

# CBD HEMP PRODUCTION COSTS & RETURNS FOR CONNECTICUT FARMERS IN 2020

Zwick Center for Food and Resource Policy

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## WHAT IS THE ISSUE?

Since its approval in the 2014 Federal Farm Bill under a pilot program, production of industrial hemp, particularly for cannabinoid (CBD) products, has skyrocketed in the United States. This trend has been largely driven by the potential for large profits from a burgeoning consumer demand for CBD products.

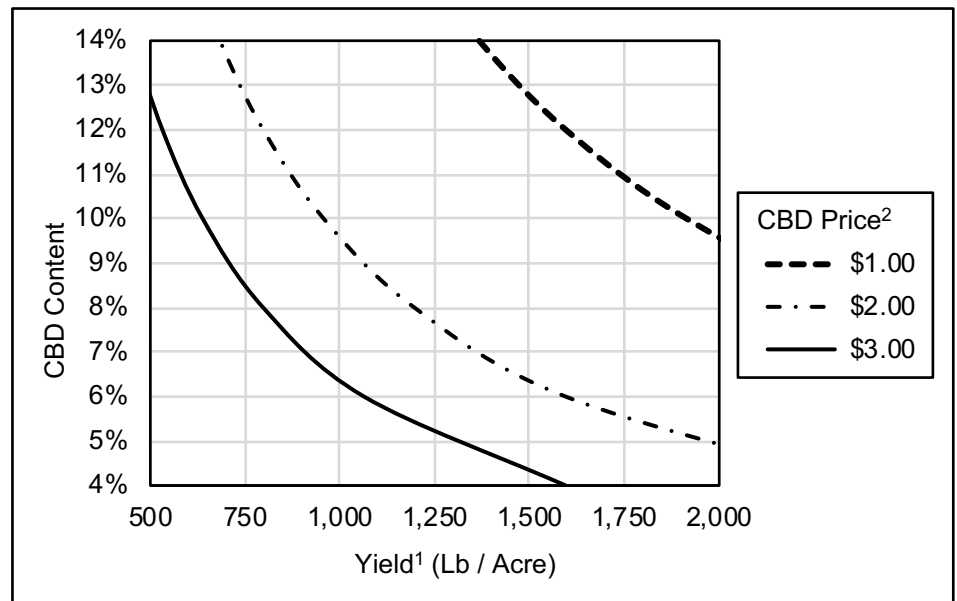
In Connecticut, hemp cultivation became legal for growers licensed by the Connecticut Department of Agriculture in May 2019. However, in spite of the excitement, there is lack of information on potential revenues, costs, and risks of producing CBD hemp to guide investment decisions. This report aims to provide such information for the first time to current and potential Connecticut farmers for 2020, the second year of hemp cultivation in the state.

## WHAT DID THIS STUDY FIND?

For a representative farm of 10 acres, as shown in Table 1 (back cover), this study finds that for the 2020 growing season:

- The total cost per acre is estimated at \$19,141 or \$15.95 per pound of dried hemp flower.
- About two-thirds of the total cost per acre (\$12,571) is variable, meaning that it changes with the level of production, and one-third of it (\$6,570) is fixed.

FIGURE 1. BREAKEVEN BY YIELD, CBD CONTENT, AND PRICE



**Note:** <sup>1</sup>Dry Flower at 8% moisture content, greater moisture content will reduce price for final product; <sup>2</sup>Pricing is in dollars (\$) per percentage point of CBD, for example, at a price of \$2.00, 100 lbs of 10% CBD flower is valued at \$2,000.

- At the prevailing local price of \$2 for 9% CBD, total revenues are \$21,600 per acre, leading to \$2,459 in profits per acre, or \$9,029 per acre net return over variable costs.
- Break-even (zero profit) combinations of dry flower yield, CBD content, and prices are shown in Figure 1. Points above the curves indicate positive profits and points below them indicate losses.
- The ultimate profitability of this enterprise will depend on technical abilities of individual farmers (yield and CBD content) as well as external market forces, predominately CBD prices.

Because CBD hemp prices continue to decline as many states are rapidly expanding production and there is a possible further threat from CBD imports, policy changes challenges remain to ensure the long-term profitability and economic sustainability of CBD hemp production in Connecticut. Challenges also remain about finding a suitable buyer and controlling THC content in this nascent industry.

**TABLE 1: SUMMARY OF CBD HEMP PRODUCTION COST AND RETURNS PER ACRE FOR 2020**

<b>Budget Items</b>	<b>Value</b>
	--- \$ per Acre ---
<b>Value of Production</b>	
Dry Hemp Flower (\$2.00 / % CBD / pound) <sup>3</sup>	21,600
<b>Costs of Production</b>	
<b>Variable Inputs</b>	
Fertilizer & Lime	210
Seeds	1,678
Other Crop Inputs: Irrigation, Mulch, Spray, Custom, Etc.	4,276
Labor	5,259
Repair & Maintenance	170
Fuel	211
Interest on Operating Capital	767
<b>Variable Costs Total</b>	<b>12,571</b>
<b>Fixed Inputs</b>	
Buildings & Equipment	2,357
Land Charge	167
Drying Facility	2,000
Value of Operator Management	1,250
Administrative & Regulatory Expense	796
<b>Fixed Costs Total</b>	<b>6,570</b>
<b>Total Costs</b>	<b>19,141</b>
<b>Net Returns</b>	
Returns above Variable Costs	9,029
<b>Returns above Total Costs</b>	<b>2,459</b>

**Note:** <sup>3</sup>Yield assumed at 1,200 Lb/Acre and 9% CBD on a dry weight basis.

### HOW WAS THIS STUDY CONDUCTED?

This study employed two complementary methods: (1) economic engineering by simulating the best practices involved in the farm production process for CBD hemp to estimate cost and revenues based on likely outputs and market prices; and (2) interviews with farmers and experts in Connecticut, Massachusetts, and New York. One key assumption is that markets work perfectly in input procurement and sales of CBD hemp, where failure in either of which could significantly constrain production or sale of the crop. Other technical details are found in the full report.

### ABOUT THE AUTHORS

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For the full report, see the Zwick Center Research Report No. 66 at <https://zwickcenter.uconn.edu>. Cover image courtesy of CBD Hemp Guru (<https://cbdhempguru.com>). For further information, contact [rigoberto.lopez@uconn.edu](mailto:rigoberto.lopez@uconn.edu).