



HEMP Q&A

An Overview

What is hemp?

Hemp includes all varieties of the Cannabis genus that contain minimal amounts of THC.

How does hemp differ from marijuana?

Both come from the same cannabis species, but are genetically distinct and are distinguished by use, chemical makeup and methods of cultivation. Per federal regulations, industrial hemp is required to contain less than .3% THC.

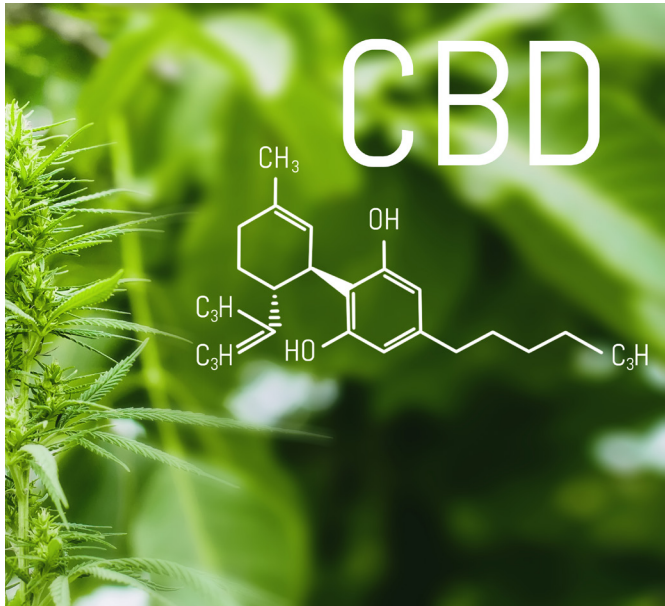
What is the difference between CBD and THC?

CBD (cannabidiol) and THC (tetrahydrocannabinol) have the same chemical makeup, only differentiated by a single atom. However, CBD does not bond with the same receptor as THC, thus does not get one "high". Furthermore, CBD presence can negate bonds between THC and the receptor which neutralizes the psychoactive effects induced by THC.

What is Hemp used for?

Hemp seed can be divided into 3 parts: nut – used for bread, granola/cereal, milk/dairy products, protein powder; oil – used for fuel, lubricants, ink, varnish, paint, dressings, margarine, body products, cosmetics; cake – used for animal food, and flour.

Hemp stalks can also be divided into 3 parts: hurd – used for animal bedding, mulch, chemical absorbent, fiberboard, insulation, concrete; bast fiber – used for cordage, netting, canvas, carpet, biocomposites,



clothes, etc.; and stalk – used for biofuel/ethanol, paper products, cardboard and filters.

What is CBD oil used for?

CBD oil is thought to ease pain and inflammation, and also used to treat anxiety, epilepsy, and some forms of cancer. CBD oil is rich in omega-3s, vitamins, and essential fatty acids. It's thought to be an effective stress reliever. The federal FDA have authorized clinical trials that tests CBD's treatment of childhood-onset epilepsy. Other research has shown that it has promise in treating neurological inflammation, oxidative injury, and schizophrenia.

How is CBD oil made?

Some products are derived from whole plant extracts, meaning the entire plant is used. This process is favored by the medical communities, which believe a broader spectrum of cannabinoids are yielded with this process. Cannabinoids however, are mostly concentrated in the bracts of female flowers.

Alcohol extraction is used to extract whole plant CBD oil, and is considered the original extraction method. To extract, grain alcohol is used as a solvent. The grounded material soaks in the solvent and becomes enriched with the cannabinoids. Once you evaporate the solvent, the CBD oil is what remains. Ethanol has now become a popular solvent for CBD oil extraction. CO₂ extraction and olive oil (as a solvent) have also become popular means of extraction.

Hemp seed oil is made by compressing seed together until oil is extracted. Hemp seed oil contains no CBD or other cannabinoids that are found in the rest of the plant.

How do they test for THC levels in commercial hemp production?

As an example: In North Carolina, hemp producers must notify the North Carolina Department of Agriculture & Consumer Services (NCDA&CS) when plants are flowering. Someone from the department will visit the site and sample the hemp 3-5 weeks into flowering. The top 3-5 in. of the plant is sampled for each variety grown at the location. Growers are required to pay for all testing. If THC is above 0.3%, growers must destroy the crop, or pay for re-testing.

What factors effect THC levels in hemp production?

Plant stresses such as drought, flooding, extreme nutrient levels, heat, cold, etc. can all cause THC spikes. Altitude and cooler weather during specific growth stages may also affect THC levels. Research has shown that higher altitudes cause higher levels of THC in plants. Different varieties also have different THC levels.





Can marijuana cross-pollinate and effect THC levels in hemp?

Hemp can cross-pollinate with marijuana. When this happens, THC levels in the marijuana are actually lowered and levels in the hemp are unaffected. Thus, hemp production adversely effects marijuana THC potency.

How is hemp grown?

Like many other food and fiber crops, hemp can be grown in commercial settings. Hemp grows best on loose loamy soil. Much like other crops in Georgia, poorly-drained clay soils prove troublesome for establish and often damping-off of the seedlings. Sandy soils can be used but require more moisture and nutritional inputs. Soil temperatures of 46-50 degrees are optimal, which would be considered an early season crop in Georgia and theoretically could be planted before corn (which requires soil temperature around 55 degrees or higher), if killing frosts weren't expected.



Variety selection appears to relate to harvest purpose. Shorter varieties with larger seed are grown for the seed harvest and can be harvested with a grain combine. In contrast, fiber or "whole plant" harvests typically rely on taller varieties. It has been noted that photoperiod can affect crop height, whereas shorter days tell the plants when to start reproduction stages (flowering, seeding, etc.). This photoperiod is independent of variety selection, similar to grain and soybean production in Georgia. Varieties also differentiate in maturity, which would affect selection by regional location. This typically goes hand-in-hand with plants height, seed production, etc. In relation to harvest purpose, if harvesting for seed or "grain" then later plantings could be achieved since vegetative mass isn't the objective.

Hemp varieties are typically dioecious, meaning plants are either male or female. The male plants do not produce seeds and die off earlier in the season before harvest. To reduce this waste, many cultivars are now being bred to be monoecious, meaning plants have both female and male reproductive parts.

Are pesticides currently labeled for hemp?

Currently, no herbicides, insecticides, fungicides, etc. are labeled for hemp. Any applications of the beforementioned are off-label and illegal. It is unclear what pests would be expected to be major threats to hemp production in Georgia, however, European corn borer, armyworms, and other insects have been pests to hemp in North America.

How is hemp harvested?

Industrial hemp harvesting methods differentiate from region to region, and by harvest purpose. If harvesting for seed/grain, then a grain combine can be used. If harvesting for fiber, then retting is often used. Retting



INDUSTRIAL HEMP

HEMP STALKS AND SEEDS USES



COOKING/SEASONING OIL



FLOUR



MILK/DAIRY



DIETARY SUPPLEMENT



BEER



BAKERY



BODY CARE PRODUCTS



ANIMAL FEED



GRANOLA



FUEL



MEDICINE



PROTEIN POWDER



PAINT



ORGANIC COMPOST



MULCH/COMPOST



TEXTILES



PAPER



FIBER BOARD



INSULATION



ANIMAL BEDDING



ROPE

essentially is allowing the crop to decompose enough for cellular tissue and pectin to rot away so the fiber material can be separated. This is somewhat similar to methods used by some in hay production. Hemp can be harvest for dual purpose (grain and fiber) but proves more troublesome. Harvesting hemp for CBD oil is even more labor intensive. The highest levels of CBD are in the leaves and flowering parts of the plant; therefore, the stalks aren't needed for CBD extraction. The entire plant may be harvested then leaves separated from the stalks, or the plants can be topped and dried.

Is hemp currently available to sell/purchase in Georgia?

Yes, you may purchase or sell hemp in Georgia.

Can you currently grow hemp in Georgia?

No, hemp cannot currently be grown in Georgia. The 2018 Farm Bill made hemp production legal on a federal level, however, approval from USDA is required for states to regulate hemp production. States must develop hemp regulation plans or follow guidelines as set forth by the 2018 Farm Bill in which USDA will develop plans in consultation with US Attorney General. Once the state submits hemp regulation plans to the secretary of agriculture of the United States, and are approved thereby, then hemp production will be allowed in the state, pursuant to state and/or federal plans. If passed, Georgia HB 213: Georgia Hemp Farming Act would provide the necessary regulations for Georgia industrial hemp production.

Is hemp a covered agricultural commodity in the Federal Crop Insurance Act?

Yes, as outlined in the 2018 Farm Bill.



PUBLIC POLICY

References

<https://www.leafly.com/news/cannabis-101/hemp-101-what-is-hemp-whats-it-used-for-and-why-is-it-illegal>

<https://cannabusiness.law/hemp-testing-101-analytical-testing-protocols-explained-and-evaluated/>

https://mjbizdaily.com/wp-content/uploads/2018/04/Hemp-Report_Top-10-US-States.pdf

<https://nationalhempassociation.org/hemp-harvesting/>

<https://dev.purduehemp.org/hemp-production/>

https://hemp.ca.uky.edu/sites/hemp.ca.uky.edu/files/uk_ih_information_for_agents3.pdf

[http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/crop15539/\\$file/HempHarvestStorage.pdf?OpenElement](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/crop15539/$file/HempHarvestStorage.pdf?OpenElement)