

# UF/IFAS Industrial Hemp

## Industrial Hemp Background

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### Taxonomy of *Cannabis sativa* (L.)

The hemp plant is botanically described as *Cannabis sativa*. The taxonomic classification of *Cannabis* has been debated among botanists due to possible differences in origin and morphology. However, while there are many strains with unique characteristics, they all are capable of inter-breeding, and therefore do not meet the typical biological definition of species. The most current classification considers all strains, including hemp and marijuana, as one species, *Cannabis sativa*, as originally named by Carl Linnaeus.

In many of the states and countries where hemp is permitted to be grown, hemp is defined by statute as those *C. sativa* plants that have THC levels below 0.3%, on a dry-weight basis. Hemp has been historically grown for fiber and seed production. It has low levels of the psychoactive component delta-9-tetrahydrocannabinol (THC) and high levels of cannabidiol (CBD), a non-psychoactive compound that has potential therapeutic uses.

### History

For centuries, humans have cultivated *C. sativa* for fiber, food, seed oil, medicine, and ritual. Archaeologists and historians have confirmed the use of hemp for fiber and food by ancient civilizations as early as 8000 BCE, with mentions in ancient texts of advanced industrial applications as early as 500 BCE. Fiber from hemp was critical in the domestication of animals and establishment of naval transportation. In 1545, hemp arrived in the Americas via the Spanish. Hemp was noted as an important fiber crop, along with flax, in the New England colonies by the mid-1600s. The first two copies of the Declaration of Independence were printed on paper made of hemp.

Peak hemp production in the United States was in the mid-1800s with temporary spikes during both World Wars. Industrial hemp production was most common in Illinois, Iowa, Indiana, Minnesota, Wisconsin, and Kentucky—which had the highest production. The cultivation of hemp, primarily for fiber, was common

worldwide up until the 1820s and the introduction of other fiber crops (jute, sisal, cotton) and synthetic fibers led to a decline in hemp demand and production. It has been documented that 75,000 tons of hemp was produced in the 1840s while only 2,000 tons were produced in 1948.

## Regulation

In addition to market forces, statutes and regulations enacted in the early 20<sup>th</sup> century such as the Marijuana Tax Act and the Controlled Substances Act to control access to *C. sativa* led to the ultimate demise of the United States hemp industry. Regulations, coupled with the taxonomic ambiguity described previously, created legal challenges for cultivating or possessing any *C. sativa*.

Changes in public opinion regarding *C. sativa* regulation and potential medicinal use led some states to pass legislation allowing the cultivation and sale of medicinal *C. sativa* in the late 1990s. This has led to proponents of hemp to advocate for the ability to grow non-psychoactive *C. sativa* for other uses and as a potentially important and profitable alternative agriculture product. The 2014 and 2018 Farm Bills included language to distinguish hemp from marijuana and to provide a framework for the legal cultivation of hemp (<https://www.ams.usda.gov/rules-regulations/hemp>).

In 2017, the Florida legislature approved SB 1726 – *Industrial Hemp Pilot Projects*, allowing land grant universities to conduct industrial hemp pilot projects. UF/IFAS has developed a strong research program in support of the future industry and collecting information for future farmers. Producers considering industrial hemp as a possible commodity, can keep up with the latest information available from FDACS at <https://www.fdacs.gov/Cannabis/Hemp-CBD-in-Florida> and the UF/IFAS Industrial Hemp research team at <https://programs.ifas.ufl.edu/hemp/>.



Large-scale industrial hemp propagation for CBD oil in North Carolina. Photo credit: Christine Kelly-Begazo

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