

## CANNABINOID HEMP: AN OVERVIEW

### WHAT IS HEMP?

“Hemp” refers to certain types of cannabis and cannabis-derived products. Both “marijuana” (referred to here as cannabis) and “hemp” refer to the same plant: *Cannabis sativa*. Federally, the difference between cannabis and hemp is the amount of delta-9-tetrahydrocannabinol (THC) they contain by weight. Delta-9-THC is the primary substance (but not the only substance) associated with the “high” that people feel after consuming marijuana. Generally:

- Lower-THC cannabis is “hemp”: Up to 0.3% delta-9-THC by weight
- Higher-THC cannabis is “marijuana”: More than 0.3% delta-9-THC by weight

#### **7 USC § 1639o (1) HEMP**

*The term “hemp” means the plant Cannabis sativa L. and any part of that plant, including the seeds thereof and all derivatives, extracts, cannabinoids, isomers, acids, salts, and salts of isomers, whether growing or not, with a delta-9 tetrahydrocannabinol concentration of not more than 0.3 percent on a dry weight basis.*

### CAN PEOPLE GET HIGH ON HEMP?

**Yes.** One of the common misconceptions about hemp is that all hemp products are non-intoxicating because they contain low concentrations of delta-9 THC. In reality, there are currently a wide range of intoxicating hemp products being sold in the United States. These intoxicating hemp products generally fall into two categories:

- **“Edibles” with large doses of delta-9-THC:** “Low THC” is relative depending on the type of product. Under federal law, all hemp products are limited to no more than 0.3% delta-9-THC by weight. In dried plant material, this is a very small amount of THC compared with cannabis. But in foods and beverages, which weigh more than dried plant matter, 0.3% can be a lot of THC. The National Institute on Drug Abuse (NIDA) has established a “standard dose” of THC as 5 mg. With that dose in mind, at 0.3% THC by weight:
  - Approximately one teaspoon of liquid (5.7 g) contains **more than three doses of THC (17 mg)**
  - A “snack size” pack of fruit snacks (20 g) contains **12 doses of THC (60 mg)**
  - A typical chocolate bar (50 g) contains **30 doses of THC (150 mg)**

This is widely known in certain parts of the hemp industry, and these types of hemp edibles with large doses of THC are available for purchase in most states and online. Some of these products even contain more THC than states allow in their state-legal adult use cannabis programs.

- **Semi-synthetic hemp-derived cannabinoids:** Substances that are extracted from hemp can be converted into intoxicating compounds or cannabinoids using basic chemistry. Because hemp is defined only in terms of delta-9-THC, federally, there is no limit on the amount of other potentially intoxicating cannabinoids that can be present in hemp products. These intoxicating hemp derivatives are commonly sold in vape cartridges and edible products. Common intoxicating hemp derivatives include: Delta-8-THC, THCO, HHC, and HHCO. These cannabinoids have not been widely studied for safety in human consumption and some of them are new compounds not found in nature.

### WHAT ABOUT NON-INTOXICATING HEMP PRODUCTS?

There are plenty of non-intoxicating hemp products too:

- **Grain:** Hemp seeds can be processed into ingredients for foods, cosmetics, or industrial uses. Foods commonly derived from hemp seeds include hemp hearts, hemp milk, hemp protein, and hemp seed oil. These food products are intended for human consumption, and generally contain nondetectable amounts of THC.
- **Fiber:** Hemp stalks can be processed into fiber for a wide variety of uses. Hemp fiber is used to make paper, textiles, clothing, plastic, and building materials like hempcrete.
- **Cannabinoids:** Many American hemp farmers grow hemp as a source of cannabinoids like Cannabidiol (CBD). CBD alone is a non-intoxicating cannabinoid that is used in a wide variety of consumer products.

## DO HEMP AND MARIJUANA LOOK DIFFERENT?

**It depends.** Hemp that is grown for grain and fiber tends to look very different from cannabis grown for cannabinoids (like THC or CBD). Hemp grown for grain and fiber may contain both male and female plants and tends to be tall, with a single stalk terminating in a flower “bud” for female plants or a spindly column of pollen sacs for male plants. On the other hand, hemp that is grown for CBD or other cannabinoids can often be visually indistinguishable from cannabis. Cannabinoids like CBD and THC are expressed primarily through glandular trichomes, especially in the flowers of female cannabis plants. Both high-CBD hemp and high-THC cannabis plants are selected for female plants and tend to be shorter, bushier plants that produce large, sticky flower “buds.”

The only certain way to distinguish between hemp and cannabis plants is through chemical testing to determine how much THC is in the plant. State law enforcement and state cannabis and hemp regulators do not necessarily have the resources or ability to do this type of testing on-demand or at a broad scale.

## HOW IS HEMP REGULATED?

Under the 2018 Farm Bill, the US Department of Agriculture (USDA) regulates hemp production. States can defer to USDA to license hemp growers or can license growers through the state department of agriculture under a USDA-approved plan. USDA rules and state plans include standards for testing crops to ensure they comply with the THC limit for hemp.

**USDA’s regulatory authority ends after harvest.**

**Federally, the rest of the hemp supply chain is largely untracked and unregulated,** except to the extent that individual states have established regulations. There are no national hemp licensing requirements around extraction, manufacturing, or wholesale or retail sales of hemp-derived products. There are also no federal testing requirements for cannabinoid hemp consumer products, and there are no federal requirements for packaging and labeling, or for disclosure of THC content on product labels. This is very different from state-legal adult use cannabis programs which tend to have robust testing and packaging and labeling requirements for similar categories of products.

Ostensibly, any hemp-derived foods, dietary supplements, and cosmetics are still subject to regulation by the Food & Drug Administration (FDA) under the Food, Drug, and Cosmetics Act (FDCA), but so far there has been little enforcement by FDA. The FDA has communicated that THC and CBD are prohibited additives in foods and dietary supplements, but enforcement has been limited to sending warning letters to some businesses that make medical claims related to these products. Products containing semi-synthetic hemp derivatives are being widely sold to consumers in foods and dietary supplements without going through the established processes for novel food additives or new dietary ingredients.

## WHERE DID “0.3%” DELTA-9 THC COME FROM?

This number comes from a Canadian study published in 1973<sup>1</sup> looking at THC and CBD content in a wide variety of cannabis plants grown under less-than-ideal conditions in a short growing season. Data from the study found that 0.3% was a convenient dividing line between lower-THC and higher-THC varieties of cannabis in their sample. But even the higher-THC varieties in this study all had less than 3% THC, much lower than cannabis crops today which often contain 20% THC or more. Considering this, some advocates would like to see the definition of hemp amended to allow somewhat more THC.

The 1973 Canadian study focused on dividing different varieties of cannabis into groups based on their THC and CBD content. It did not investigate what concentration of THC in the plant might be intoxicating when smoked, and it did not consider processed products at all. The 0.3% THC threshold is commonly misunderstood as a “non-intoxicating” threshold. In reality, hemp products containing 0.3% or less THC by weight can be very intoxicating, especially in processed foods and beverages, where current amounts of “legal” THC exceed those found in many state adult use cannabis markets.

## WHERE TO GET MORE INFORMATION?

For more information about hemp-derived products in your state, including state-specific programs, regulations, and initiatives, please reach out to your state cannabis regulator. If you don’t know who your state cannabis regulator is, the Cannabis Regulators Association (CANNRA) can connect you. CANNRA is a national, nonpartisan, non-profit 501(c)(4) organization of government officials involved in cannabis regulation across more than 40 states and U.S. territories. This factsheet is intended to provide educational information and does not represent a formal policy position of CANNRA.

[www.cann-ra.org](http://www.cann-ra.org) or [info@cann-ra.org](mailto:info@cann-ra.org)

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<sup>1</sup> Small, Ernest and H.D. Beckstead. 1973. “Common cannabinoid phenotypes in 350 stocks of Cannabis.” *Lloydia* 36(2): 144–165.