitchell
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Two viewpoints

When PBS interviewed a doctor who is against cannabis, his main complaint was that marijuana was not tested and approved by the FDA. He correctly observed that the natural herb contains more than 60 active components that have never been tested in isolation, which is how drugs are produced and patented.

PBS also interviewed an Oncology physician who has studied cannabis and states that it contains: “anti-inflammatory, antioxidant, and probably anti-cancer compounds in it.” He prescribes cannabis for his cancer patients for “their loss of appetite, nausea, pain, depression, and insomnia.” He says this one drug, “marijuana,” can replace 5 prescription drugs.



Hemp – *Cannabis sativa*



Unravelling prong three (multi-use hemp) of a 3 prong cord – *Cannabis sativa*

Cannabis and hemp plants used to be the same exact thing; until scientists began breeding the psychoactive qualities out of the Cannabis plants. This was done in order to assure security on industrial hemp farms by lowering the THC to $>0.3\%$. If a Cannabis plant tests at or below this level it may be legally cultivated in most parts of the world and used for industrial and medical purposes.



Hemp is traditionally planted in a much denser ratio than Cannabis (usually around 200 plants per m^2).

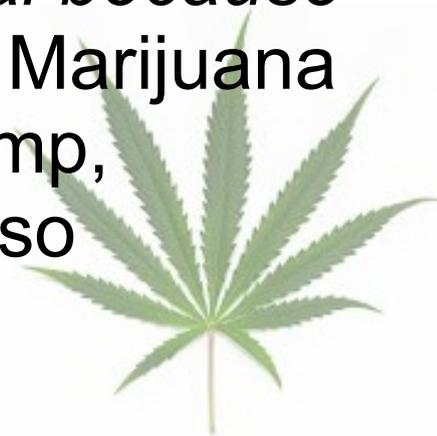
Primary fibres are longer and tend to be combined with those of other plants such as bamboo, soy and silk to make durable and wearable clothes and upholstery.



Hemp vs Wood

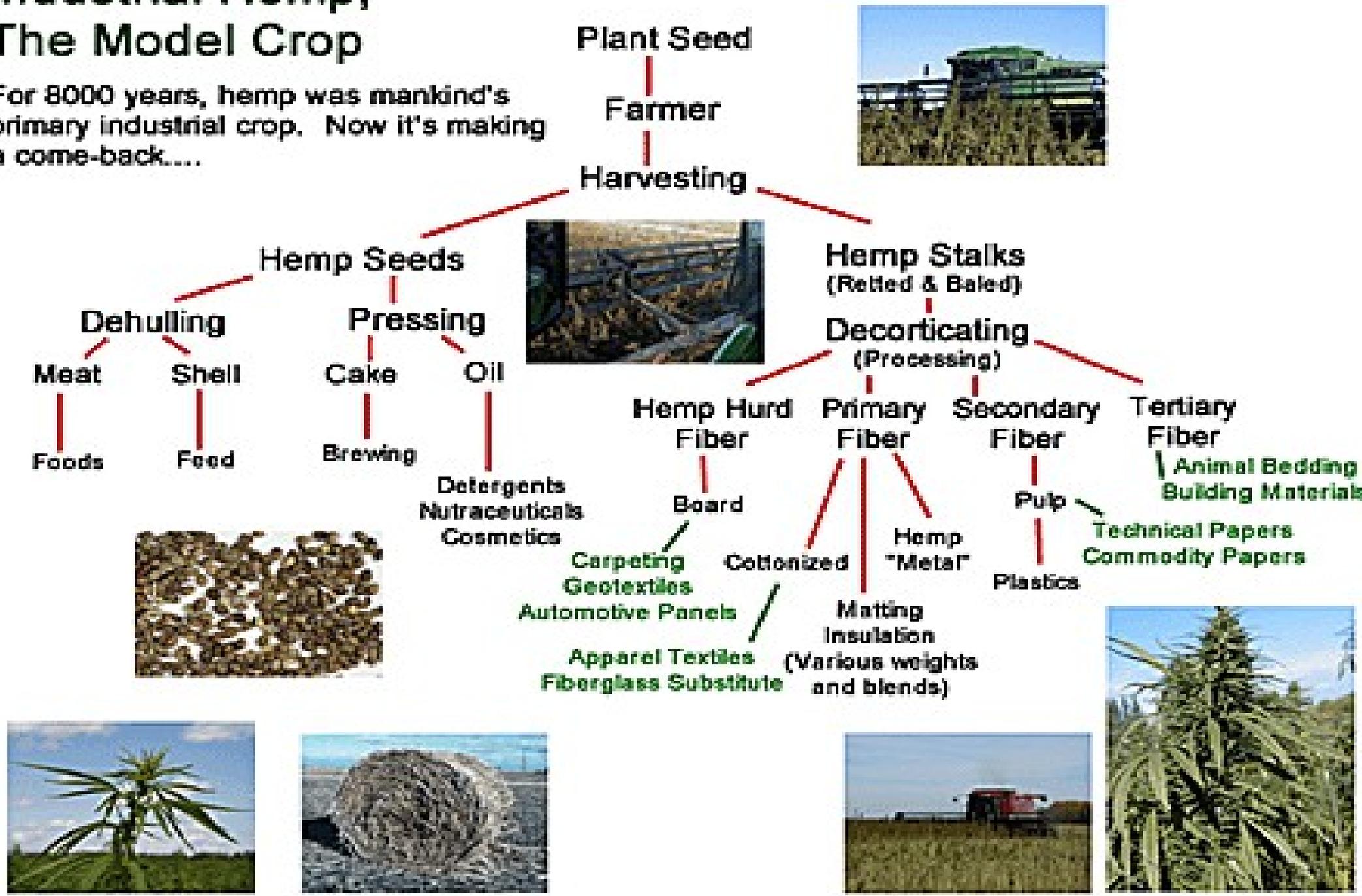
Hemp is is more efficient, cost effective & environmentally friendly than wood. One acre of hemp can produce as much paper as 4 to 10 acres of trees over a 20-year cycle, but hemp stalks only take four months to mature, whereas trees take 20 to 80 years.

Because cannabis and hemp were viewed as the same plant at the time (*which is like comparing a Great Dane to a Shih Tzu and saying they are the same animal because they are both dogs*), after congress passed the Marijuana Tax Act of 1937, the production of industrial hemp, despite being unable to get people high, was also criminalized and exorbitantly taxed.

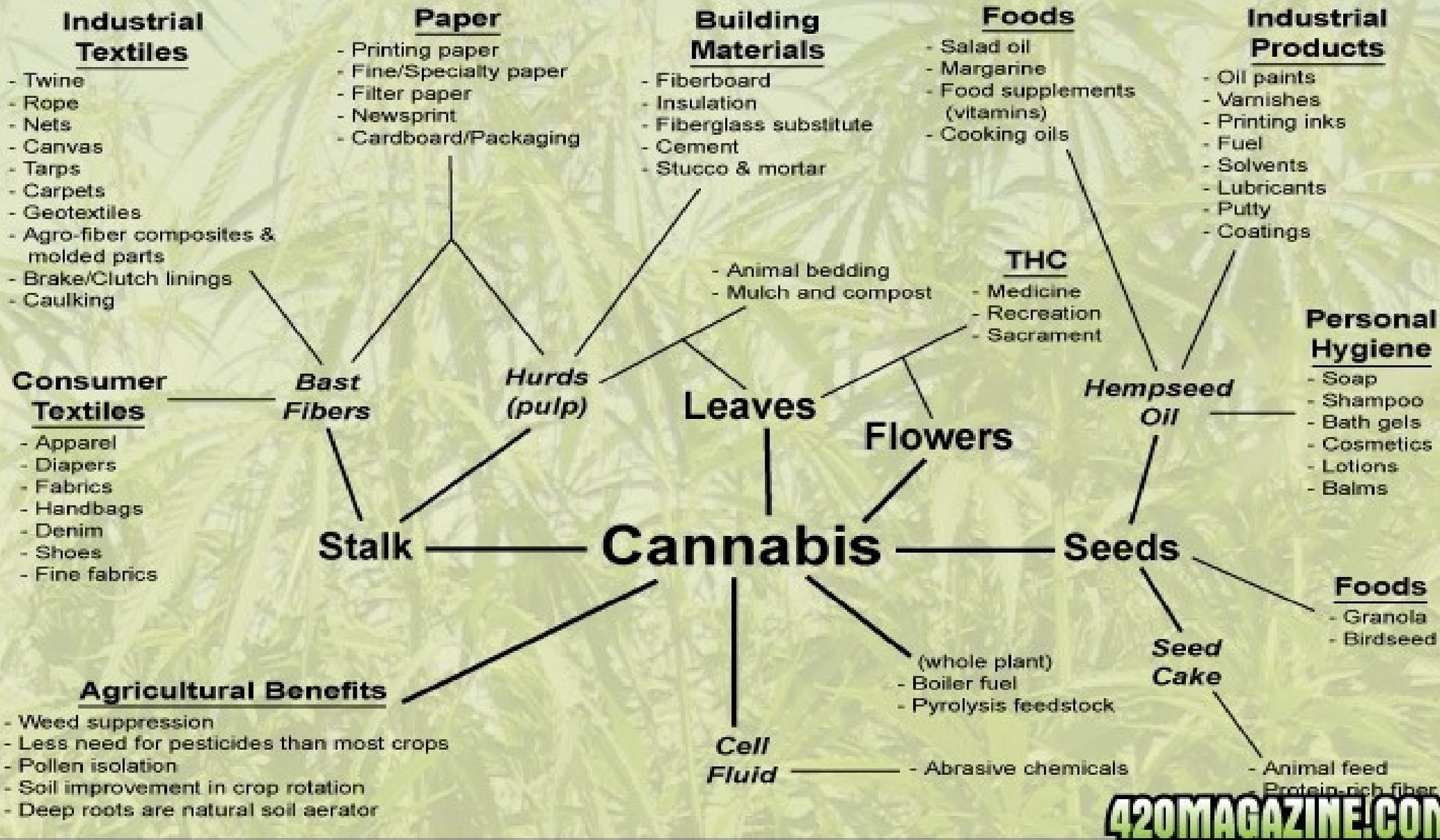


Industrial Hemp, The Model Crop

For 8000 years, hemp was mankind's primary industrial crop. Now it's making a come-back....



Modern Uses for the Cannabis Plant



History

- "According to Chinese legend, the emperor Shen Nung (circa 2700 BC; also known as Chen Nung) [considered the Father of Chinese medicine] discovered marijuana's healing properties as well as those of two other mainstays of Chinese herbal medicine, ginseng and ephedra."
- Holy anointing oil, Exodus (30:22-23), contained cannabis, extracted into about six quarts of olive oil, along with a variety of other fragrant herbs.
- Prescriptions for cannabis in Ancient Egypt include treatment for the eyes (glaucoma), inflammation, and cooling the uterus, as well as administering enemas.



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Historical developments

ABS 2014 – St Lucia

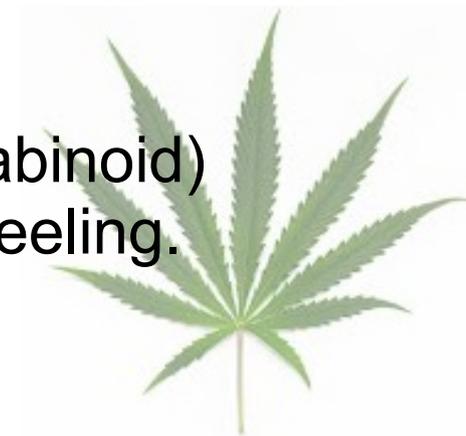
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- **200:** Chinese surgeon - cannabis resin & wine as anaesthetic
- **1611:** Marijuana brought to North America & hemp was farmed
- **1799:** Napoleon brings C from Egypt to France, studies ethno medicinal uses
- **1850:** Medical uses of Cannabis placed in US Pharmacopeia – removed in 1942
- **1911:** Cannabis outlawed in Massachusetts
- **1918:** During WWI – 60,000 lbs of *Cannabis indica* was produced in pharmaceutical farms east of the Mississippi
- **1925:** UN Multilateral Treaty - authorises the use of “Indian hemp”(cannabis) for scientific and medical purposes only.
- **1937:** Marijuana Tax Act of the USA. That made the 28 medical formulations suddenly illegal.
- **1956:** Marijuana included in Narcotics Control Act



Historical developments

- **1964** – THC identified and synthesized
- **1970** – Marijuana classified as a Drug with “No accepted medical use” - Schedule 1 (Class B – UK - 1971)
- **1976** - provided Randall with licit FDA-approved access to govt supplies of medical marijuana for glaucoma
- **1983** – Jamaica - Cannasol for glaucoma
- **1985** – Marinol, syn form of THC, approved for nausea and vomiting associated with cancer chemotherapy by FDA
- **1990** – Jamaica - Asmasol for asthma
- **1991** – Medical Necessity Defence
- **1992** – brain's endogenous cannabinoid (endocannabinoid) discovered, turned on by vigorous exercise = good feeling.
- **1993** – CBD identified
- **1996** – California first State to legalise medical marijuana
- **1999** – Marinol moved to Schedule III



Recent developments

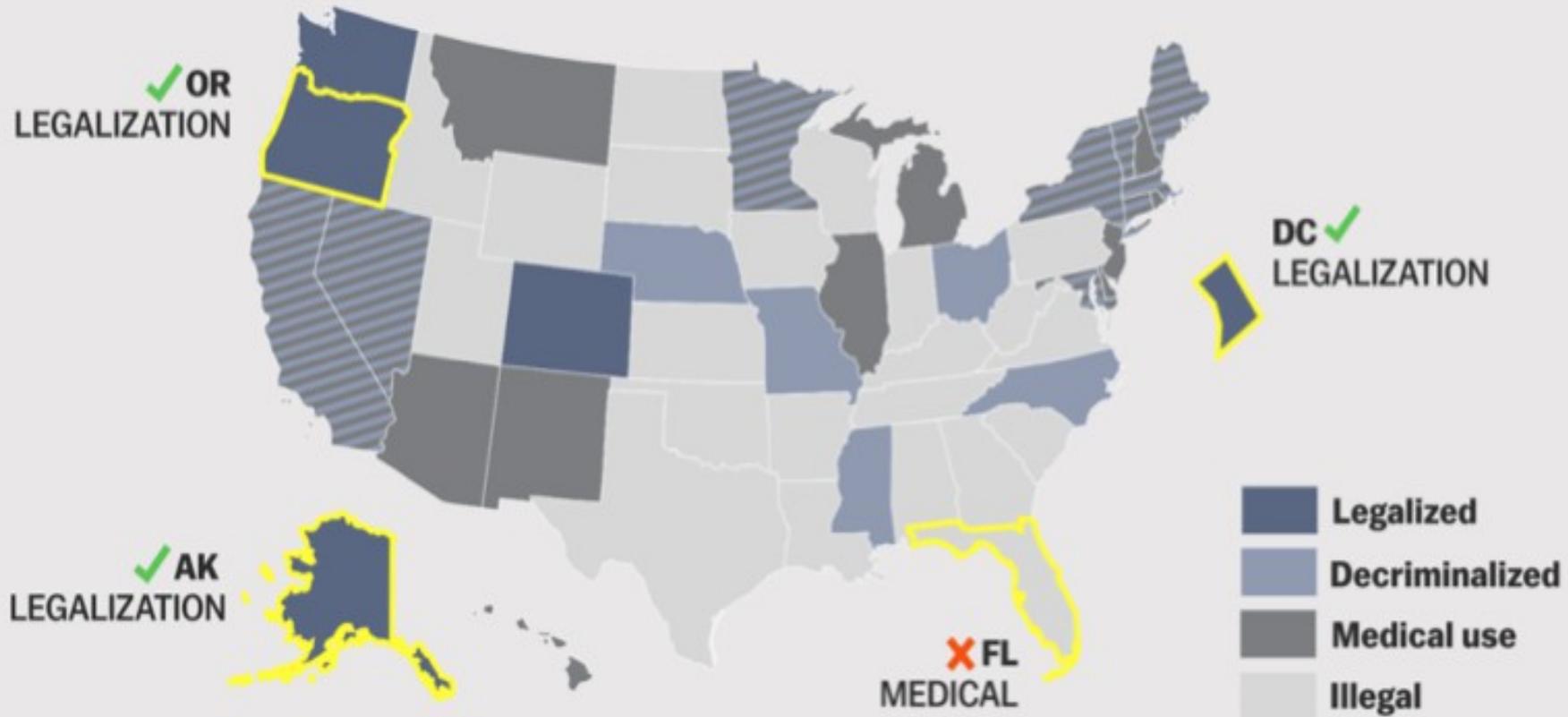
- **2000** – Hawaii becomes 6th State to legalize medical marijuana
- **2003** - First Canadian patient to receive govt-grown marijuana
 - Netherland pharmacies legally stock medical cannabis for brewing as tea
 - US govt receives **cannabinoid patent** for therapeutic use as antioxidants and neuroprotectants
- **2004** – UK moves Cannabis to Class C and then back in 2008
- **2006** – FDA opposed to smoked marijuana for medical purposes
- **2013** – Jamaican House of Representatives passed a motion to decriminalise possession of small amounts of ganja
- **2014** - Farm Bill allows all U.S. States Agriculture Departments to grow Industrial Hemp, without Restrictions
 - NY 24th state to legalise medical marijuana
 - Jamaica is reforming policies on possession, religious use and medical use at more or less the same time



Vox

Where is marijuana legal?

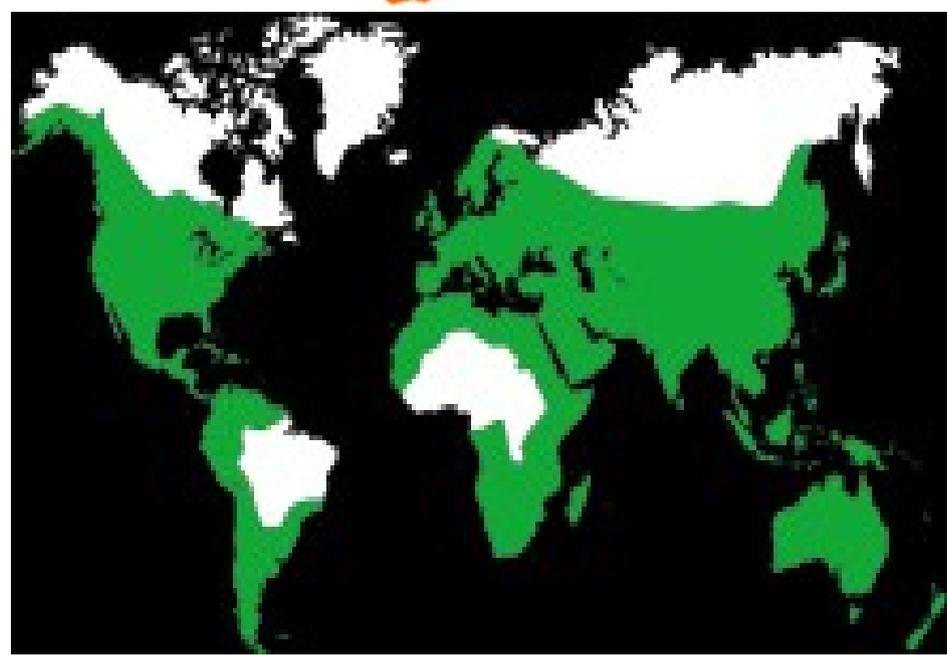
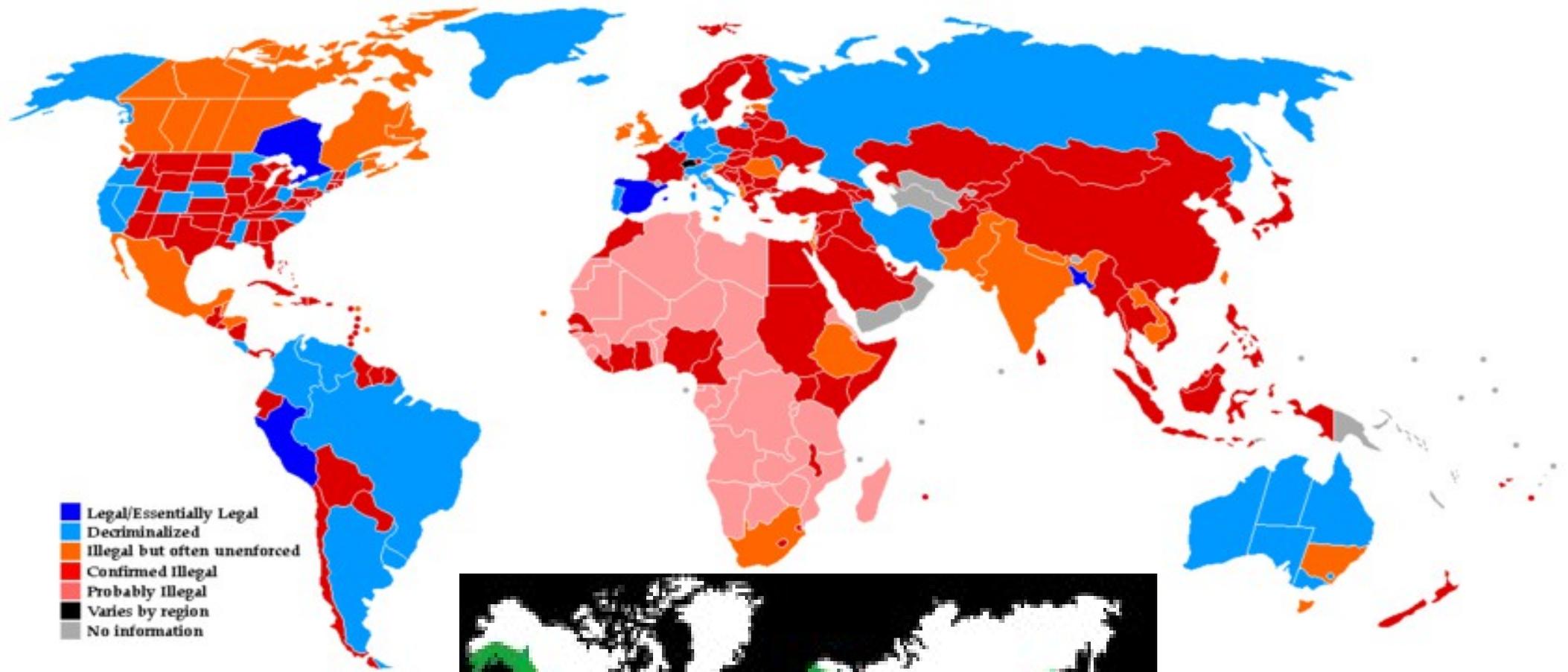
2014 ballot results



RECREATIONAL CANNABIS GETS THE “GREEN LIGHT” IN ALASKA, OREGON AND WASHINGTON

© Sylvia Mitchell, 2014

D.C. <http://www.medicininc.com/2014/11/05/recreational-cannabis-gets-the-green-light-in-alaska-oregon-and-washington-d-c/>



Nagoya Protocol

- Who needs access?
 - Farmer varieties
 - Patented varieties
- Who benefits?
 - Farmers
 - Golding said the regulatory framework needed for a medical marijuana and scientific research industry in Jamaica was still being debated. Setting maximum limits on pot cultivation was not anticipated, he said, but the government wanted to ensure that small farmers “are not excluded and it does not just become something exclusively for major capital-intensive investors”.



Hemp

Marijuana

Cannabis sativa

SPECIES

Cannabis sativa

0.3 percent

PSYCHOACTIVE CONTENT

10 percent

Auto parts, soap, concrete

USES

Getting high

\$452 million

ESTIMATED DOMESTIC MARKET VALUE

\$10 billion-\$120 billion

THANK YOU

GETTY IMAGES(2)

