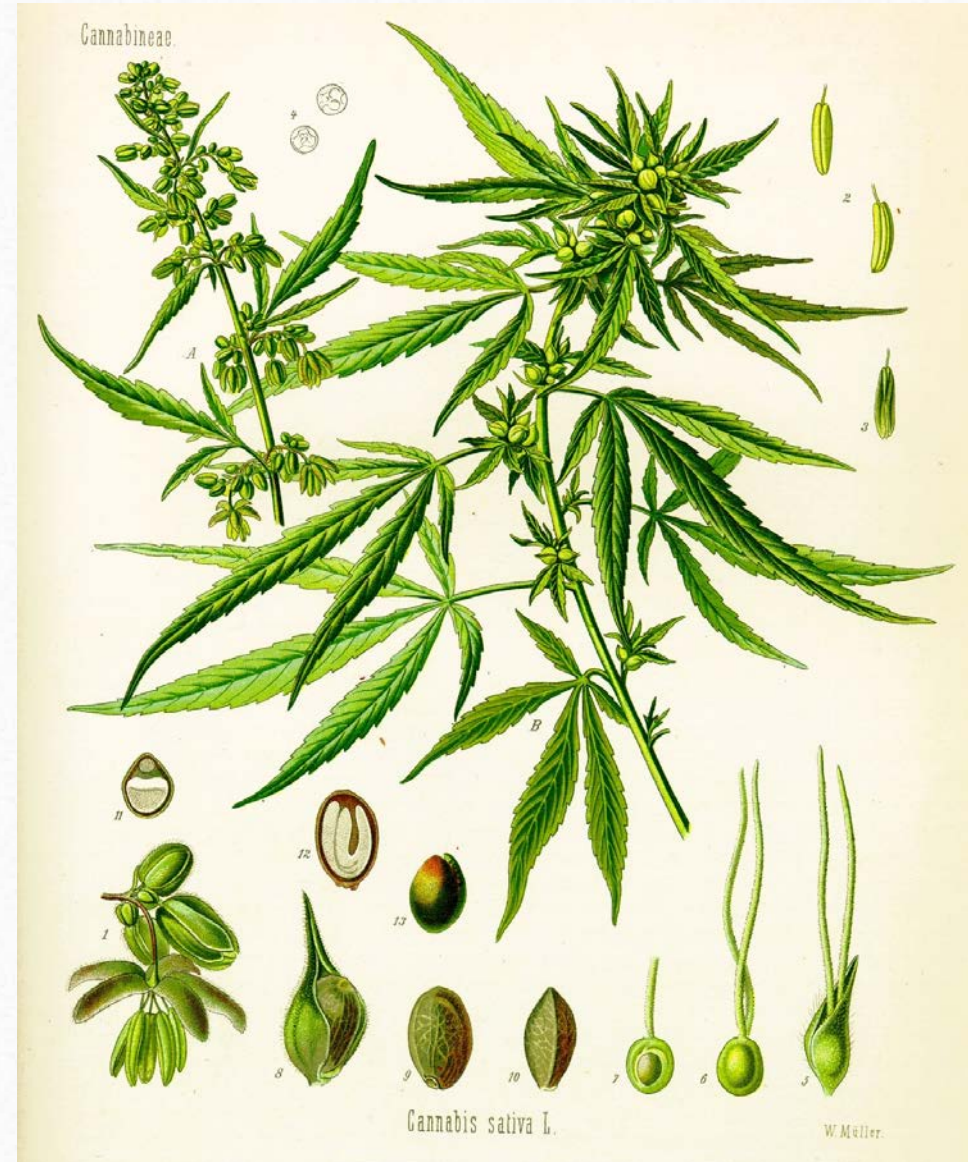


# *Industrial Hemp*

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## *Products and their Markets*





## Ancient Chinese Secret

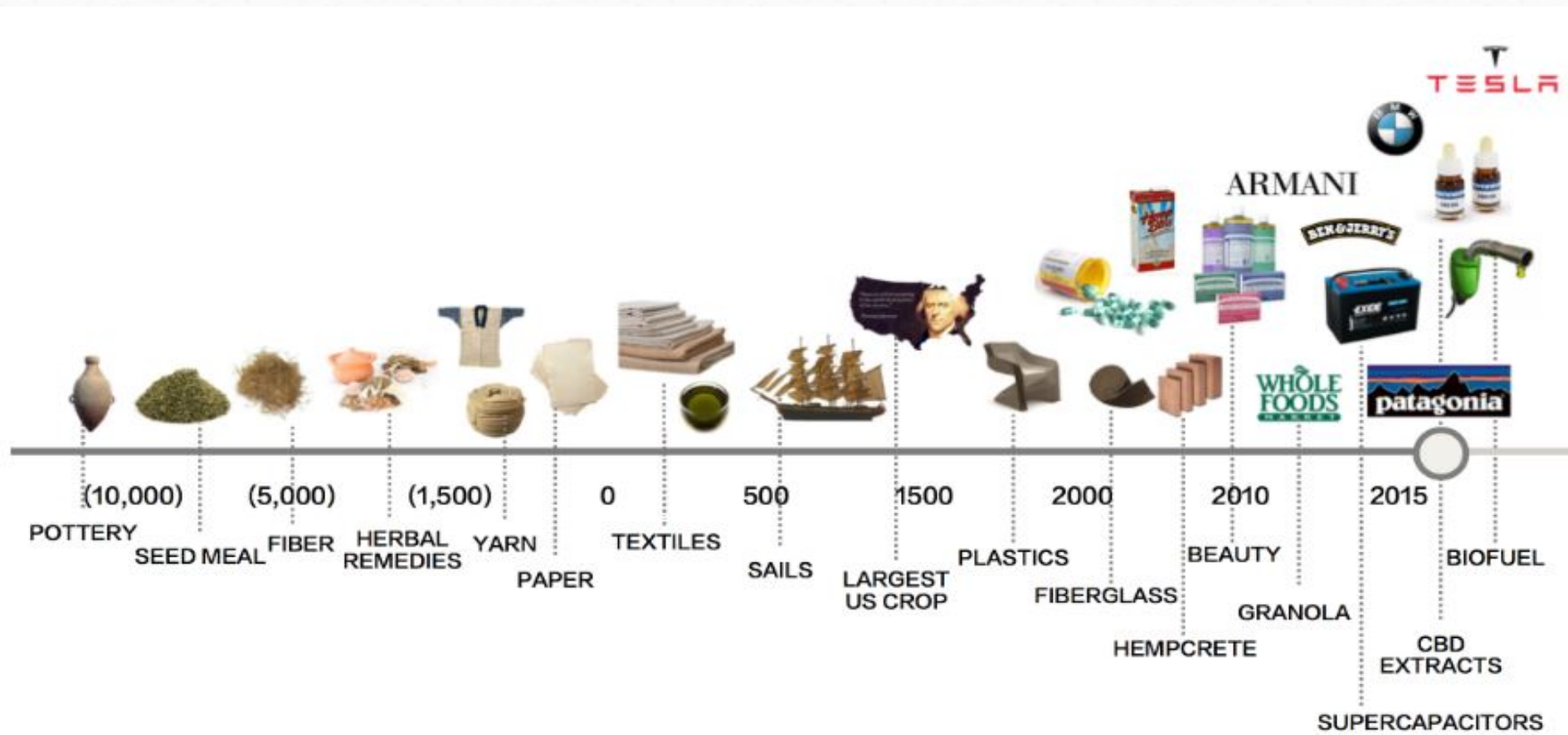
Some of the earliest archeological hemp evidence, about 8,000 B.C., comes from rope imprints on broken Chinese pottery. Fragments of hemp cloth have also been found in Chinese burial chambers dating from the Chou Dynasty (1122-249 B.C.). In addition to archeological evidence, written documents refer to hemp as a source of clothing.

The Chinese used the hemp plant for rope, clothing, bowstrings, paper and medicine. The ancient emperor, Shen-Nung (c.2700 B.C.), is known as the Father of Chinese Medicine. Because he was a good farmer and concerned about his suffering subjects, he looked to plants for cures.

Hemp was one of the main crops in ancient China and it holds important status in China's long history of farming fiber crops for spinning yarn and weaving cloth, making paper, and formulating traditional medicines. All of the traditional uses of hemp were invented in China.

The earliest hemp cordage and textile remains, the earliest records of hemp seed use for food, the first paper, and the first medicinal use of hemp can all be traced back to ancient China.





The development of hemp.

Why use up the forests which were centuries in the making and the mines which required ages to lay down, if we can get the equivalent of forest and mineral products in the annual growth of the hemp fields? - Henry Ford



urers are seeking substitutes nearly like the originals as possible. Neckties of spun glass are beautiful as those of silk, may last wrinkling even better. Plastics for shoestrings released at a half million pounds of materials, principally tin, to more than 100 industries in 1941 alone and they never knew the difference. Long before the emergency shutdown in silk supplies, du Pont chemists had plucked out of the air, the sea and the coal mine elements of nylon, and mills producing nylon hosiery were expanding rapidly; and government research men were developing lovely new designs for cotton



Here is the auto Henry Ford "grew from the soil." Its plastic panels, with impact strength 10 times greater than steel, were made from flax, wheat, hemp, spruce pulp

(Continued to page 201)

DECEMBER, 1941

# BILLION-DOLLAR CROP

petition with coolie-produced foreign fiber while paying farmers fifteen dollars a ton for hemp as it comes from the field.

From the farmers' point of view, hemp is an easy crop to grow and will yield from three to six tons per acre on any land that will grow corn, wheat, or oats. It has a short growing season, so that it can be planted after other crops are in. It can be grown in any state of the union. The long roots penetrate and break the soil to leave it in perfect condition for the next year's crop. The dense shock of leaves, eight to twelve feet above the ground, chokes out weeds. Two successive crops are enough to reclaim land that has been abandoned because of Canadian thistles or quack grass.

Under old methods, hemp

(Continued to page 144A)



From the February 1938 issue of the magazine Popular Mechanics:

Hemp is the standard fiber of the world. It has great tensile strength and durability. It is used to produce more than 5,000 textile products, ranging from rope to fine laces, and the wood "hurds" remaining after the fiber has been removed contains more than seventy-seven percent cellulose, and can be used to produce more than **25,000 products**, ranging from dynamite to cellophane.

Fish nets, bow strings, canvas, strong rope, overalls, damask tablecloths, fine linen garments, towels, bed linen and thousands of other everyday items can be grown on American farms. Our imports of foreign fabrics and fibers average about 200,000,000 per year; in raw fibers alone we imported over \$50,000,000 in the first six months of 1937. All of this income can be made available for Americans.

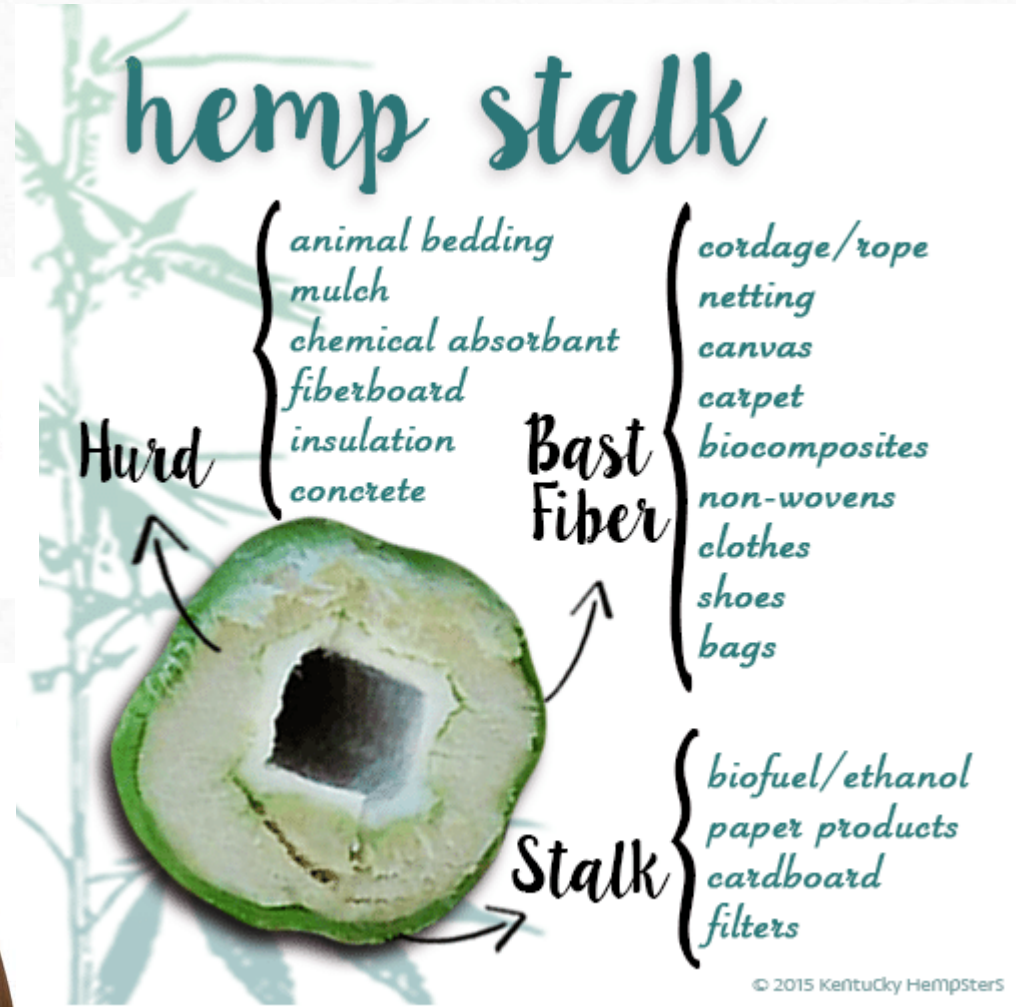


## World War II

1939: Japan cut off American supplies of Filipino hemp and Indian jute, and by 1942 our bulk war supplies were dwindling. Hemp for Victory was an urgent appeal: We needed rope for naval towlines, webbing for parachutes, thread for shoes! A primer on successful planting, reaping and bundling techniques, as well as information on equipment and tips for rope binding, the 15-minute short goaded farmers to prove their patriotism by harvesting lush stands of industrial hemp. It called for an appreciable bounty increase – 50,000 total acres – of product for 1943, a 14,000-acre bump over 1942.



# Hemp Bast Fiber/Textiles, and Hurd



# Hemp Animal Bedding from the Hurd



The Economical, Durable and Comfortable Bedding

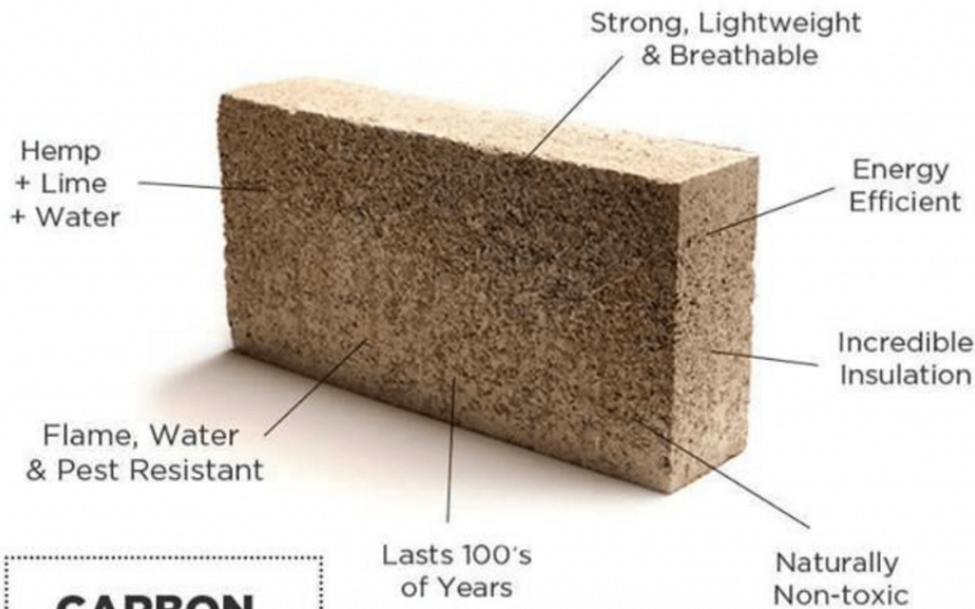






Designed to build, not to smoke.

# HEMPCRETE



**CARBON  
NEGATIVE**

EDMED

FB.COM/EDUCATIONNOTMEDICATION



# Hemp used in Transportation





## Perth start-up Hemp Railway International develops world-first ballastless sleeper

Jenne Brammer | The West Australian

Tuesday, 26 December 2017 9:21PM

Jenne Brammer



David Plaut, Elia Saba, Jyah and Brian Gage with a hemp-based railway sleeper. Picture: The West Australian

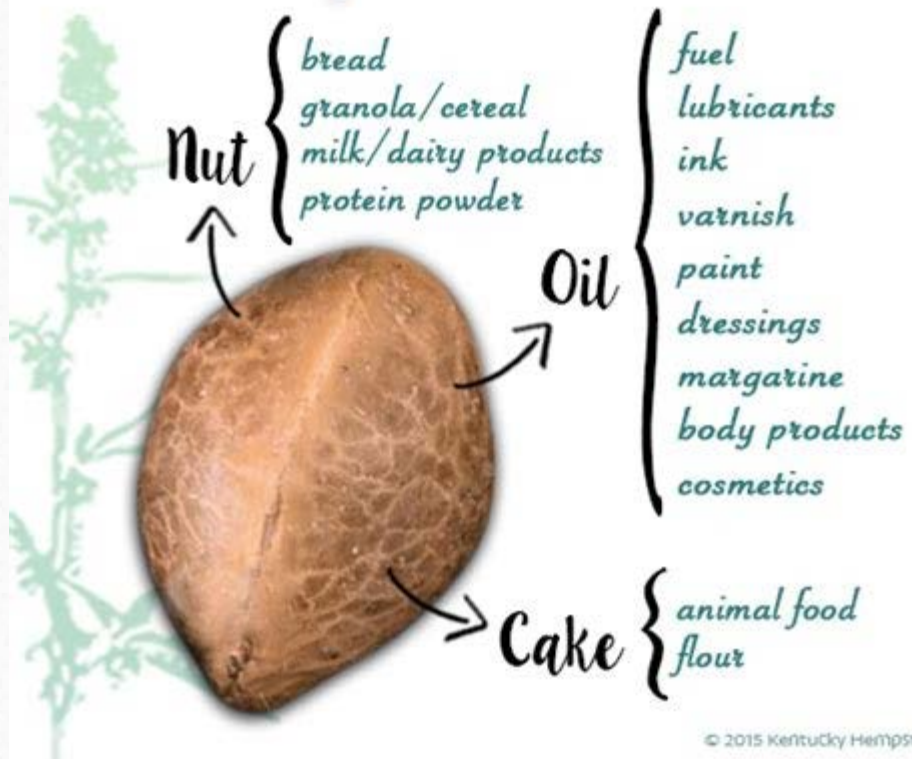
-  A Perth-based start-up has developed a world-first railway sleeper that gains its strength from hemp.
-  The company could support a thriving hemp farming industry in WA.
-  Hemp Railway International, a company privately funded by fabrication engineer Elia Saba and hemp consultant Brian Gage, has developed a system in which instead of using rocks as ballast, a steel sleeper is supported by a block of tough industrial hemp bound with a lime compound.

# Hemp Foods

- Seeds
- Oils
- Milks



# hemp seed



# Hemp Hearts

- 1/4 cup of hemp hearts has about 15g protein, 2.5g dietary fiber, 4.5g carbohydrates and 15g fat, 2g of which is saturated. The seeds contain no cholesterol, are sugar-free and are suitable for people with allergies or sensitivities to nuts, gluten or lactose.
- Hemp seeds contain over 30% fat. They are exceptionally rich in two essential fatty acids, linoleic acid (omega-6) and alpha-linolenic acid (omega-3).
- They also contain gamma-linolenic acid, which has been linked with several health benefits.



# Hemp as a Superfood

- Hemp seeds are a great protein source, as more than 25% of their total calories are from high-quality protein.
- That is considerably more than similar foods like chia seeds and flaxseeds, which provide about 16–18%.
- Hemp seeds are also a great source of vitamin E and minerals such as phosphorus, potassium, sodium, magnesium, sulfur, calcium, iron and zinc

## HEMP SEEDS

HIGH FIBER  
OMEGA'S  
VITAMIN E  
PHOSPHOROUS  
MAGNESIUM  
ANTIOXIDANTS  
POTASSIUM  
MANGANESE  
ANTI-INFLAMMATORY  
COMPLETE PROTEIN

HEMP, THE MOST NUTRITIONALLY COMPLETE FOOD SOURCE IN THE WORLD.

**Per gram, Hemp has**

Highs	What is it good for?
CALCIUM	BRAIN FUNCTION
IRON	IMMUNE FUNCTION
AMINO ACIDS	WEIGHT LOSS
FATTY ACIDS	SKIN
VITAMIN A	INFLAMMATION
ENZYMES	REDUCES THE RISK OF HEART DISEASE & CANCER
Lows	
SATURATED FAT	
CHOLESTEROL	
CARBS	

MORE DIGESTIBLE PROTEIN THAN SOY  
MORE DIGESTIBLE OMEGA'S THAN FLAX  
MORE DIGESTIBLE FIBER THAN KALE

**evo hemp**





# Hemp Cosmetics and Soaps





**Cannabidiol, more commonly known as CBD**, is just one of 113 known cannabinoids found in cannabis. But unlike its better-known counterpart THC (tetrahydrocannabinol), responsible for cannabis' mind-altering effects, extensive research suggests that CBD is not psychoactive. CBD is most commonly found in oil-based form, which may be applied topically, ingested or sprayed.

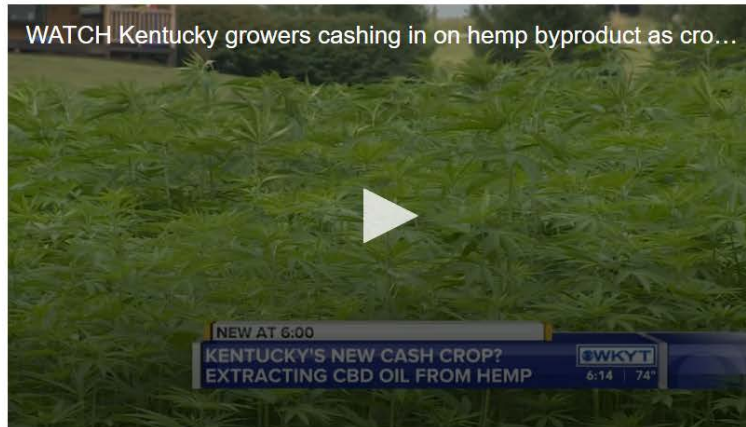


Home / Local / Article

## Kentucky growers cashing in on hemp byproduct as crop makes huge comeback in state

### Related Links

- [Bluegrass Hemp Oil](#)
- [Ananda Hemp](#)



By Amber Philpott | Posted: Mon 4:53 PM, Jul 23, 2018 | Updated: Mon 5:58 PM, Jul 23, 2018



**LEXINGTON, Ky. (WKYT)** - Hemp is making a huge comeback in Kentucky.

Federal and state legislation passed in 2014 says hemp can be grown and marketed in states with pilot programs. Four years later growers in the state are seeing big profits from extracting something found in the plant and turning it into a highly sought offer oil that some claim holds real health value. The sale of what is known as CBD oil is estimated to explode by 2020.



Inside one Lexington business is something many are learning is the key to their health and feeling better.

"People come in here for a variety of reasons," said Adriane Polyniak, owner of Bluegrass Hemp Oil.

Business is booming at Bluegrass Hemp Oil, a company born out of necessity for owner Adriane Polyniak after her son was diagnosed with epilepsy and debilitating seizures in 2009.

"We went through this pharmaceutical roulette where we tried to get him regulated on those different pharmaceuticals and had him dealing with a wide array of side effects," said Polyniak.

She found relief for her son in a product derived from hemp, CBD oil. People have found relief from a number of ailments by using it.

Polyniak believed in it so strongly that she and her husband quit their jobs and in 2014 invested in growing hemp and now

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Polyniak believed in it so strongly that she and her husband quit their jobs and in 2014 invested in growing hemp and now processing the oil.

The Polyniaks own and operate Bluegrass Hemp Oil in Lexington.

Polyniak took advantage of the state legislation that set up a pilot program for hemp crops in the state, and then in 2014 the federal Farm Bill opened the door for the legalized cultivation of hemp in states with those pilot programs.

Her customers are now proof that CBD is changing lives.

"I think the most we've seen of daily pharmaceuticals that they have been able to reduce was ten, so it is definitely making a difference in people's lives," said Polyniak.

There is still a misconception between hemp and marijuana. Hemp grown in Kentucky is under strict guidelines that the THC level (what can make you high) must be under .3%, and if not, it is destroyed. Marijuana carries a 20-30% THC level.

CBD oil is made from extracting one of several cannabinoids from the plant.

In Harrison County if you take a walk in one of Brian Furnish's fields you will find a crop of hemp recently planted that will be harvested in September for the use high end clothing.

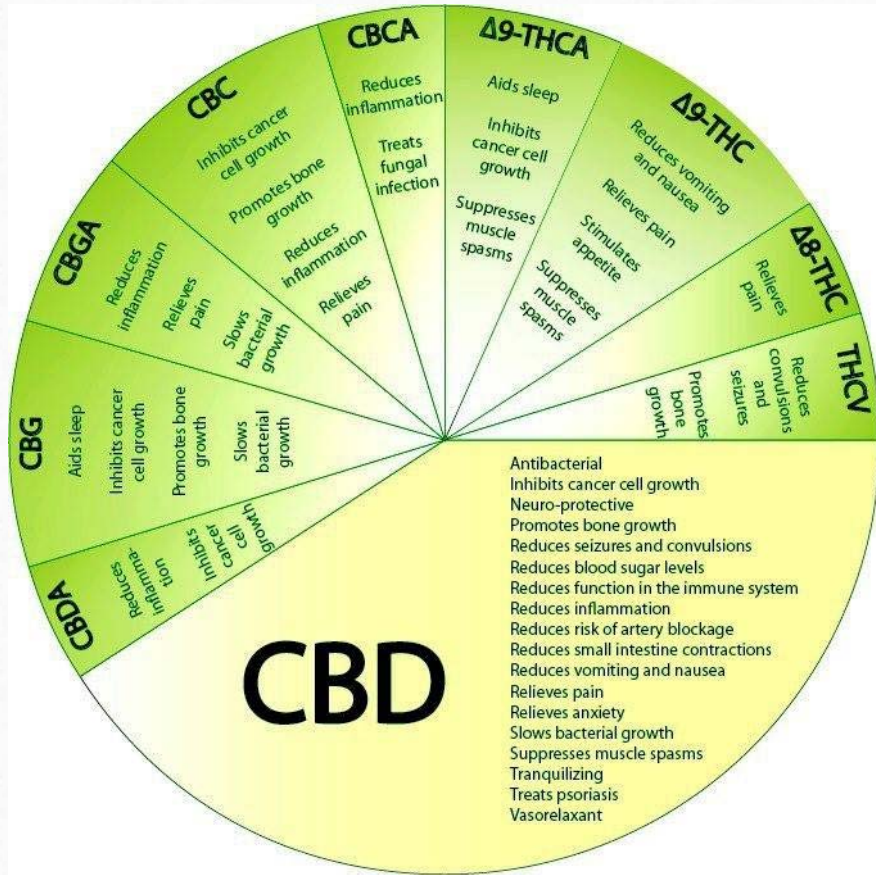
Furnish was very active in helping get hemp legalized for growth in Kentucky. He says he is one of 250 growers and 75 approved processors in the state's pilot program. Last year Furnish says Kentucky farmers were paid \$18 million for their crops.

"My family will make more money growing hemp this year than they will tobacco, and it's the first time in eight generations since back in the late 1600s we've been dependent on tobacco," said Furnish.

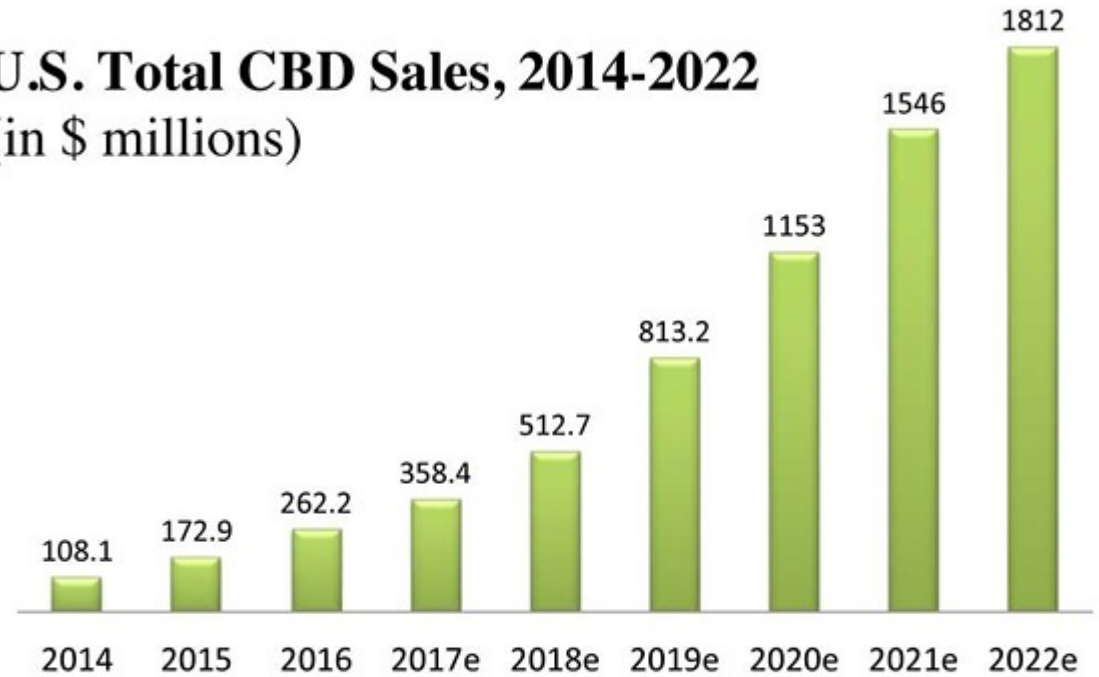
Last year Furnish says his hemp crop cleared about \$2,500 an acre on average. Hemp grows fairly easily in Kentucky and its success in the last three years has attracted global investors. In 2018 more than 12,000 acres have been approved for hemp crops.

"Here in Kentucky, we have worked hard with the law enforcement community to prove we can have an industrial hemp research pilot program that is consistent with the law," said Kentucky Agriculture Commissioner Ryan Quarles. "I am proud of the relationship we have built."

Hemp grows fairly easily in Kentucky, and its success in the last three years has attracted global investors. Companies like Ananda Hemp have invested \$30 million over the last two and half years in what Furnish and other farmers are doing in the Bluegrass.



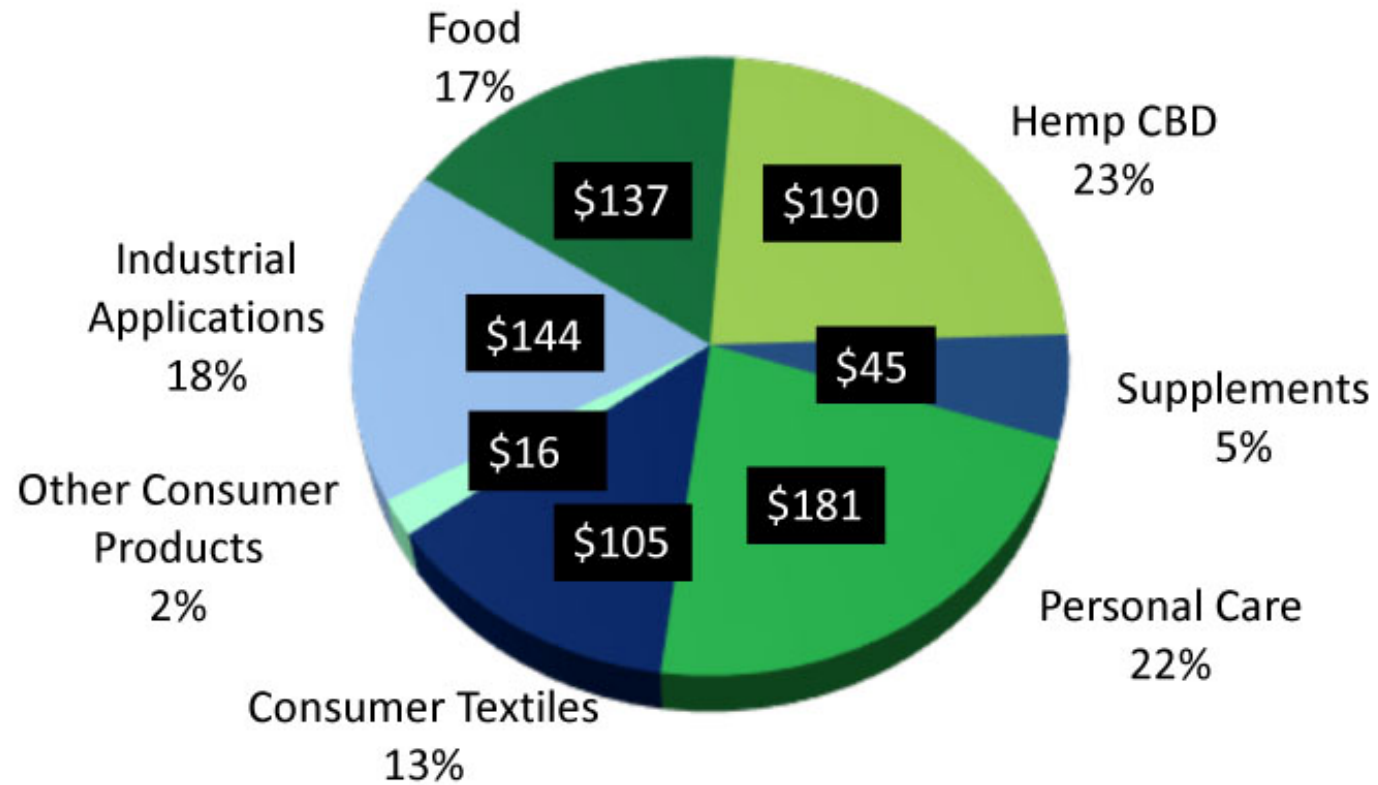
## U.S. Total CBD Sales, 2014-2022 (in \$ millions)



Source: Hemp Business Journal estimates (consumer sales)

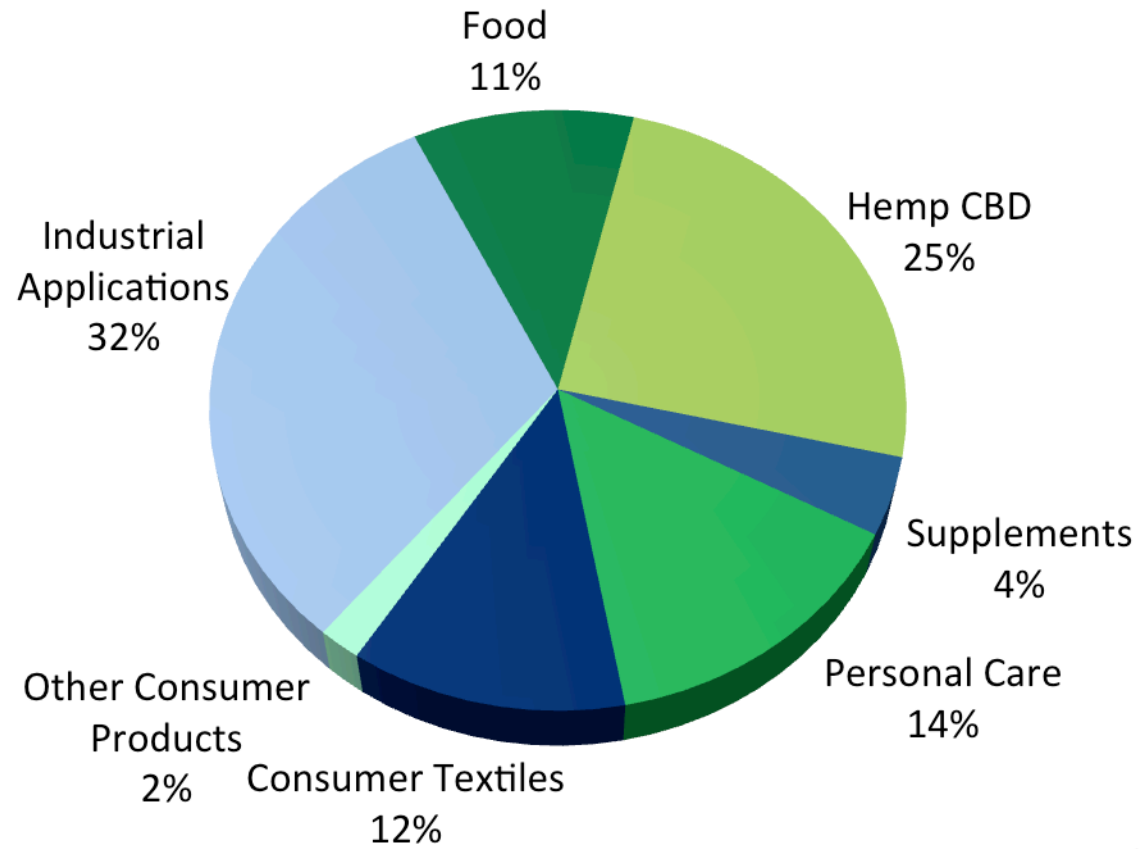


## \$820 Million U.S. Hemp-Based Product Sales by Category in 2017

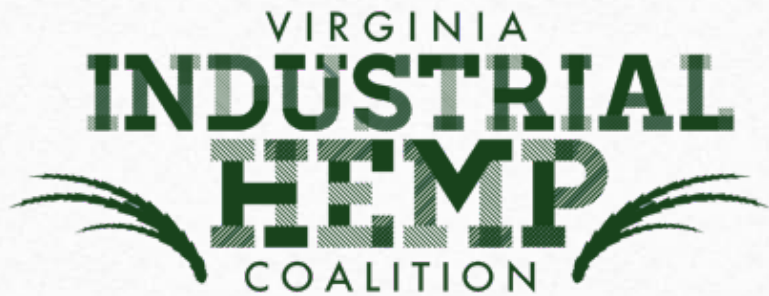


Source: *Hemp Business Journal* estimates (\$mil., consumer sales)

## \$1.8 Billion U.S Hemp-Based Product Sales by Category in 2020e



Source: *Hemp Biz Journal* estimates (consumer sales)



**Jason Amatucci**  
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