

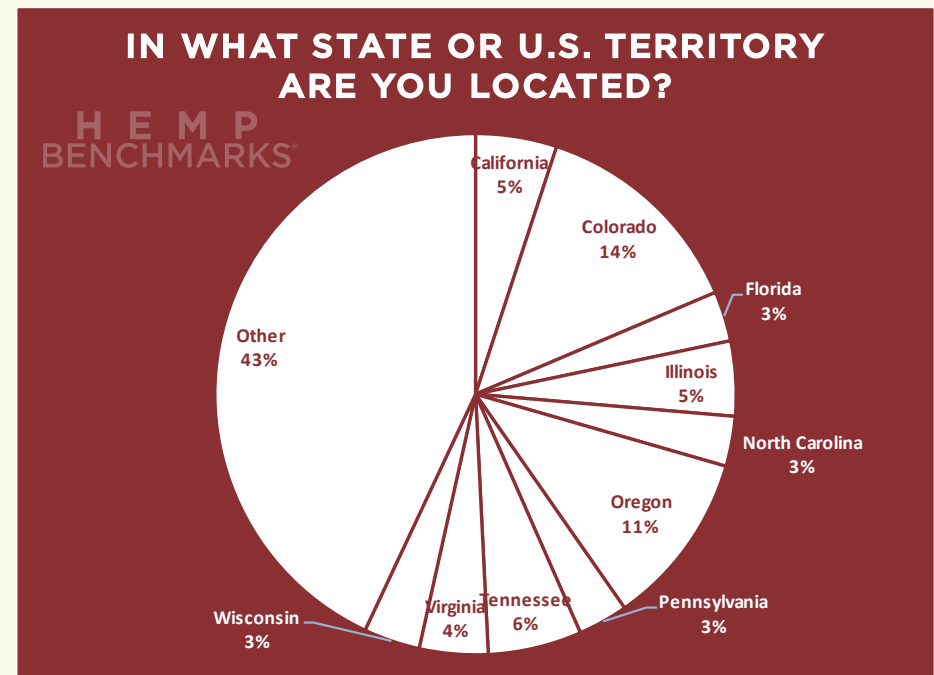
### Hemp Benchmarks Extraction Survey - May 2020

In order to more accurately gauge existing processing capacity, Hemp Benchmarks circulated a survey on CBD and other cannabinoid extraction from industrial hemp. We received over 400 responses, with over 250 of the respondents stating that they are currently operating a hemp cannabinoid extraction facility or are actively building one. The following data, charts, and commentary will focus on the information provided by those operators. Survey questions focused on methods, input capacity, and production capacity for Crude Oil, Full and Broad Spectrum Distillates, the removal and/or remediation of THC from distillates, and Isolate.

The respondents currently operating or actively building extraction facilities are located in 43 U.S. states, as well as Canada, Europe, South America, and Africa. Just under a quarter of the respondents stated that their operations were located in either Colorado or Oregon. Tennessee, California, Illinois, and Virginia are each home to between 4% and 5% of the operators who responded to the survey. The states with no positive responses are Alaska, Hawaii, Mississippi, New Hampshire, New Jersey, South Dakota, and Wyoming, as well as Washington, D.C.

Finally, of the over 150 respondents who stated that they are not currently operating or actively building an extraction facility, roughly three-quarters identified themselves as hemp farmers, while over two-thirds stated that they do not plan to build an extraction facility in the future.

### Survey Responses

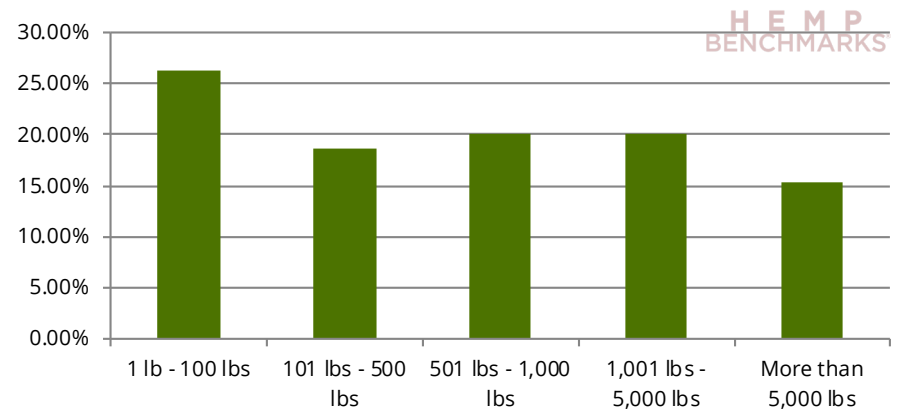


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### Crude

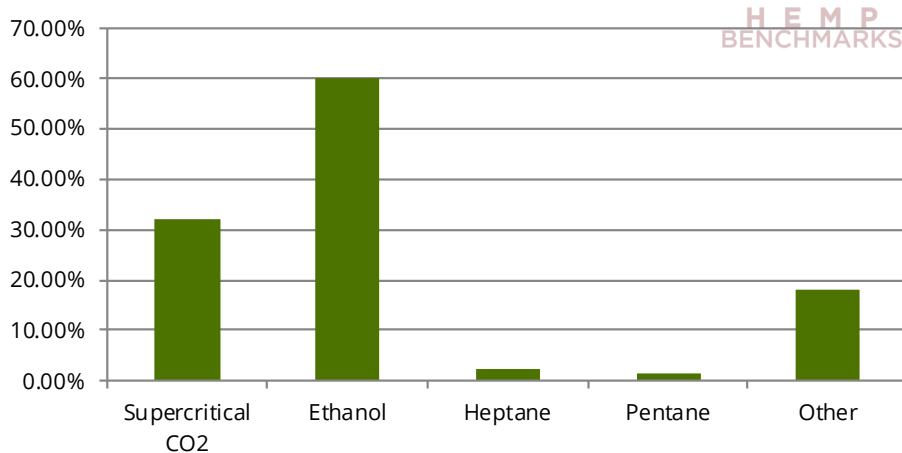
- Over 85% of operators stated that their facility produces crude CBD oil from hemp biomass.
- Daily input capacities were fairly evenly distributed across the different volume brackets specified, though almost 45% stated that they could process a maximum of 500 pounds of biomass daily.
- A slight majority of respondents are generating 1,000 kg of crude or less monthly.
- Almost 60% of respondents employ ethanol to produce crude oil from hemp biomass, while about 32% use supercritical CO2.

What is your daily input capacity for hemp biomass in pounds?



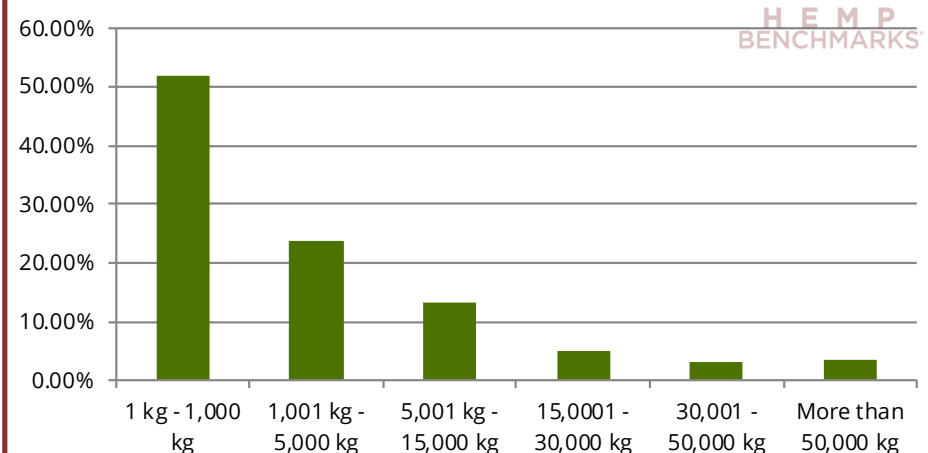
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What do you use for extracting hemp biomass into crude oil?



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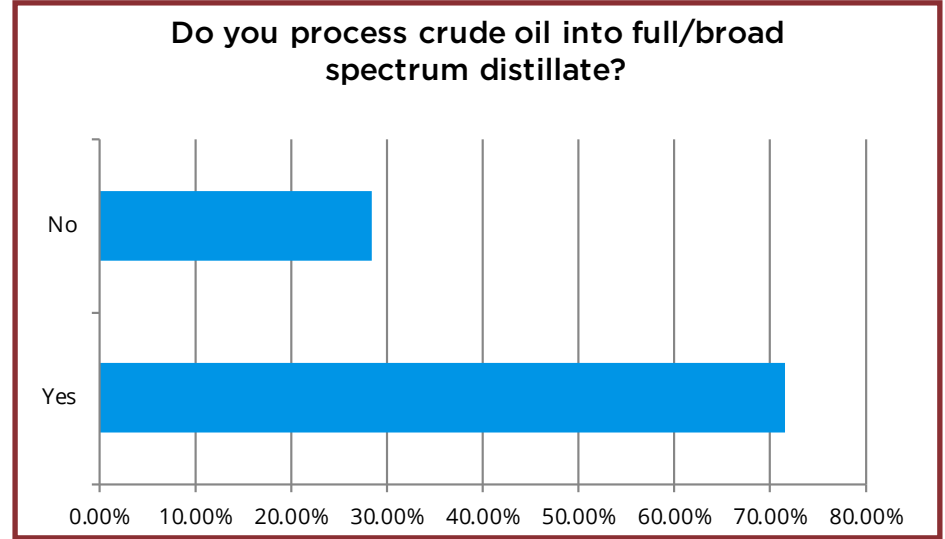
What is your monthly production of crude oil in kilograms?



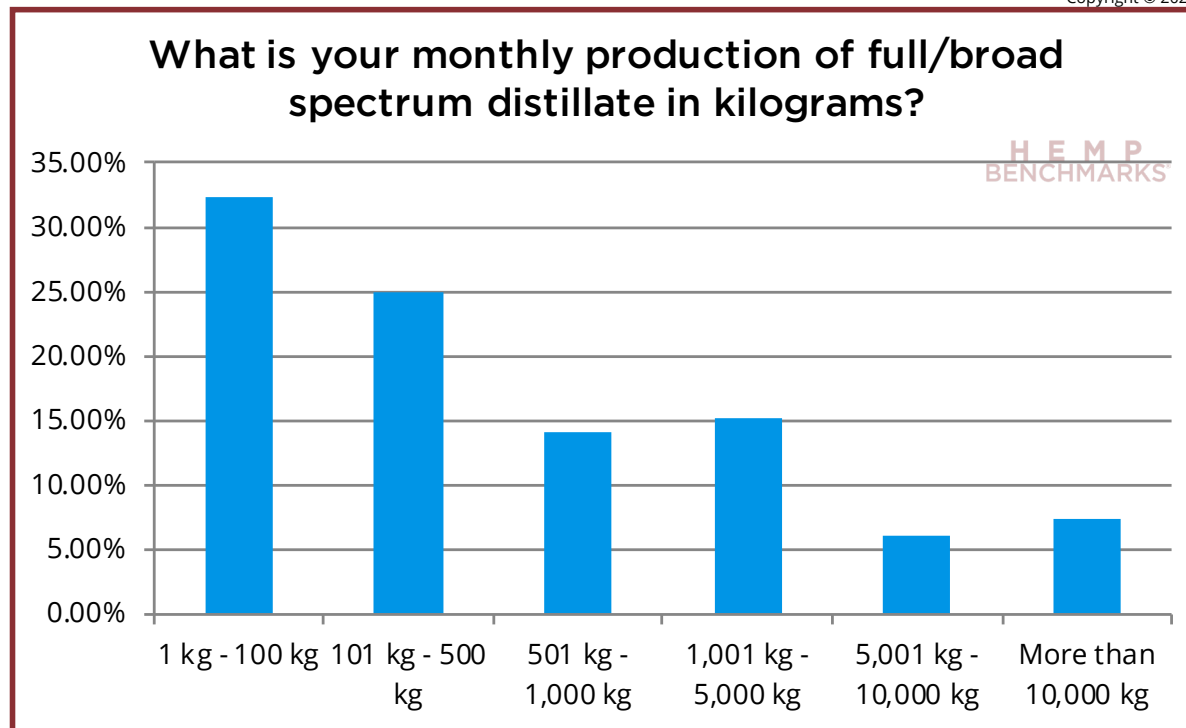
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### Full / Broad Spectrum Distillate

- Over 70% of actively operating respondents stated that their facility produces full and / or broad spectrum distillate.
- Production volume for distillates is smaller than for crude, with almost 60% reporting that they generate 500 kg or less monthly.



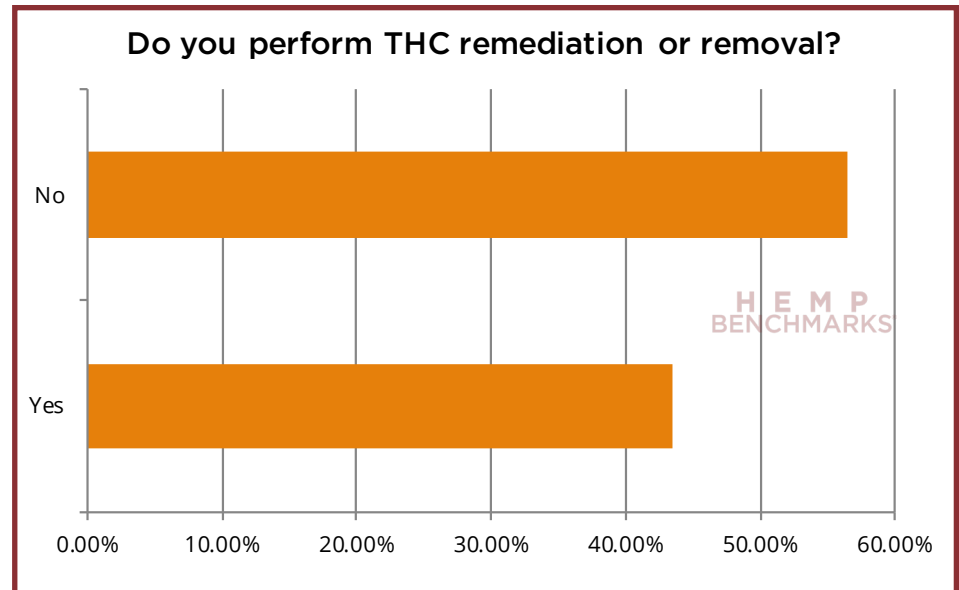
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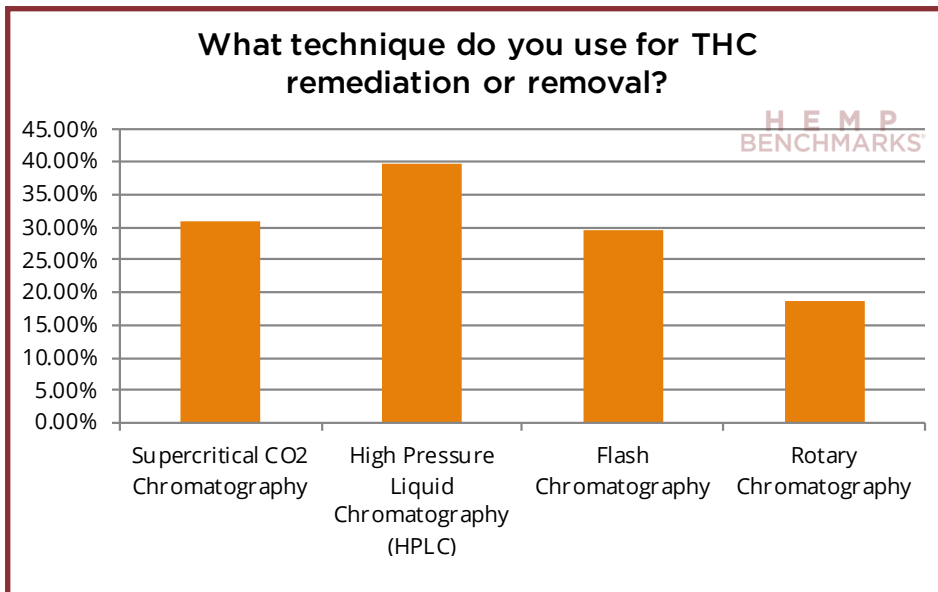
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### THC Remediation / Removal

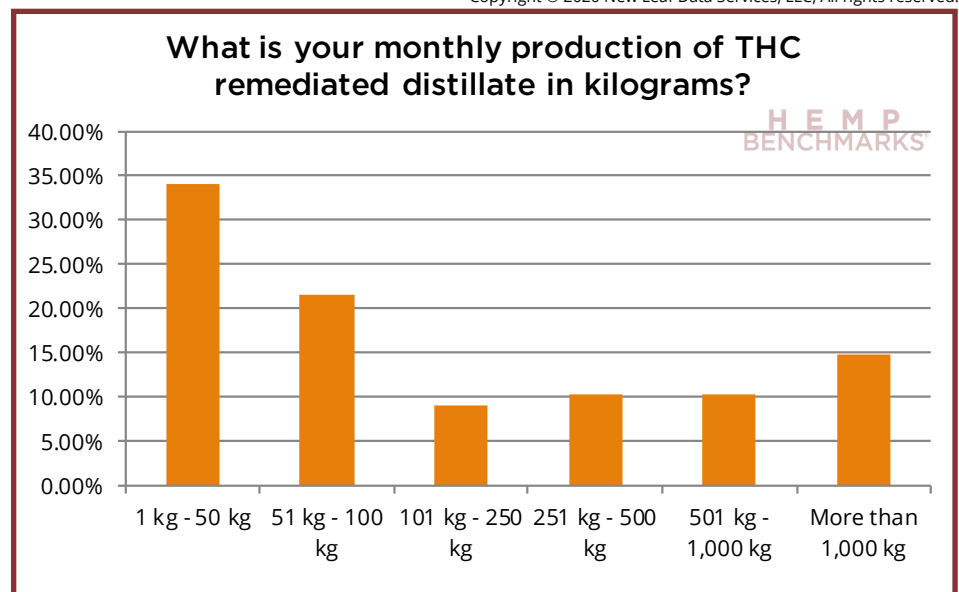
- While most respondents produce crude and distillates, under 45% stated that their facilities can perform THC remediation or removal from extracted hemp products.
- Each of the four processes to do so received a significant proportion of respondents, but almost 40% use HPLC. Some respondents employ multiple methods to remove or remediate THC, resulting in the total adding up to over 100%.
- As expected due to loss in each step of the refining process, production volumes for THC remediated distillate (THC free, in other words) are significantly smaller than for the earlier intermediate products. Over a third of those remediating or removing THC generate 50 kg or less monthly.



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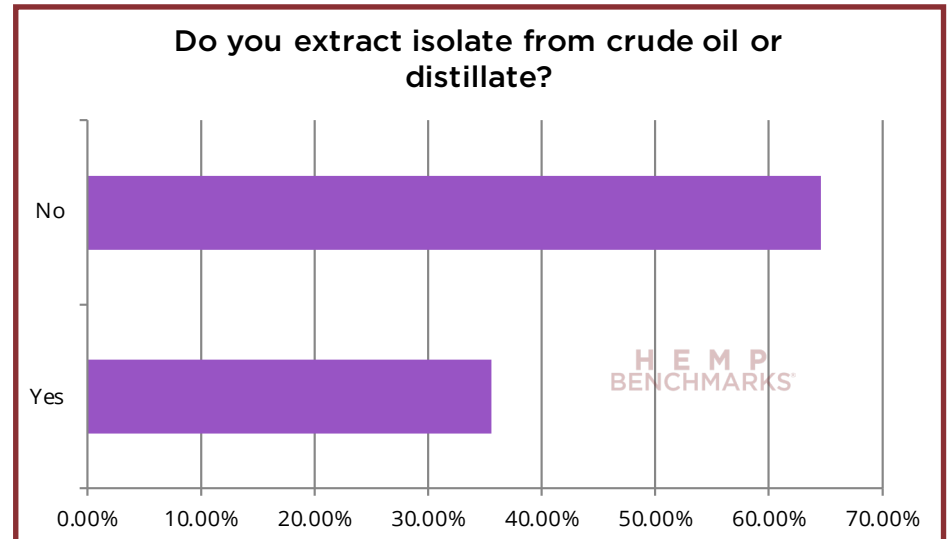
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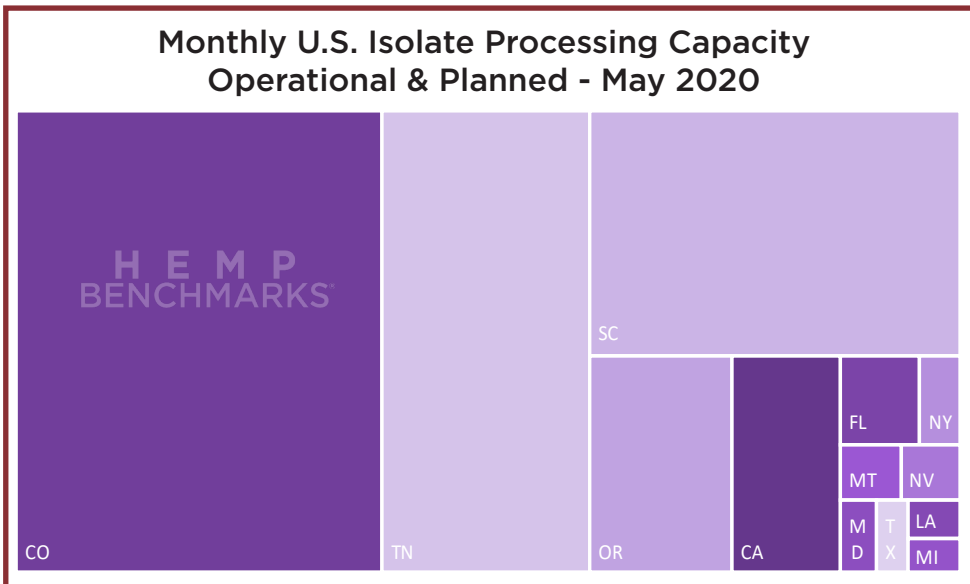
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### Isolate

- Initially a favored end-product, demand for CBD isolate has dropped since last year. Almost 65% of respondents that are currently operational or actively building a facility stated that they do not or will not produce CBD isolate.

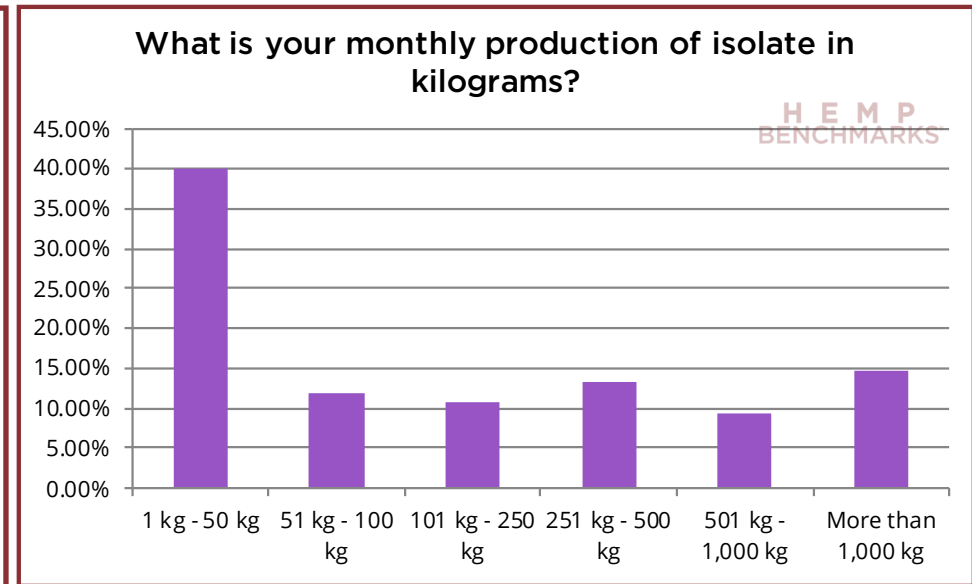


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Source: Hemp Benchmarks May 2020 Extraction Survey

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### U.S. Cannabinoid Extraction Outlook

Collecting complete and accurate information on extraction capacity has been challenging. Some states do not license extractors. Those state agriculture departments that do typically compile lists of licensed processors, but do not collect data on operational facilities or processing capacity. North Carolina, for example, has a 79-page list of licensed processors, but only a handful are operational. Similarly, investors and lenders who over the past year financed major extraction expansions or large greenfield projects to the tune of hundreds of millions of dollars seem to have no hard data on the installed base of extraction capacity, nor any visibility into demand for hemp processing.

It is now clear that the significant investment in new and expanded extraction operations overshot existing demand. The first cracks in the sector appeared late last year when a couple of major greenfield projects, which were announced with much fanfare and municipal support, were quietly abandoned. Then, in early February, GenCanna Global, one of the largest and best-known extraction companies, filed for bankruptcy in Kentucky, as it was unable to raise enough new capital to complete its large facility in the city of Mayfield.

Since then, several large extractors have followed GenCanna into Chapter 11, including Atalo Holdings, Elemental Processing, and United Cannabis Corporation. There are rumblings in the field that a number of other well-known, large-scale extraction companies are facing critical capital constraints, which may require that they curtail operations, sell or liquidate assets, or file Chapter 11 to allow them to reorganize. We would not be surprised to see more than half a dozen additional large, established companies file Chapter 11, liquidate, or recapitalize in the coming months, which could significantly alter the extraction landscape.

COVID-19 has only exacerbated the issues facing the hemp-derived cannabinoid extraction sector. There are at this point three major impacts stemming from COVID-19. First, the pandemic is suppressing retail sales of all kinds and tempering the projected growth of the CBD market. Second, some processors have had to suspend operations as a result of state restrictions related to the virus, putting increased financial pressure on their businesses. Finally, the pandemic and the coincident downturn in the stock market and capital markets has forced investors and lenders to reassess investment opportunities. Capital is being re-allocated to lower-risk assets and companies that may generate higher risk-adjusted returns, deepening the credit crunch that we have seen impacting the legal cannabis and hemp sectors since last year.

These concerns were echoed by a client relations manager with a large, multinational extraction and processing equipment manufacturer, who works mostly with the hemp industry. He expects significant delays in CBD and extract production due to the disruptions caused by the outbreak. He also anticipates a reduction in overall output, since delays in investment mean many of the new extraction and processing facilities previously expected to come online this year may be abandoned or postponed. As he stated to Hemp Benchmarks, “we’re noticing that a lot of domestic processors and production facilities have basically stopped.” He also stated that he has heard reports that some of the larger and better-known processing facilities in states like Colorado are struggling.

We believe the current headwinds will accelerate consolidation in the extraction sector. Processors with high production costs will be liquidated. Over-leveraged companies will see distressed debt investors force the companies to deliver through debt-for-equity recapitalizations. Well-capitalized companies will look to expand through distressed asset purchases. According to a processor in

the Pacific Northwest, some consolidation is already underway, and was even prior to the pandemic. “Processors who took more biomass than they can chew are being forced to outsource and partner with larger, more established labs, so they don’t get sued,” he said. “I know some medium-sized processors ... having to contract out processing to refine the crude and [for] THC remediation.”

In the near-term, the distress in the extraction sector will continue to put pressure on the price of crude CBD oil, distillates, and isolates as processors look to move large backlogs of inventory to generate cash. Longer term, the consolidation and rationalization of the processing sector will help right-size extraction capacity and product manufacturing, which should help stabilize prices across the industry closer to the marginal cost of production.

The client relations manager mentioned above believes that extract prices could rebound as early as later this year. “I think we’re going to see, at the end of the harvest season ... an increase in wholesale market price [for extracts],” he said, “because a lot of these year-two producers won’t be producing. So biomass prices will continue to fall; but crude might see a slight increase because producers experienced a major delay in all of their build-out plans when the pandemic struck.”