

Hemp Industry in Mississippi:

Economics, Marketing and Job Creation Committee Report

Mississippi Hemp Task Force Meeting September 25, 2019

Committee Members:

Larry Walker, University of Mississippi (chair)

Wes Burger, Mississippi State University

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Hemp Industry in Mississippi:

Economics, Marketing and Job Creation

A policy review and update

An assessment of U.S. market for industrial hemp and related products

Enterprise budgets to project hemp profitability for Mississippi farmers

Hemp processors and other industry operations and economic impact

Challenges and issues on economic development opportunities

Conclusions

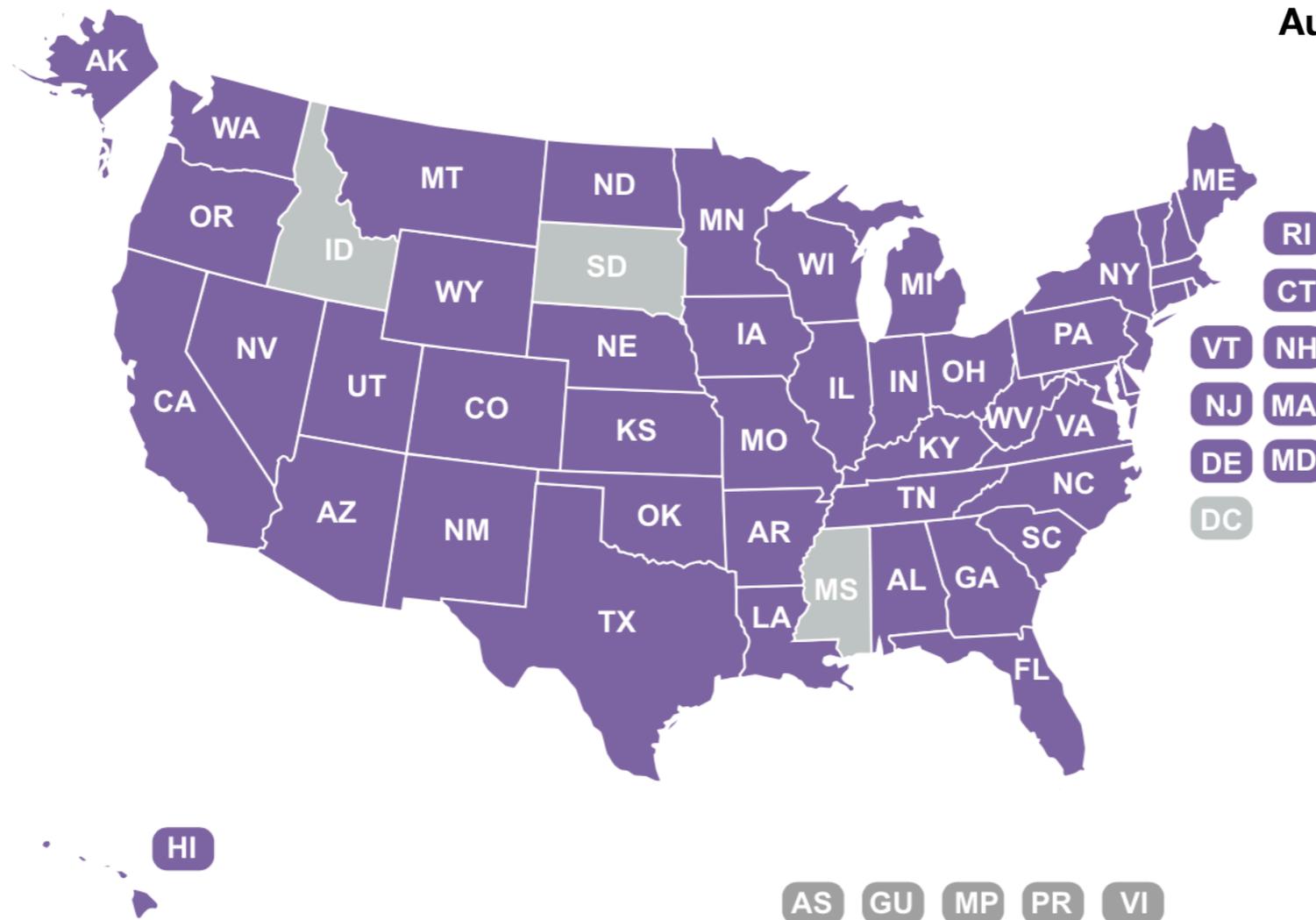
For a summary of state laws related to industrial hemp, click on the states in the map below or see the chart for a complete list of state statutes.



Allows cultivation of hemp for commercial, research or pilot programs

Does not allow cultivation of hemp.

**Source: National Conference of State Legislatures
August 2019**



Federal Regulatory Issues

Drug Enforcement Administration:

**2018 Farm Bill and the Redefinition of Hemp
from a Controlled Substance Perspective**

Food and Drug Administration:

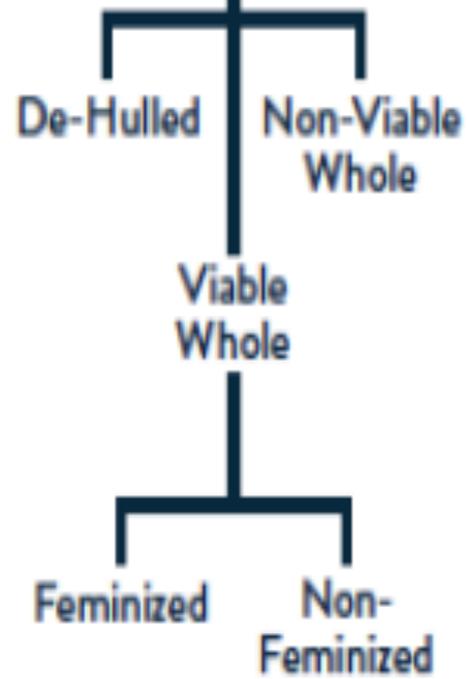
Issues outstanding as to regulatory status

FARM BILL FINANCIAL EFFECTS

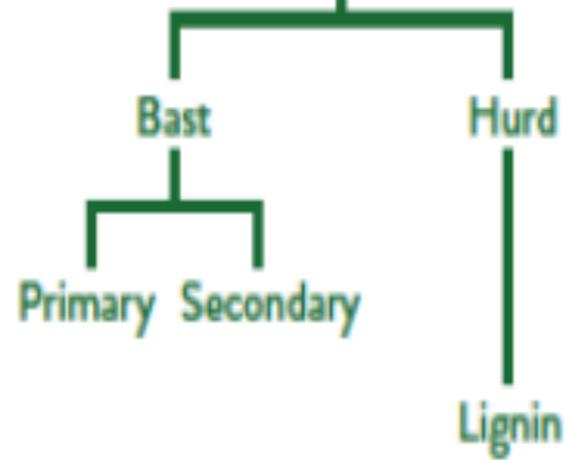
HempBusinessJournal
a division of New Frontier Data

- Growth Across the Supply Chain
- USDA Regulation (e.g. Crop Insurance & Risk Mitigation)
- Interstate Transport (Ease of Doing Business)
- Organic Market Awakens
- Banking > Merchant Processing > Mass Market
- Internet Marketing > Advertising Exchanges
- Products into Unexpected Retailers
- Investment and M&A Activity

SEED



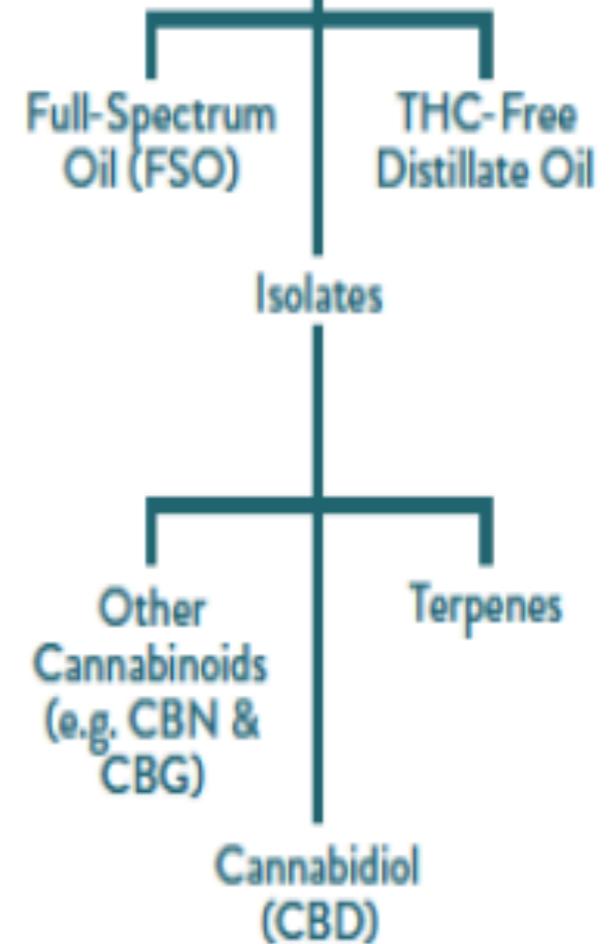
FIBER



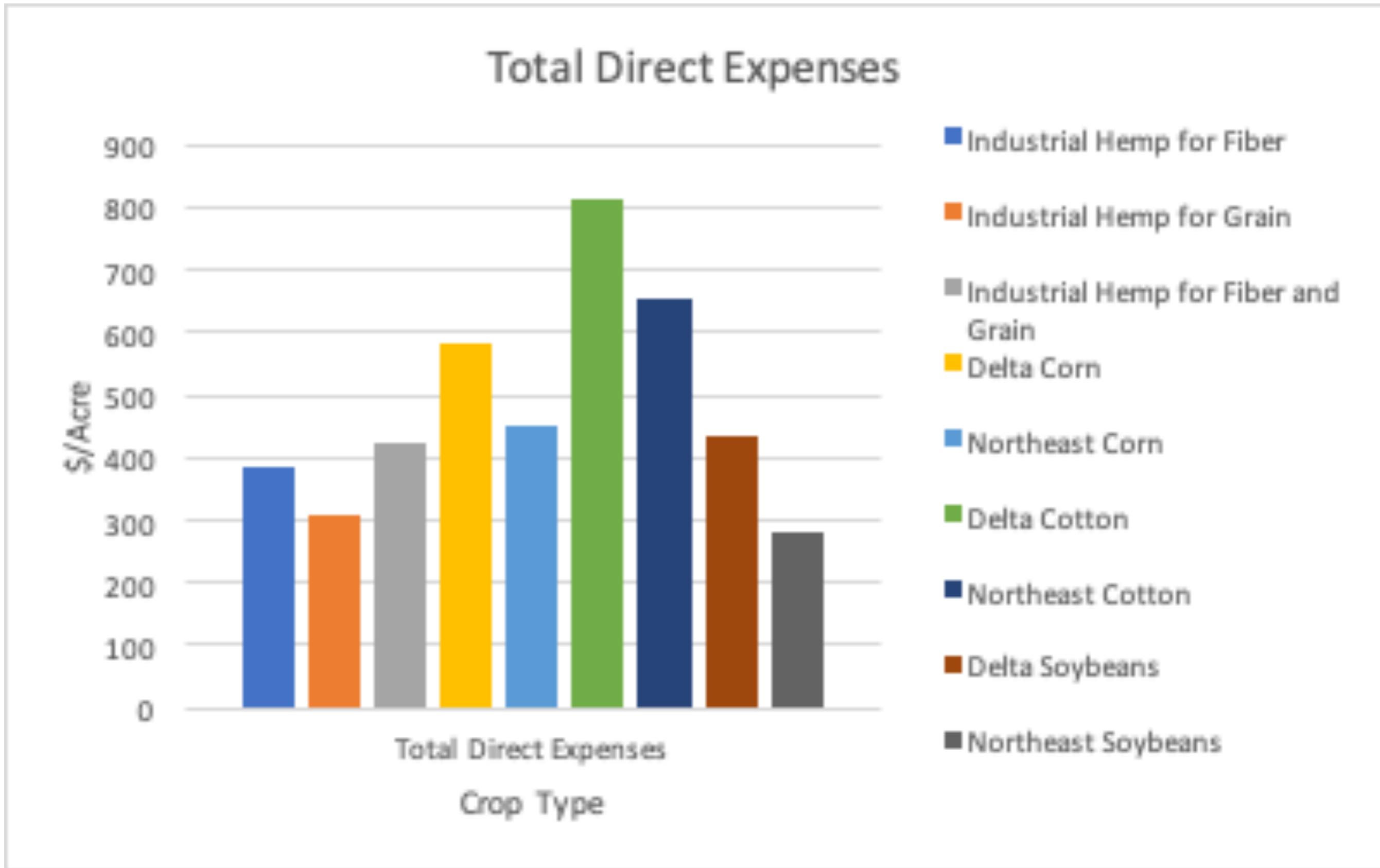
FLOWER



EXTRACTS

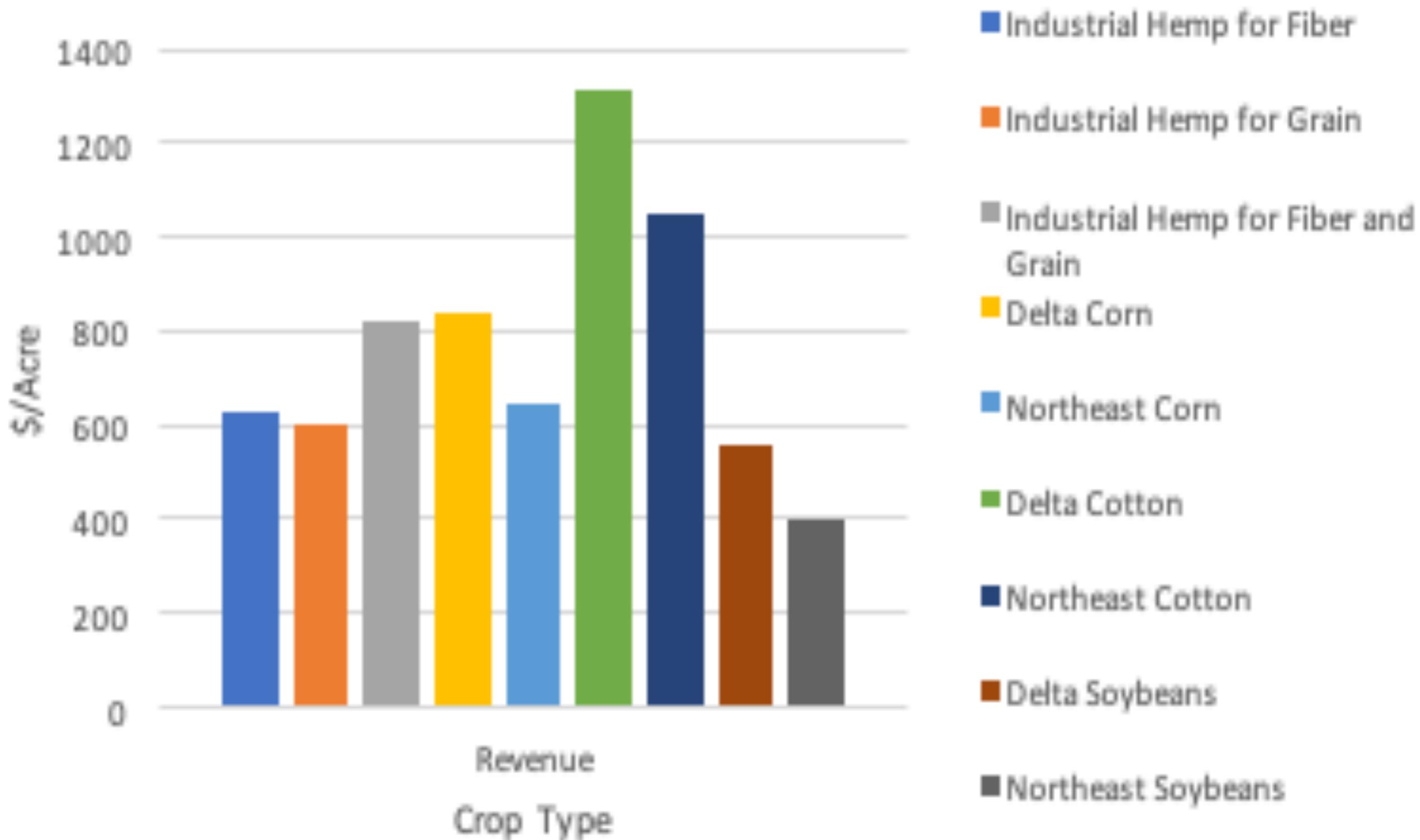


Expense estimates for fiber & grain hemp vs. other Mississippi commodity crops



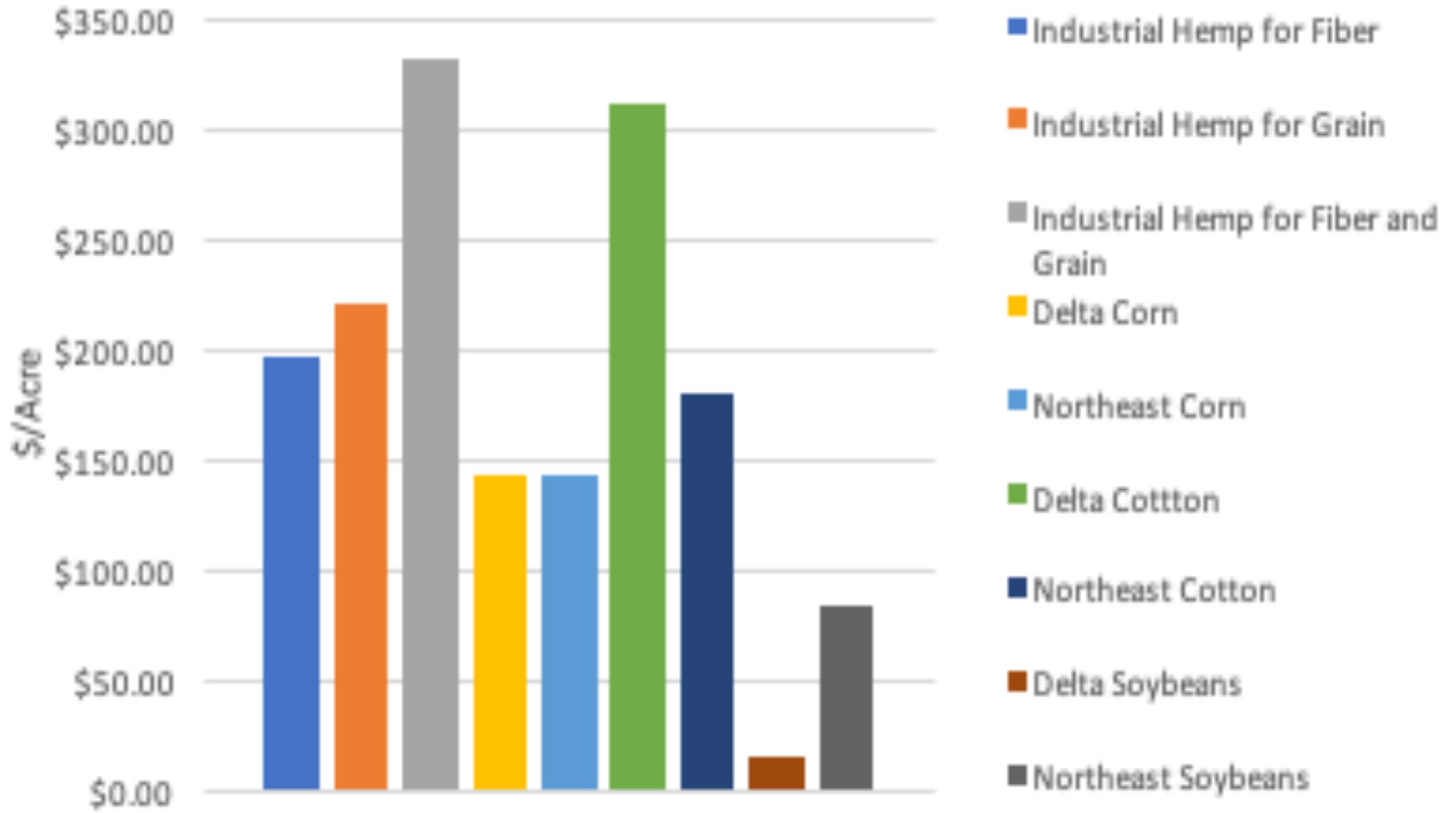
Revenue projection estimates vs. other Mississippi commodity crops

Total Revenue



Return estimates for fiber and grain hemp vs. other Mississippi commodity crops

Returns above Specified Expenses



The tables compare expected net returns for hemp harvested for grain compared to corn, soybeans, and cotton in the Mississippi Delta. Again, these are estimates based on research in Kentucky and Missouri, adapted for Mississippi. The tables highlight hemp for grain yield and price combinations and how net returns compare to expected net returns to commodity crops produced in the Delta.

Dr. Randy Little
 Dept. of Ag. Economics, MSU

Sensitivity Analysis: Hemp for Grain Net Returns over Delta Corn

		Yield (pounds/acre)				
		500	750	1000	1250	1500
Market Price (\$/pound)	\$0.40	(\$322.72)	(\$222.72)	(\$122.72)	(\$22.72)	\$77.28
	\$0.50	(\$272.72)	(\$147.72)	(\$22.72)	\$102.28	\$227.28
	\$0.60	(\$222.72)	(\$72.72)	\$77.28	\$227.28	\$377.28
	\$0.70	(\$172.72)	\$2.28	\$177.28	\$352.28	\$527.28
	\$0.80	(\$122.72)	\$77.28	\$277.28	\$477.28	\$677.28

Sensitivity Analysis: Hemp for Grain Net Returns over Delta Soybeans

		Yield (pounds/acre)				
		500	750	1000	1250	1500
Market Price (\$/pound)	\$0.40	(\$262.78)	(\$162.78)	(\$62.78)	\$37.22	\$137.22
	\$0.50	(\$212.78)	(\$87.78)	\$37.22	\$162.22	\$287.22
	\$0.60	(\$162.78)	(\$12.78)	\$137.22	\$287.22	\$437.22
	\$0.70	(\$112.78)	\$62.22	\$237.22	\$412.22	\$587.22
	\$0.80	(\$62.78)	\$137.22	\$337.22	\$537.22	\$737.22

Sensitivity Analysis: Hemp for Grain Net Returns over Delta Cotton

		Yield (pounds/acre)				
		500	750	1000	1250	1500
Market Price (\$/pound)	\$0.40	(\$490.40)	(\$390.40)	(\$290.40)	(\$190.40)	(\$90.40)
	\$0.50	(\$440.40)	(\$315.40)	(\$190.40)	(\$65.40)	\$59.60
	\$0.60	(\$390.40)	(\$240.40)	(\$90.40)	\$59.60	\$209.60
	\$0.70	(\$340.40)	(\$165.40)	\$9.60	\$184.60	\$359.60
	\$0.80	(\$290.40)	(\$90.40)	\$109.60	\$309.60	\$509.60

**Full Spectrum
Hemp Oil**
(60%+ CBD)



**THC Free
CBD Distillate**
(60%-80% CBD)

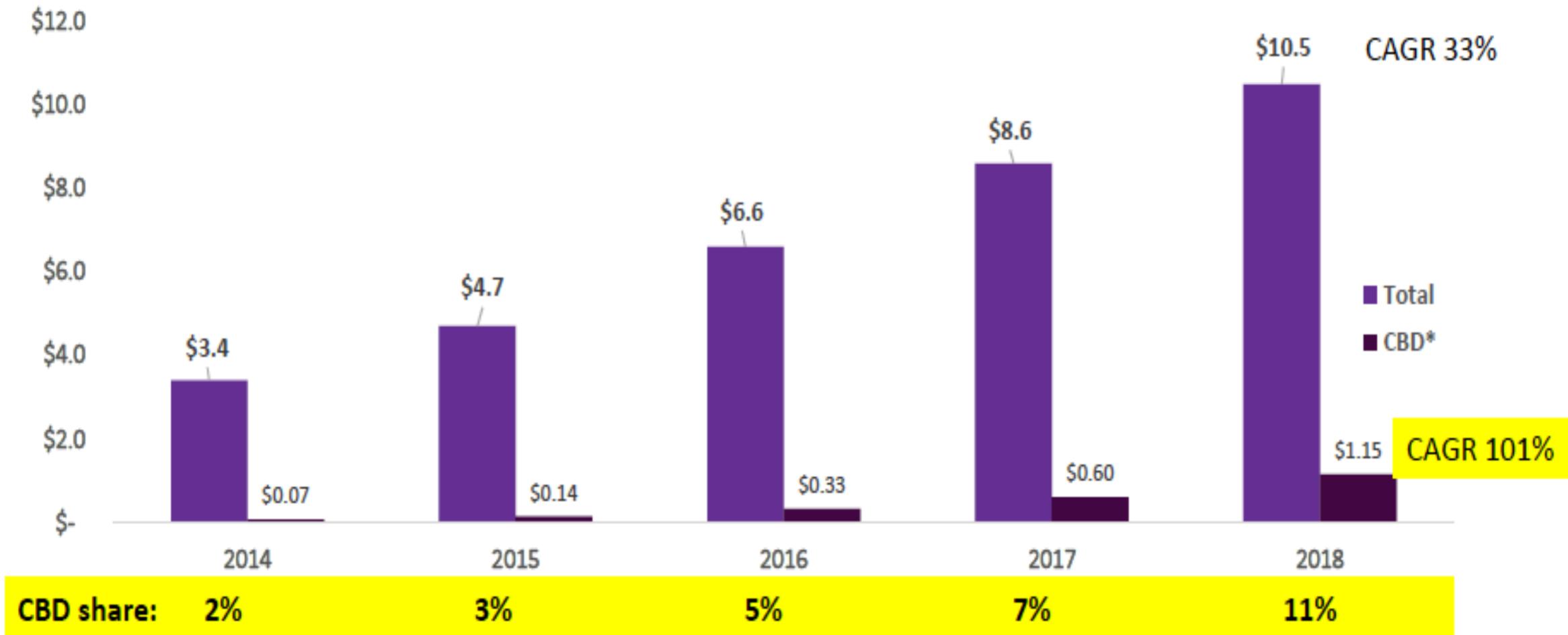


CBD Isolate
(99.8%+ CBD)



From almost nothing, CBD sales have been growing even faster than overall sales in the dispensary channel

Total USA Legal Cannabis Spending and CBD share (\$USD Billions)



Source: BDS Analytics CBD Market Monitor, Arcview & BDS Analytics
*Products containing a substantial proportion of CBD

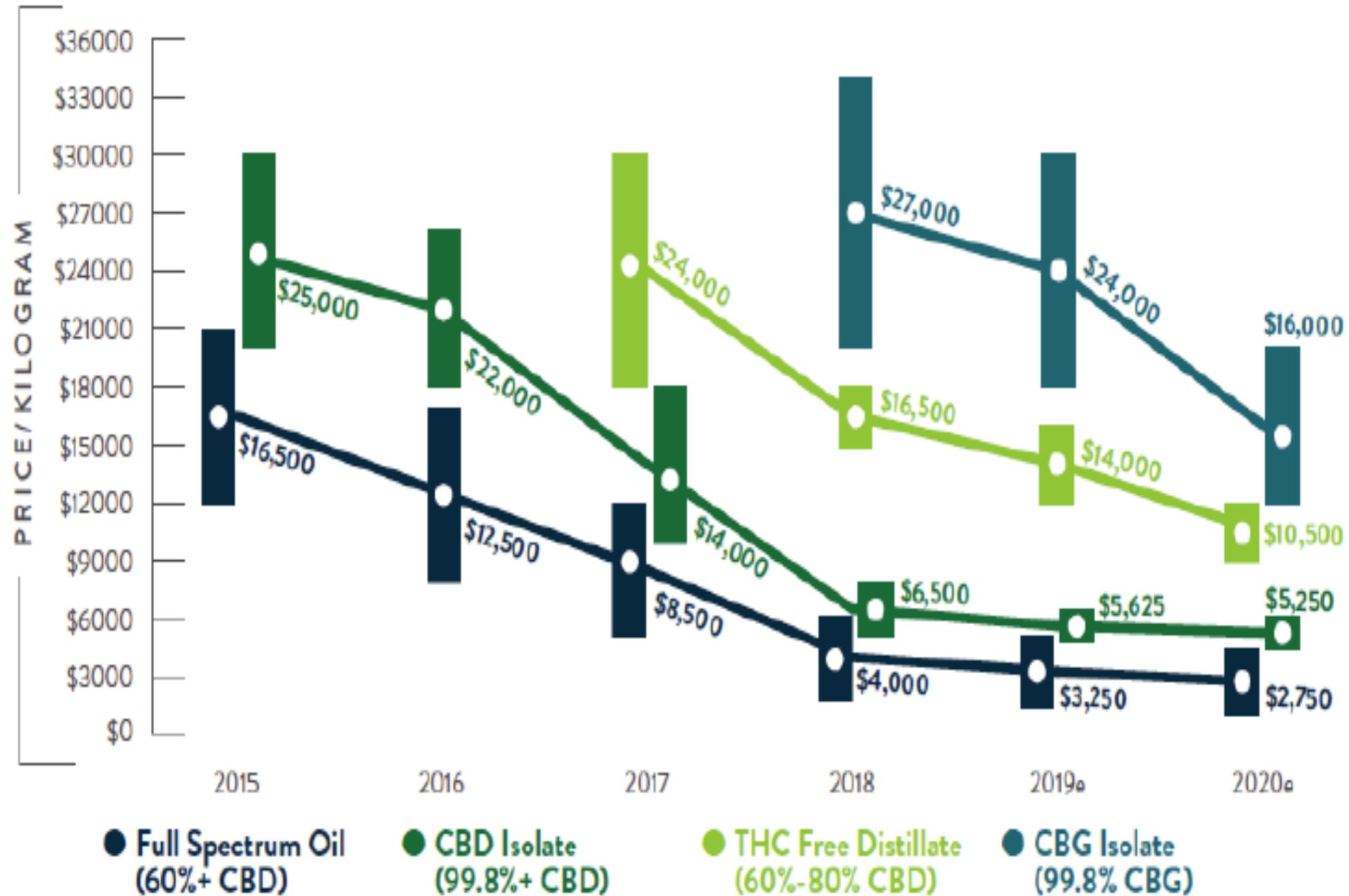
From BDS Analytics (American Herbal Products Association Hemp Congress, August 2019).

U.S. TOTAL CBD SALES BY CHANNEL

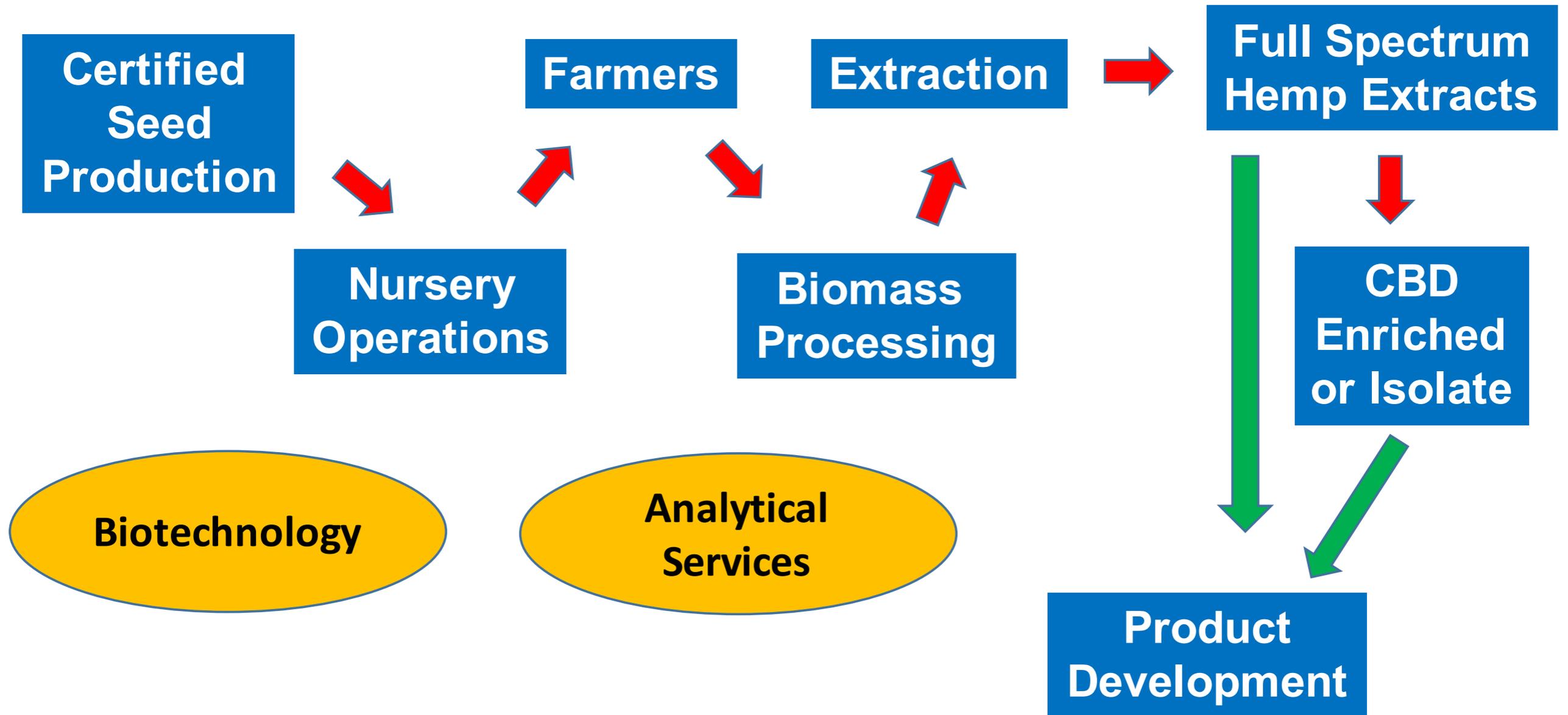


© 2019 New Frontier Data | Source: Hemp Business Journal estimates (\$ mil., consumer sales)
 All pharmaceutical sales are for the drug Epidiolex.

WHOLESALE PRICING

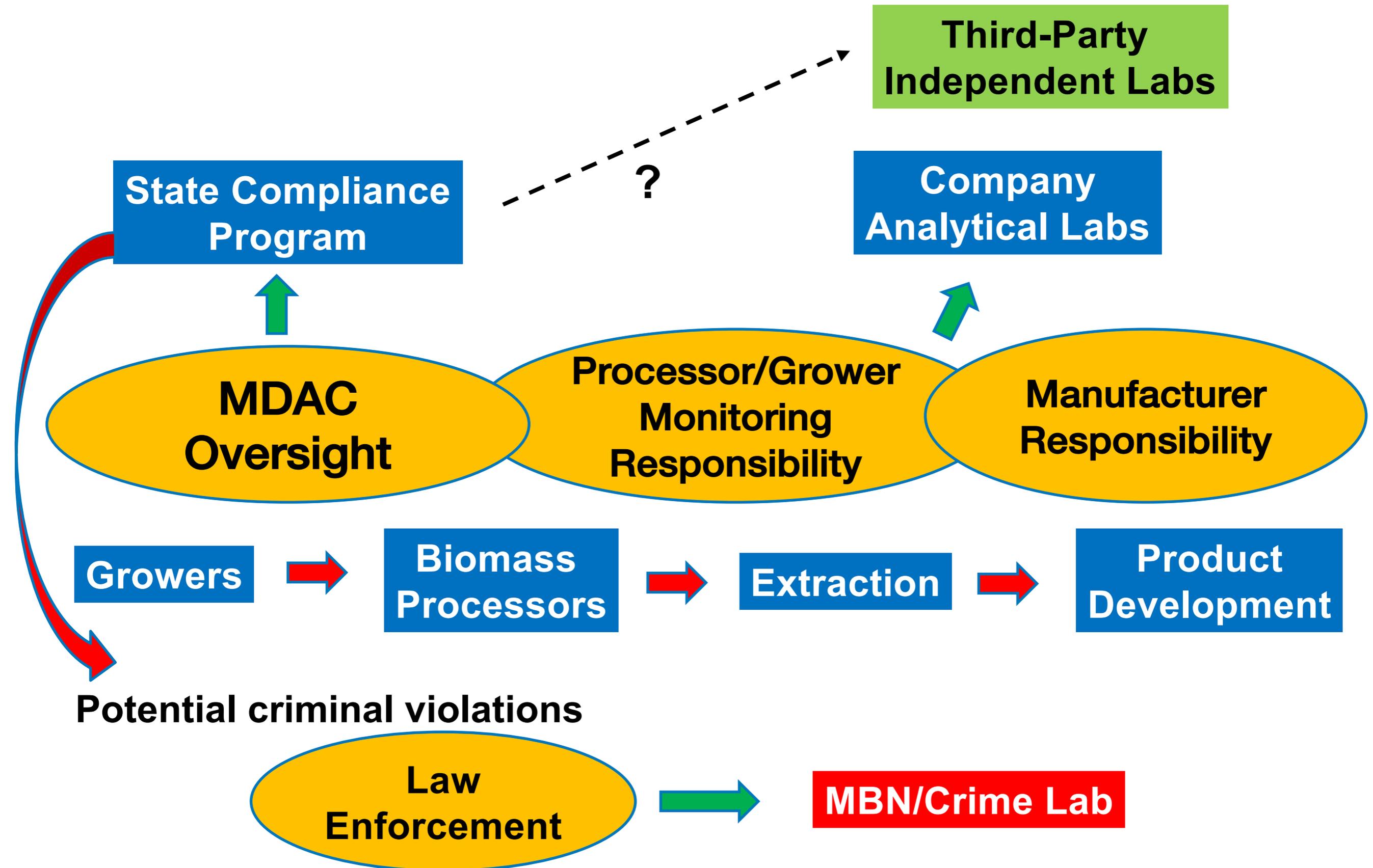


CBD Hemp Supply Chain Value Addition



Much of the overall economic impact would lie in these areas up and down the chain

Hemp Program Analytical Aspects



The Kentucky Experience

KY has had good early success in developing their cultivation program, for several reasons:

- 1) Political influence of Sen. McConnell helped to advance new legislation
- 2) They grew the program using existing modes of operation in their tobacco industry (using mechanized setters, side dressing practices, drying barns, stripping, biomass processing, etc.)
- 3) They attracted large companies and capital investment in programs, developed in concert with growers aligned with the state and the university research programs.

- Investment in 16 hemp processing operations for \$94 million total.
- Expected to create more than 900 full-time jobs
- 110 hemp processor licenses were approved for 2019.
- More than 1,000 Kentucky farmers received hemp farming licenses this year, with more than 50,000 acres under license



Company contracts with a “biomass processor”, who manages contract growers

Cultivars: good CBD producers suitable for nursery-to-field transition

Clones derived from cuttings from mother plants of these cultivars

Growers: Established tobacco farmers, forward contracts, provided clones, paid on delivery of biomass

Plant clones with a tobacco setter, side dressing, weed control, and monitoring.

Harvest: Harvested tops of plants brought to tobacco barns for drying and stripping.

Optimum curing is important issue for stripping and storage.

Small volume growers hand-strip buds.

Larger operations pull plant tops through a steel ‘comb’. Very labor intensive.

Stripping yields ‘manicured’ buds with minimal stem, stalk and large leaves

Packaged into boxes for transport to extraction facilities.

Mechanized strippers introduced recently; cost is about \$50,000 each

Mobile and can be moved to different growers in a region. Potential relief to huge manpower crunch for many grower/processor operations

Extraction: Facilities established in KY for extraction of CBD from biomass

Very expensive operations, with minimum estimates at \$1-2 million. Only a few of these in KY, though more than 100 licenses are granted to ‘processors’

Challenges and issues on economic development opportunities

- 1. FDA position on supplements**
- 2. Competition in the marketplace**
- 3. Hemp processors and hemp product industry**
- 4. Establishing optimal hemp cultivars and propagation programs**
- 5. Analytical services**
- 6. Administrative and regulatory program development**

Conclusions/Recommendations

- 1. Promote realistic expectations on part of growers**
- 2. A successful Mississippi program should:**
 - a. learn from experience in other states**
 - b. incorporate a strong plan for "value-added" industry presence**
- 3. Opportunity to take advantage of unique research strengths existing in Mississippi, and establish a forward-looking and nation-leading plan to interface with research on health benefits and risks of CBD- containing products**

Hemp Industry Resources with Mississippi Connections or Interests

