

Understanding the Hemp Landscape Part I

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Neurosurgery Certificate in Training

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- ▶ Graduate from the Auburn College of Veterinary Medicine
- ▶ One of ~350 boarded Veterinary Neurologists practicing in the world.
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- ▶ Published author & globally recognized expert
- ▶ Passion lies in all aspects of neurosurgery with a particular interest in brain and cervical neurosurgery



Bush Veterinary Neurology Service

UNDERSTANDING THE HEMP LANDSCAPE

- ▶ History
- ▶ Marijuana (Medical and Recreational) and Industrial Hemp
- ▶ Legalities
- ▶ The Endocannabinoid System
- ▶ Possible Clinical Implications



Measuring a hemp plant 4m. high.
Arlington Farm, Aug. 28, 1949.

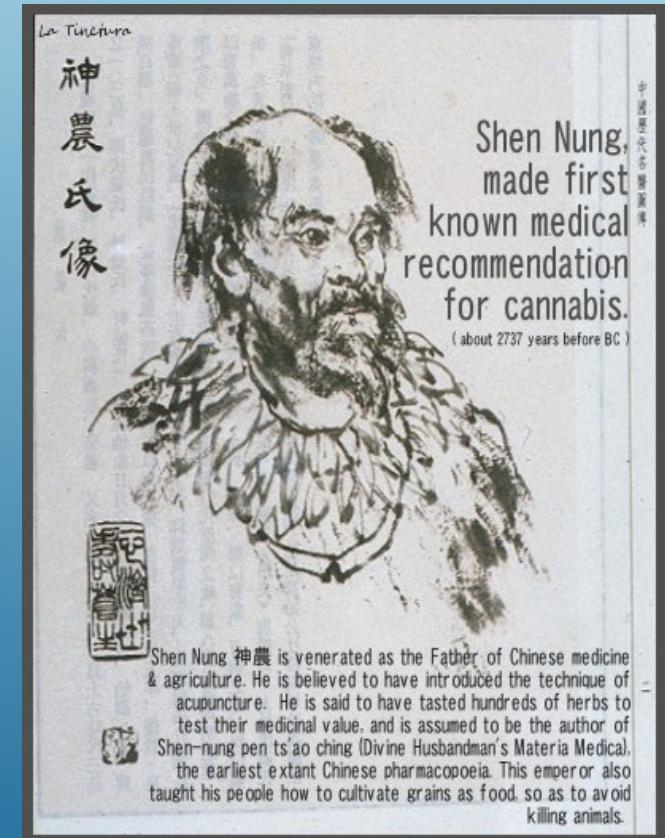
Lyster Dewey tended Arlington Farm (Arlington National Cemetery), acreage used to grow hemp and used in 1940s construction of the Pentagon

HEMP HISTORY

- ▶ Hemp fabric date to 8,000 Mesopotamia is one of the oldest human relics
- ▶ One of the earliest known cultivated plants
 - ▶ Used and farmed for at least 12,000 years.
 - ▶ Only plant cultivated in hunter-gatherer societies (African Pygmy).
- ▶ Used medicinally for at least 6,000 years
- ▶ Chinese first to use hemp for its fiber then in medicines and tinctures
- ▶ Indian mythology: has Shiva and hemp at the beginning of time
- ▶ Indian warriors drank “Bhang” prior to battle
- ▶ Egyptian texts have written descriptions of medicinal uses and indications
- ▶ Carbonized hemp seeds in Pompeii ruins left by Mount Vesuvius eruption



Photo Credit: Werner Forman/ Art Resources, NY



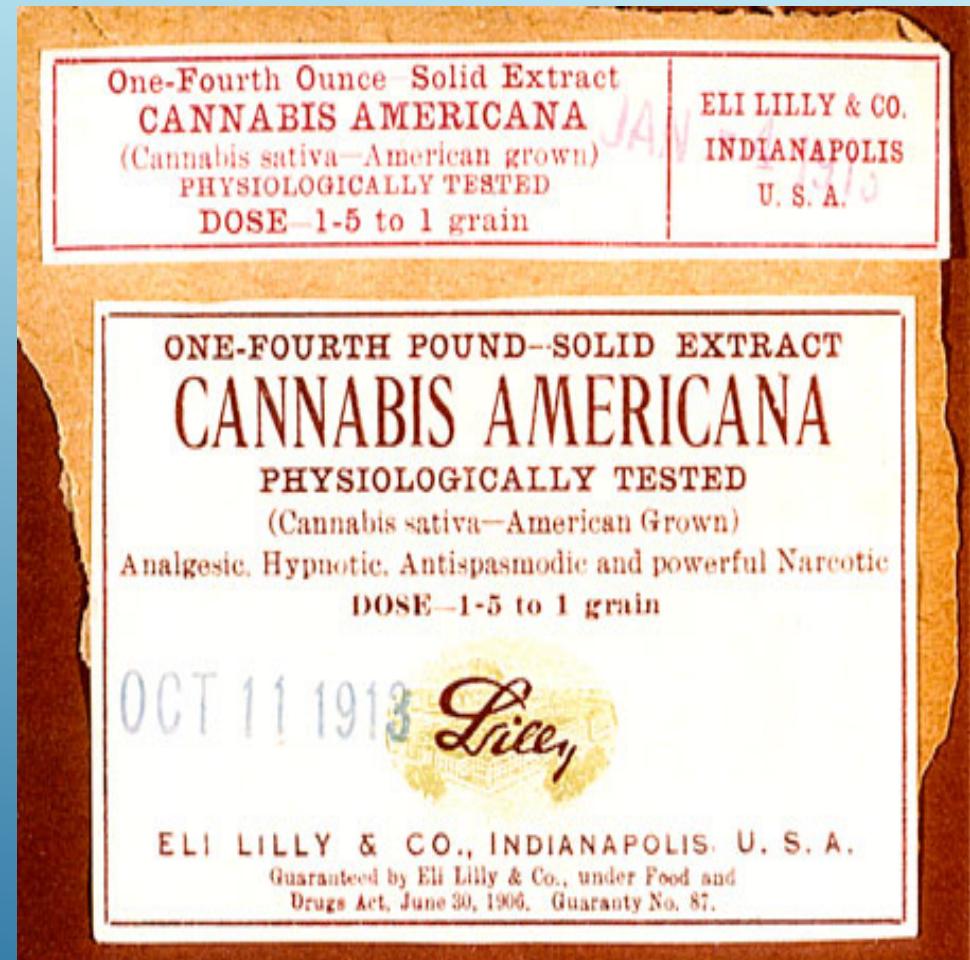
PORTICOS OF BOLOGNA BUILT DURING THE MIDDLE AGES (1100 TO 1453 AD)



Panis vita, cannabis protectio, vinum laetitia roughly 'Bread is life, Canabis protection, wine happiness'
Cannabis played an important part in the city's wealth for centuries

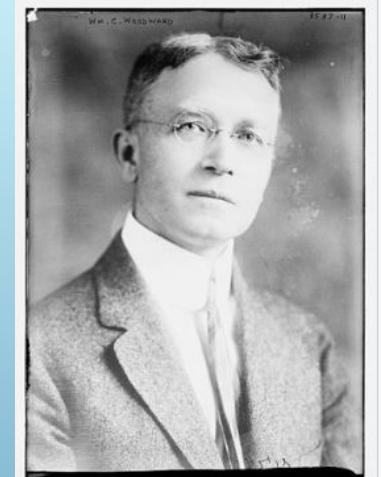
HEMP HISTORY

- ▶ Cannabis was the third most prescribed medicinal agent for 60 years running prior to its prohibition in 1937.
- ▶ Eli Lilly, Pfizer, Parke-Davis, et al. had medical cannabis products.
- ▶ Parke-Davis and Eli Lilly developed their own indica strain, Cannabis americana



HEMP HISTORY

- ▶ Bibles, maps, log books, clothing, ship's riggings, shoes, parachute webbing, baggage, building supplies, bedding, food, fuel, medicines
- ▶ In America, between 1763 and 1767, you could be jailed for not growing cannabis
- ▶ The Marijuana Tax Act 1937 required an expensive "stamp" for farmers to grow any type of cannabis forcing farmers to turn to other commodities.
- ▶ Andrew Mellon, Secretary of Treasury; Randolph Hearst (timber) and DuPont behind the passing 1937 MTA
- ▶ Only one witness opposed the bill at the hearings for the 1937 Marijuana Tax Act: a physician, Dr. W.C. Woodward of the AMA from Georgetown.
- ▶ Brief reprieve during WWII when this tax was lifted for farmers to grow hemp for the war effort – USDA gave seeds to the farmers
- ▶ Reinstated after WWII - hemp industry went kaput or underground



William Creighton Woodward circa 1915

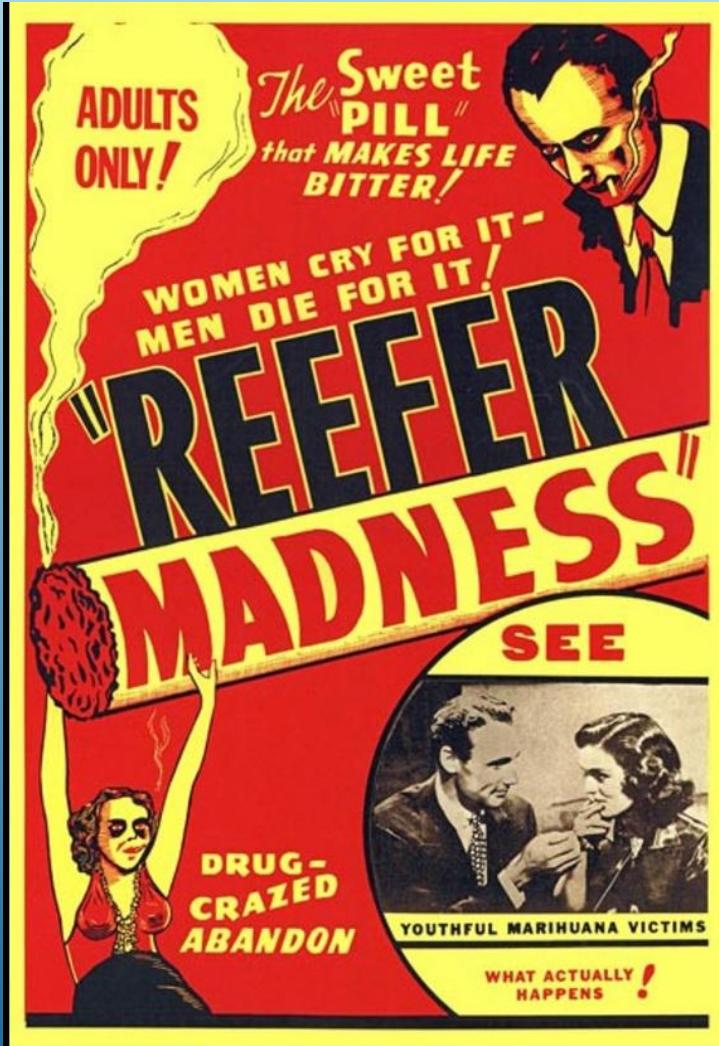
Help Wanted
—By—
**War Hemp
Industries, Inc.**

Representatives of the U. S. Employment Service will be at the Jackson county Court House in the Farmers' Room, all day,

Tuesday, May 23

to assist both men and women who want to work at the Jackson Hemp Plant. Previous applicants should also renew their applications at this time.

FAST FORWARD TO THE PRESENT



- ▶ The stigma surrounding the hemp plant is a relatively new issue in lieu of 12,000 years of accepted use given its recent ~80 year ban...

ON THE HUMAN SIDE:

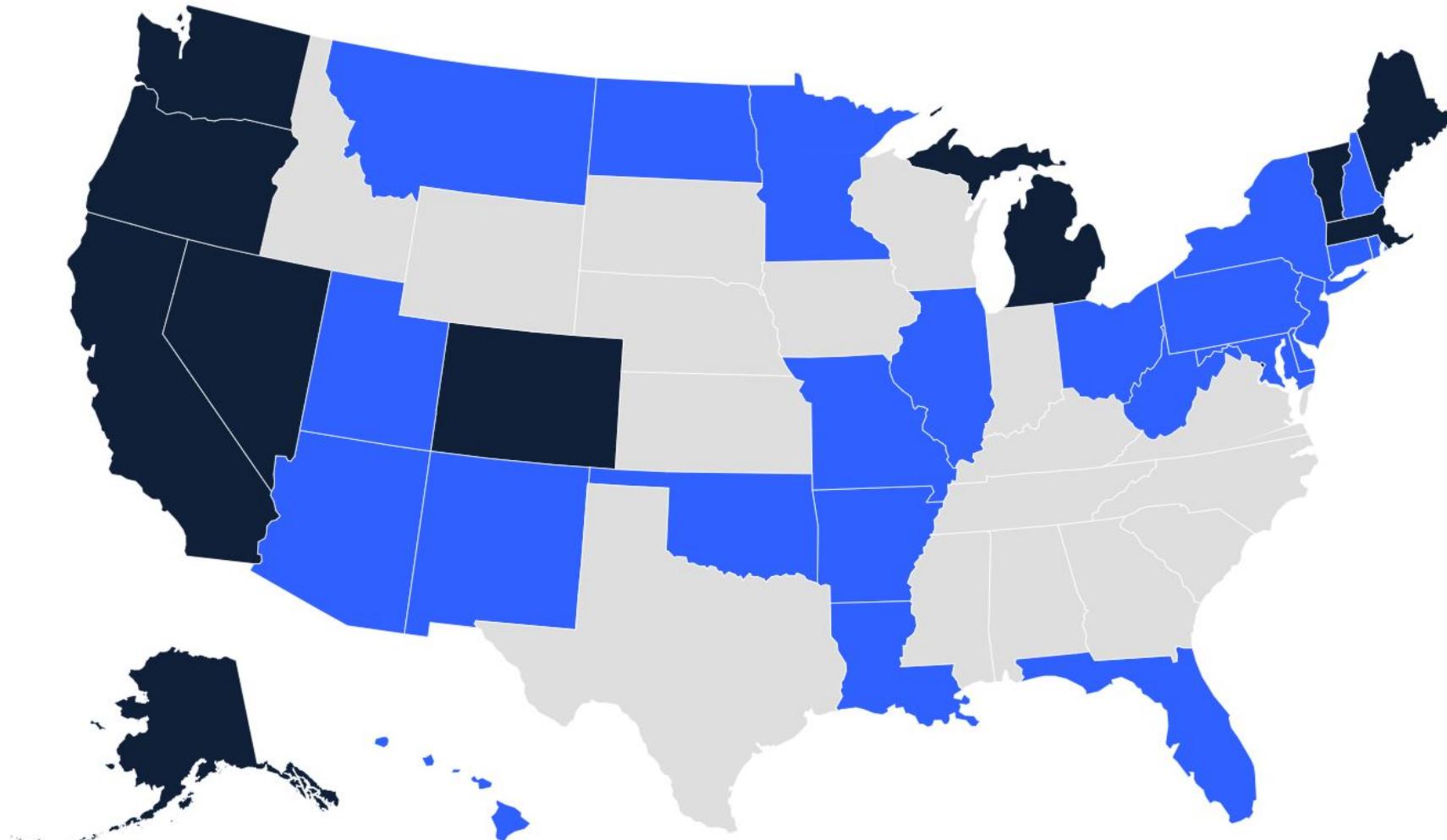
- MEDICAL MARIJUANA LEGAL IN 33 STATES AND THE DISTRICT OF COLUMBIA
- RECREATIONAL MARIJUANA LEGAL IN 10 STATES AND THE DISTRICT OF COLUMBIA 

- ▶ Alaska 
- ▶ Illinois
- ▶ New Jersey
- ▶ Vermont 
- ▶ Arizona
- ▶ Louisiana
- ▶ New Mexico
- ▶ Washington 
- ▶ Arkansas
- ▶ Maine 
- ▶ New York
- ▶ West Virginia
- ▶ California 
- ▶ Maryland
- ▶ North Dakota
- ▶ Restricted Use: AL,
FL, GA, IA, KY, LA,
MI, MO, NC, SC,
VA, WI, WY
- ▶ Colorado 
- ▶ Massachusetts 
- ▶ Ohio
- ▶ Connecticut
- ▶ Michigan 
- ▶ Oklahoma
- ▶ Oregon 
- ▶ Delaware
- ▶ Minnesota 
- ▶ Pennsylvania
- ▶ Rhode Island
- ▶ District of Columbia
- ▶ Montana
- ▶ Utah
- ▶ Florida
- ▶ Nevada 
- ▶ Hawaii
- ▶ New Hampshire

America's marijuana map

States that allow marijuana for medical and recreational use.

■ Medical ■ Recreational and medical



Source: National Conference of State Legislatures

Graphic: Jiachuan Wu / NBC News

HEMP IS NOT MARIJUANA

CANNABIS COMES IN TWO VERSIONS

Hemp

Very large plant
Little to no THC
Non intoxicating
100% legal
Side benefits

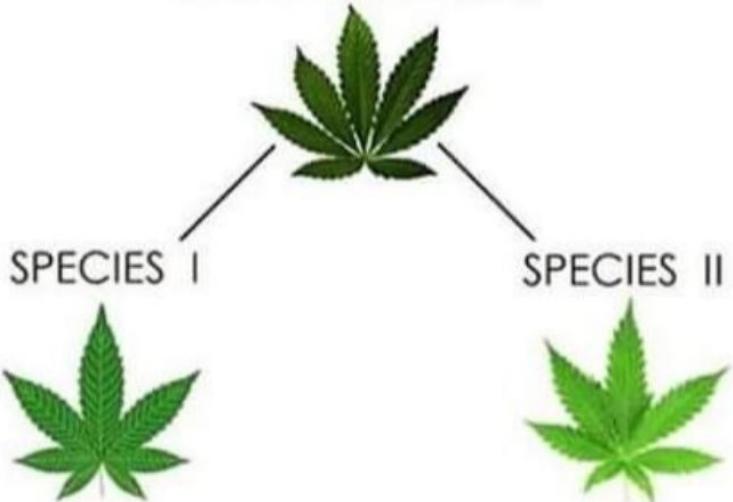
Marijuana

Very small plant
High in THC
Intoxicating
Illegal
Side effects



The Confusion

CANNABIS
HAS TWO SPECIES



HEMP
contains 20%+ CBD
contains less than 0.3% THC

MARIJUANA
contains 10%+ CBD
contains more than 20% THC

Species I is a Hemp extract with all the cannabinoids except for THC, which means it has all the beneficial properties of cannabis without the HIGH!

Types Of Weed

SATIVA



INDICA



RUDERALIS



Cannabis Ruderalis is characterized by varied leaflets in the mature leaves, a shorter stature and generally small size. This subspecies is used to create S. Sativa or S. Indica hybrids with select desired traits.

www.Types-of-Weed.ORG

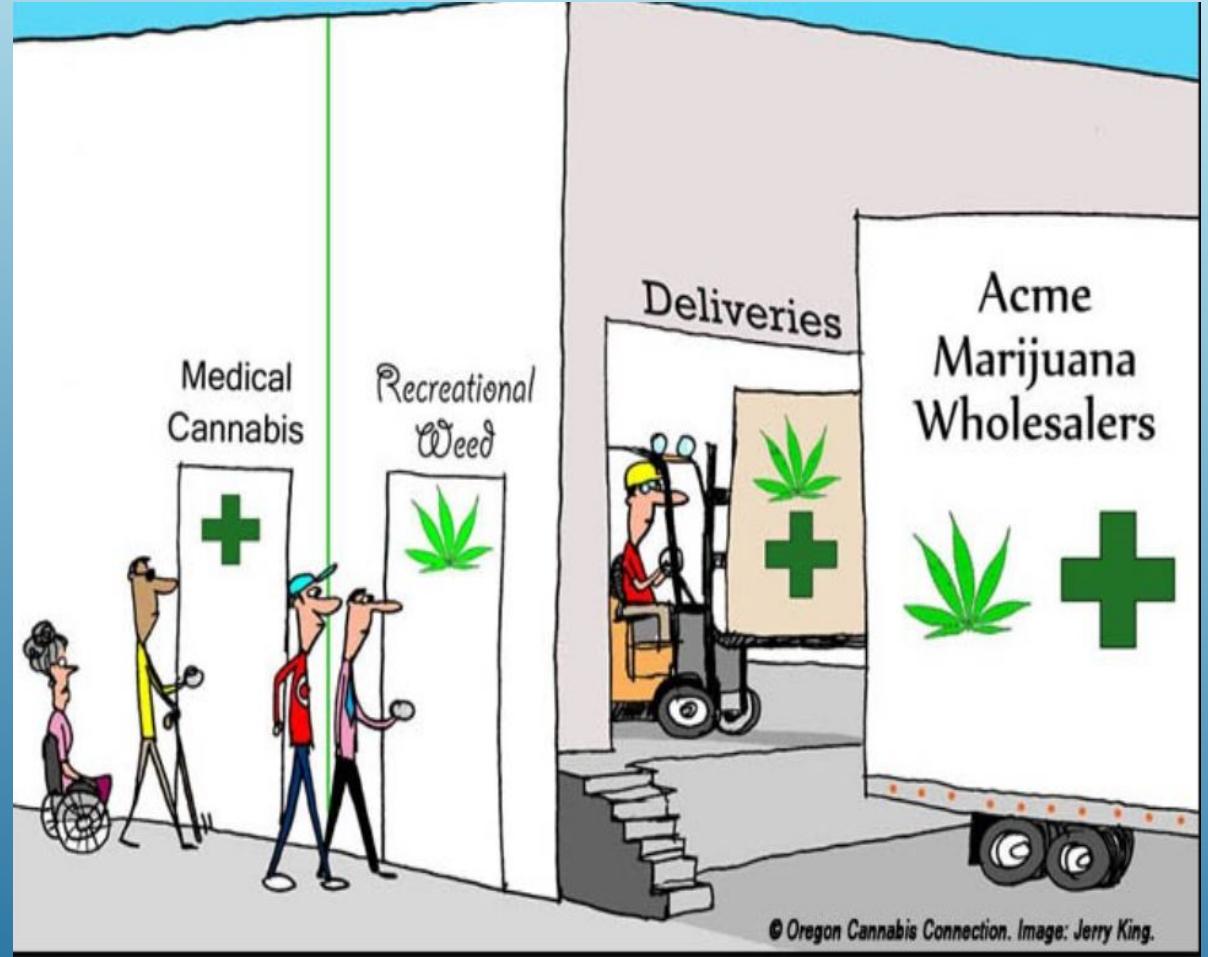
Sativa

Indica



MEDICAL MARIJUANA VS RECREATIONAL MARIJUANA IN HUMANS

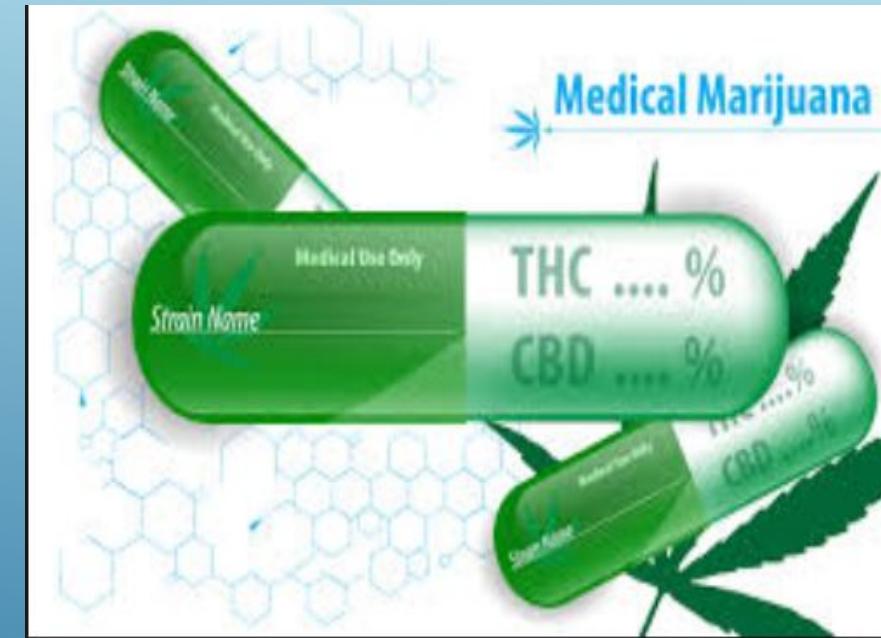
- ▶ THC is the accelerator
- ▶ CBD is the Brakes
- ▶ Not a different substance
- ▶ It comes down to why its being used and reaching for strains potentiating the desired action



© Oregon Cannabis Connection. Image: Jerry King.

Medical Marijuana

- ▶ Higher CBD to THC ratio (1:1 to *4:1 to 20:1) when treating spine/brain injury, pain, IBD, pancreatitis, colitis, *anxiety, *seizures, *CDS, *pain, *insulin resistance, *anti cancer activity, hypertension, etc.
- ▶ Higher THC to CBD ration (4:1 to 20:1) when treating severe cancer pain, severe OA/DJD, anti cancer tx, appetite stimulation
- ▶ Less likely to have psychoactive effects unless THC is higher than CBD level
- ▶ Strictly regulated for product safety and efficacy



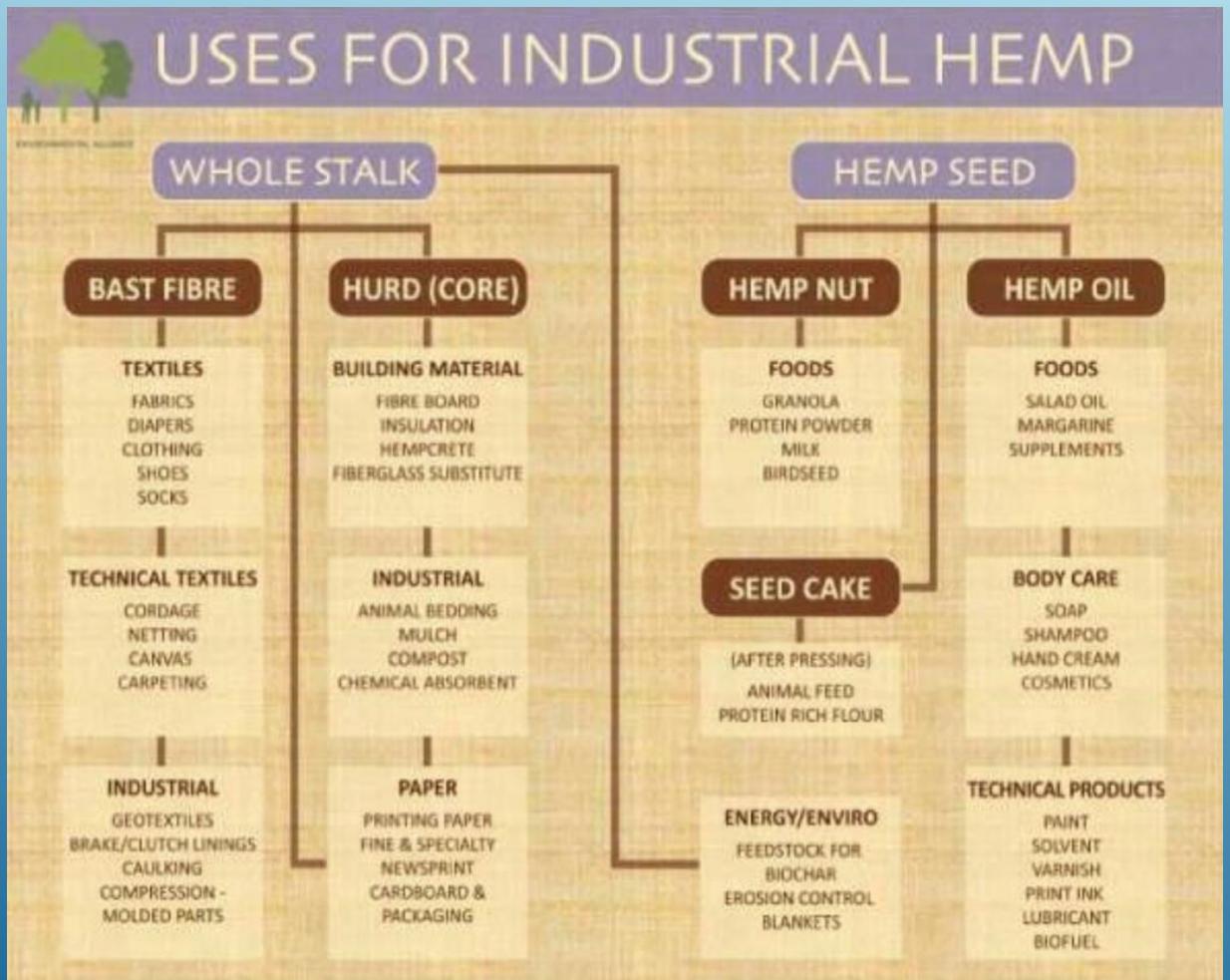
Recreational Marijuana

- ▶ Tends to be unregulated ratios of CBD to THC with often higher THC levels (1:1 or 1:2 or greater)
- ▶ Less CBD and more THC results in greater psychoactive effects
- ▶ Poorly regulated for product safety or efficacy.



INDUSTRIAL HEMP

- ▶ Cannabis sativa strain
- ▶ THC less than 0.3% on a dry weight basis
- ▶ Uses:
 - ▶ Textiles, autoparts, building materials, bedding, paper, foods, environmental improvements, body care, biofuels, etc.



LEGALITIES

- ▶ December 20, 2018, President Trump signed the 2018 Farm Bill into law.
- ▶ Section 7129 (p. 313): Includes hemp in USDA's supplemental and alternative crops programs.
- ▶ Section 297A of 10113 (p.429): Defines hemp as all parts of the plant less than 0.3% THC, including "derivatives," "extracts" and "cannabinoids."
- ▶ Section 12619 (p.540): Hemp is removed from the definition of "marijuana," and THC found in hemp is excluded from the definition of a controlled substance.



LEGALITIES

- ▶ Hemp oil or hemp derived products from industrial hemp are legal Federally:
 - ▶ Derived from Federally sanctioned hemp crops
 - ▶ Contains less than 0.3% levels of THC per 2018 Farm Act
 - ▶ Does not contain a higher concentration of cannabinoids than found in natural hemp plant
 - ▶ Not labeled as "CBD" – does not conflict with FDA and GW Pharm Epidiolex, CBD antiepileptic drug for pediatric epilepsy
 - ▶ Labeled as industrial hemp
 - ▶ Food and Drug Administration has not evaluated these statements and this product is not intended to diagnose, treat, cure, or prevent any disease and this is an off label use in our pets.
 - ▶ Federal verses State
 - ▶ Reach out to your state representatives
(<https://www.govtrak.us/congress/members>)



LEGALITIES

- ▶ “Medical Marijuana” remains a schedule I drug under CSA and, as such, is illegal for veterinarians to prescribe or dispense.
- ▶ Epidiolex by GW Pharm: synthetic CBD used to treat Dravet Syndrome and Lennox-Gestaut Syndrome. Schedule V.
- ▶ Sativex / nabiximol by GW Pharm: not synthetic THC and CBD (1:1). Oral mouth spray to relieve muscle spasms with MS. Schedule IV in Europe.
- ▶ Marinol / dronabinol by AbbVie Inc: synthetic THC, no CBD. Used to treat wasting syndrome, nausea and increasingly, chronic pain caused by movement disorders including MS and Dystonia. Schedule III drug.



§ 54.1-3408.3. Certification for use of cannabidiol oil or THC-A oil for treatment.

A. As used in this section:

"Cannabidiol oil" means a processed Cannabis plant extract that contains at least 15 percent cannabidiol but no more than five percent tetrahydrocannabinol, or a dilution of the resin of the Cannabis plant that contains at least five milligrams of cannabidiol per milliliter but not more than five percent tetrahydrocannabinol.

"Practitioner" means a practitioner of medicine or osteopathy licensed by the Board of Medicine.

"THC-A oil" means a processed Cannabis plant extract that contains at least 15 percent tetrahydrocannabinol acid but not more than five percent tetrahydrocannabinol, or a dilution of the resin of the Cannabis plant that contains at least five milligrams of tetrahydrocannabinol acid per milliliter but not more than five percent tetrahydrocannabinol.

Cannabidiol Oil or THC-A Oil

May a veterinarian issue a written certification for Cannabidiol oil or THC-A oil?

Pursuant to the Code of Virginia, a veterinarian is not included in the definition of a "practitioner" who is authorized to issue written certification for possession and use of cannabidiol oil or THC-A oil.

In 2018, legislation was passed amending §§ 54.1-3408.3 and 18.2-250.1, relating to cannabidiol oil or THC-A oil and possession of marijuana.

LEGALITIES

- ▶ The FDA of the United States considers hemp oil (and its cannabidiol derivative) to be a dietary supplement (not a medication), since they are made from industrial hemp plants.
- ▶ Cannabidiol extracted from medical marijuana plants are high in CBD and have varying amounts of the psychoactive compound THC. They are sold to licensed dispensaries and prescribed by human doctors for particular conditions in places where marijuana is regulated.

QUESTIONS