

Hemp 101

Crop Insurance Conference

Fargo, North Dakota

January 13, 2019

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Disclaimer

Marijuana is a federally controlled, Schedule I drug. It is a federal crime to grow, possess, sell, or consume.

I discuss marijuana only to delineate it from hemp, which is now legal to produce and sell, and not in anyway to endorse, support, or otherwise educate on marijuana.

Cannabis

An annual flowering herb

Diecious or monoecious

Produces **cannabinoids** - chemicals that act on cannabinoid receptors

Photoresponsive

Female plants are desired for cannabinoid production



Varieties and Uses



Marijuana – cannabis bred and raised for THC (TetraHydroCannabinol)– psychotropic, recreational drug, unproven medical use

CBD (Cannabidiol) – unproven remedy for anxiety, depression

Grain (or oilseed) - food, feed, lotion/cosmetics, industrial

Fiber: rope, clothing, animal bedding/sorbent, carpet

The New Farm Bill

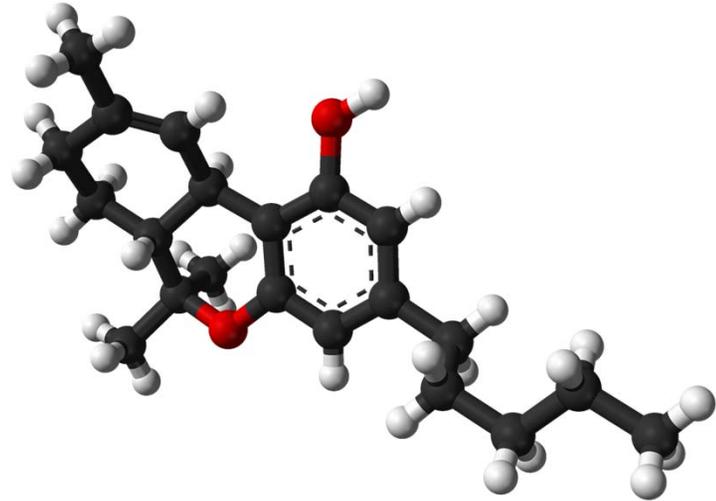
The Agricultural Improvement Act legalized commercial production, transport, and sale of hemp and its component parts.

Expanded rules for highly regulated production for research purposes under the 2014 Farm Bill.

Federal Policy - Definitions

Marijuana is defined as
with THC greater than
.3%

Hemp is cannabis with
THC less than .3%



Drug Enforcement Agency

Marijuana is a Schedule I drug. It has no medical use and is likely to be abused.

Any plant with THC above .3% is considered marijuana as are component parts.

The federal government (DEA) has not actively enforced small scale drug violations since 2009. This has led to confusion.

Legal for medicinal purposes in 33 states, for recreational use in 10 states.

Food and Drug Administration

Responsible for control and supervision of food safety, dietary supplements, and prescription and over the counter drugs.

CBD has not identified to be Generally Recognized As Safe (GRAS). It cannot be legally added to food.

Hempseed and hemp oil are GRAS.

The FDA & CBD

CBD (Epidiolex) has been approved as schedule 5 drug for the treatment of seizures, that is it is a prescription drug.

Dietary supplements may not make medical claims.

There is concern about the actual composition of CBD products being sold.

FDA & CBD

The now former FDA administrator issued a statement on December 20, 2019, regarding CBD. It reasserted FDA's responsibility to regulate.

He also stated that FDA will address any activities that put consumers at risk.

More recently, FDA has issued statements that it is not sure that CBD will be approved.

The Role of States

The Farm Bill allows states and tribes to establish and enforce their own regulations for the hemp production, as long as they align with federal regulations and are approved by USDA.

Production in states/regions without a plan will have to abide by a national USDA rule.

North Dakota has had laws allowing production of hemp since 2001, research production since 2014, and commercial production this year.

North Dakota Process

Accept applications. Background check.

Spot checks of fields and parts, including with 15 days prior to harvest.

THC>.3% is destroyed.

Almost certain to use guidelines from its pilot program.

Horticulture vs. Agriculture

Plants vs fields



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CBD Production

Typically grown as a horticultural crop – greenhouse and field.
Contamination is a major concern.

‘Hands on’ – harvesting and drying.

Most 2019 production was CBD,
including in the Northern Plains.



CBD Production Economics

\$1 or more per seed or clone. Up to \$20,000 per acre in costs.

Pay per pound and point (percentage).

A kg of CBD has a price between \$1,000 and \$5,000.
(Falling)

Must have minimum CBD levels to be worth processing, at least 8 percent.

There is a regional market for CBD.

Marketing CBD Hemp

Spot/Forward Contracted.

Splits. Farmer provides hemp. Processor processes and markets. Farmer/Processor split revenue according to agreed upon ratio.

Tolls. Farmer pays processor to process hemp. Farmer receives CBD and then market it him/herself.

Hemp Grain Production

Production similar to wheat.

Canadian genetics.

Needs to be dried within 24 hours of harvest.

Smaller plant. 4-6' high. Not particularly difficult to harvest, if done at the right time. Later-stalk will bind like flax.



Hemp Grain Economics

Costs similar to other crops. \$300 to \$500 per acre.
(Again, use wheat for baseline.)

Yields from 800 to 1,500 pounds per acre.

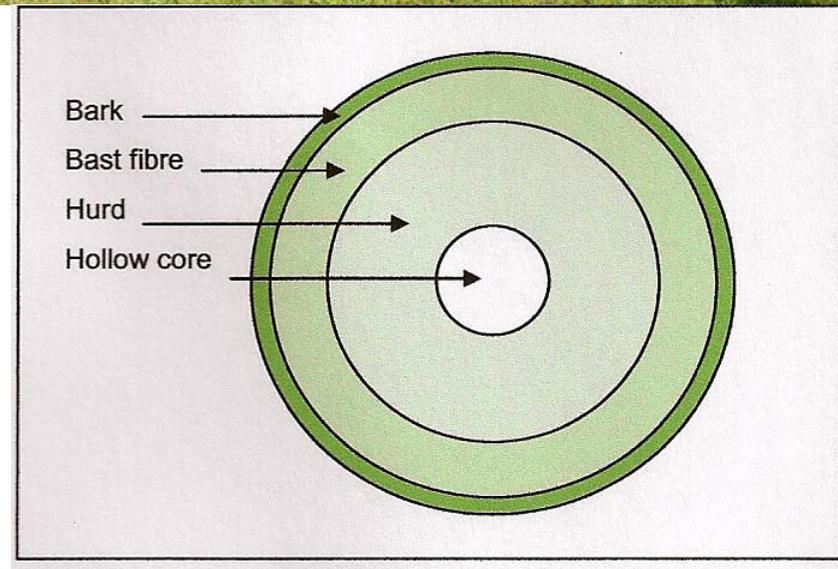
Paying \$.50 to \$1 per pound of conventional or organic seed.

Buyers/processors in the region. Spot/forward contracts.

Hemp Fiber Production

Unwieldy. 10-15 feet high.
12 to 20 tons per acre.

Local processing needed.



Fiber Economics

Production costs, like hempseed, \$300 to \$500 per acre.

Harvest has not been optimized. Two head (high/low) harvester?

No commercial market for hemp fiber. There is a market for processed materials.

Hemp as Feed

Not currently allowed as a feed

Research is being ramped up, but will take years

Hemp Risks

Production/harvest

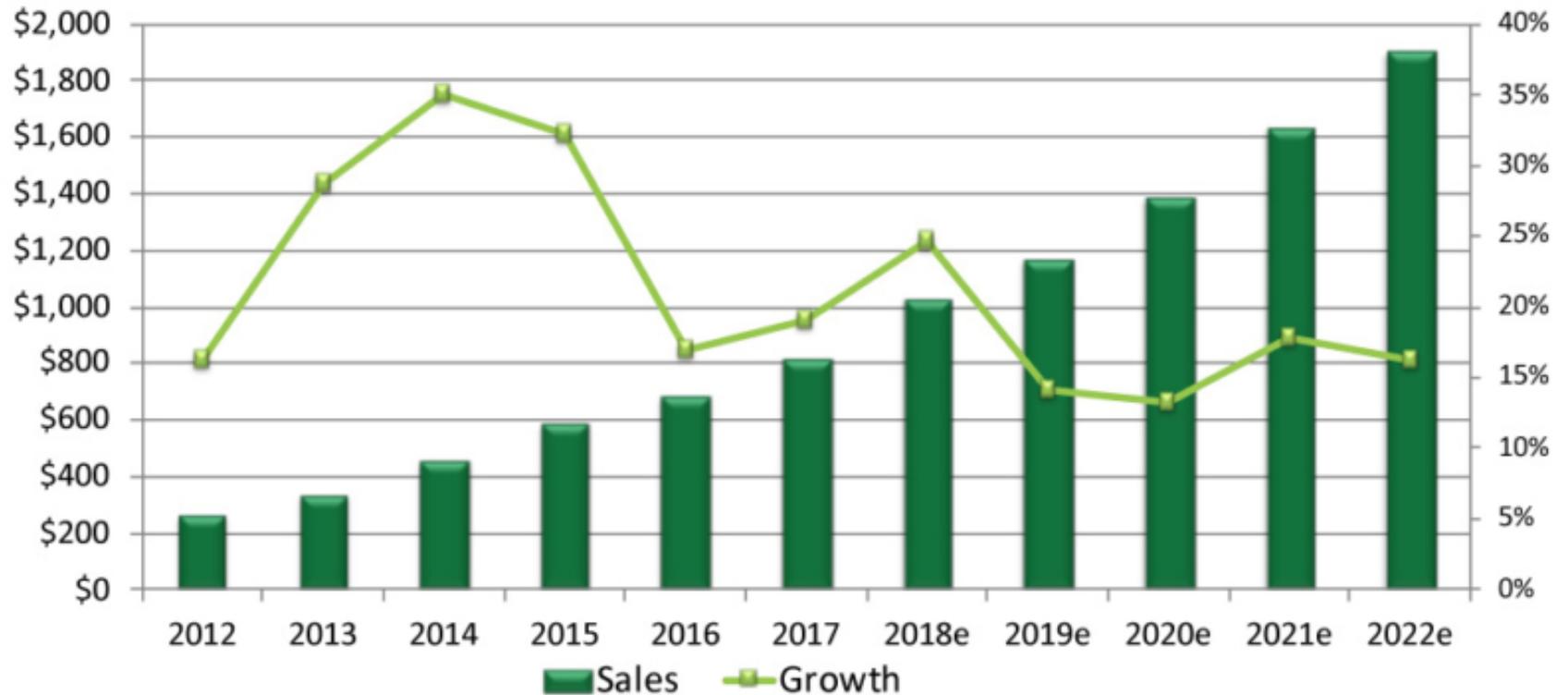
- seed (CBD), pollination (CBD) maturity (CBD), harvest

Legal – permitting, THC content

Offtake

- Specialty/contract crop, not commodity
- In business to accept, able to pay

U.S. Hemp-Based Products Sales, 2012-2022e



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

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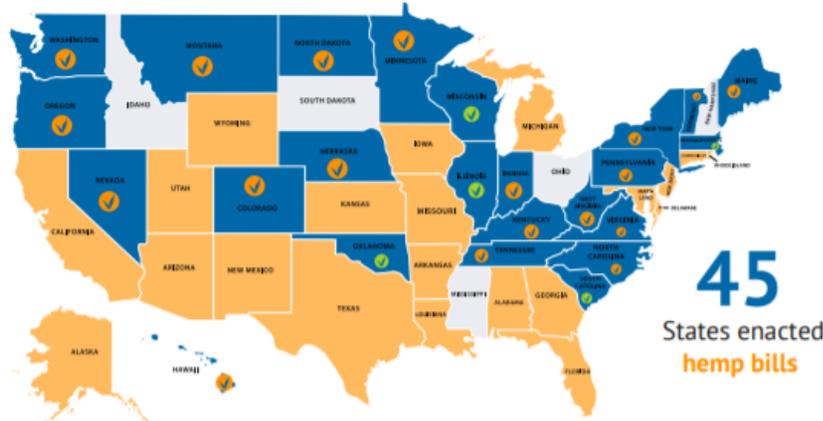
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Source: *Hemp Business Journal* estimates (\$mil., consumer sales)



U.S. Hemp Crop Report



- New states which started in 2018 (5 states)
- States which grew hemp in 2017 (19 states)
- States with enacted hemp legislation (45 states)



78,176

Acres of hemp grown in 23 states



40

Universities conducted research



3,546

State licenses issued

State	2017 Acres	2018 Acres
Colorado	9,700	21,578
Hawaii	1	2
Illinois	0	1
Indiana	5	5
Kentucky	3,271	6,700
Maine	30	550
Massachusetts	N/A	21
Minnesota	1,205	710
Montana	542	22,000
Nebraska	1	0.5
Nevada	417	1,881
New York	2,000	2,240
North Carolina	965	3,184
North Dakota	3,020	2,778
Oklahoma	N/A	445
Oregon	3,469	7,808
Pennsylvania	36	580
South Carolina	N/A	256
Tennessee	200	3,338
Vermont	575	1,820
Virginia	87	135
Washington	175	142
West Virginia	14	155
Wisconsin	N/A	1,850
Total	25,713	78,176*

*Includes 10,090,188 square feet of greenhouse or indoor cultivation

More than 300,000 acres permitted in 2019.

1/2 planted?

1/2 harvested?

1/2 marketed? (if that)

It is expected that
as many as 95 percent of the ‘farmers’
who grew hemp in 2019 won’t be in
2020.

Everything Old is New Again

Northern Plains agriculture has successfully introduced many new crops in the past three decades:

Sunflower

Canola

Soybean/Corn

Questions?

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