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Realities of the “green rush”—Emerging hemp supply chain dynamics bring opportunities and challenges

Hemp is a booming industry, but challenges exist all along the supply chain—from farmers’ inexperience to processing details to meeting consumer demand.

Collette Kakuk | Mar 13, 2020



Natural Products Insider

Hemp CBD is the fastest growing consumer packaged goods segment in 2019, [according to](#) Stephen J. Gongaware and the National Cannabis Industry Association, with CBD products sold everywhere from grocery stores to gas stations, convenience stores, online retailers, and drug stores like Walgreens and CVS.

Farmers have been eager to get in on the green rush to meet demand, particularly generational farmers struggling with restrictive tariffs on foreign exchange and declining industries such as dairy. But an immature supply chain and steep learning curve have brought some as much peril as opportunity.

Hemp agronomy—the green rush

In its infancy, hemp could quickly become the third- or fourth-largest cash crop in the US, [according to](#) Whitney Economics, just behind crops like corn and soybeans. The hemp advocacy organization VoteHemp.com [reported](#) 511,442 acres were licensed to grow hemp in 2019, a 455% increase over 2018.

However, following years of prohibition, the American farmer faces a steep learning curve. Hemp is harder to grow, process and sell than many growers realize—and there are challenges with an underdeveloped infrastructure and supply chain.

Many farmers put seeds in the ground without having a buyer in line. According to Whitney Economics, as many as 65% of growers do not have a buyer for their crop. American farmers are holding a surplus of hemp biomass and there just aren't enough processors to extract the most valuable part of hemp—the coveted CBD liquid gold.

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- *Selecting or receiving the wrong seed strains.* Farmers need to understand the differing applications of male vs. feminized seeds, tradeoffs of seeds vs. clones, proper strains for geographic conditions, proper spacing per strain—and so much more—which all profoundly affect compliant THC levels (0.3% or less), valuable CBD levels, and yields.
- *Problems with harvesting,* including weather-related issues, surging labor costs, labor shortages and an inability to secure equipment when the crop is ready to harvest. Hemp has a short harvesting window. Harvesting too late can result in exceeding federally allowable THC levels, and if any of the crop tests above the 0.3% allowable level, the entire crop must be destroyed.
- *Problems with drying and storing hemp biomass, plus the threat of mold.* Drying is critical to preserving the value of hemp. Raw biomass is perishable, and farmers must carefully choose between mechanical drying, hang/air drying or outsourcing a drying facility. There are not enough drying facilities to handle the current biomass surplus—and drying can be finicky. Proper levels of moisture and compliant THC levels must be maintained throughout drying and storage—and if mold grows, it can negatively impact the level of CBD and deflate its value.
- *Transportation issues,* particularly associated with conflicting state-by-state laws. States measure compliant THC levels in different ways, and some states have altogether declared transportation of hemp illegal, despite federal regulation.

It will take time for the value chain to balance its supply chain components so the full potential of hemp can be realized. But for now, more sophisticated large-scale processors are investing tens of millions of dollars to join the industry—and consumer demand is showing no signs of slowing.

Hemp extraction—the gateway to consumer products

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over 2018, according to AgWeb Editors. Extraction is a highly involved technical process that requires a keen understanding of how to optimize yields so as not to lose precious CBD extract—and at the same time, ensure products stay compliant.

Most processors currently are smaller operators due to the nature of hemp being an emerging market and the significant capital required to establish large-scale extraction operations.

However, a number of larger companies with deep roots in botanical extraction and related intellectual property and systems are entering the space to bring scale and efficiency not yet seen in the hemp supply chain.

The following are factors that growers and consumer packaged goods manufacturers should consider when selecting an extractor:

- **Experience and reputation.** Look for processors with proven, already established GMP (good manufacturing practices), including batch record keeping, traceability, quality control (QC), testing and compliance protocols, in addition to experience with food grade systems, food safety compliance, formulation and other value-added services.
- **Capacity and scaling.** With so much biomass in the market, be sure your selected supplier has the capacity to fulfill, deliver and scale to your needs.
- **Extraction methodology and yields.** There are tradeoffs with different forms of extraction. Solvent (ethanol) is the most common form, while Super Critical (CO₂) is continuing to mature, with potential to improve yield and efficiency.
- **Testing and compliance programs.** Processors should have proper advanced equipment and experience to remediate THC out of product using chromatography. Extractors should also employ rigorous biomass testing

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experienced processor who can give you truly USDA certified, not just “compliant,” competitive advantage.

- ***Vertical integration to farming practices.*** Consumer packaged goods (CPG) companies should take care in selecting a processor with proven vertical integration, offering quality assurances and total transparency from seed origins throughout the agricultural process.

Consumer demand

Hemp has quickly expanded into markets not envisioned just a few years ago. Beyond skin care, there are tinctures, beauty/makeup, dietary supplements, CBD-infused food and beverages (for which regulations are expected to continue to evolve), gummies, breath mints, vape and booming applications for pets and animals. Hemp also is being researched and used in everything from batteries to packaging, aerospace and automotive parts, and construction.

To be clear, CBD users aren't looking for psychoactive effects. According to a [2019 study by High Yield Insights](#), they are looking for ways to relieve chronic joint, arthritis and muscle pain, relieve anxiety, and sleep better. While FDA is continuing research and has not qualified statements relating to these types of therapeutic uses of CBD, it is clear the consumer sees value and is looking for natural products they believe to be effective to bolster well-being.

As with other health and wellness products, consumers are looking for clean label compliance, and ingredients they can trust. From seed to packaged goods, best practices and transparency are critical throughout the supply chain.

Consumers are also seeking to combine CBD with other natural, functional ingredients already on the market, such as monk fruit, which reduces sugar intake

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MOISON COORS Brewing, Ben & Jerry's and other major brands are also reported to be researching and investing in CBD due to consumer interest.

At the end of the day, the success of hemp will be driven by consumer demand—and after years of prohibition, consumers know they will win with myriad better products to improve health, wellness and the environment. Outside of CBD, hemp fiber itself is stronger and softer than cotton. Hemp for paper products takes only 120 days to grow versus years for trees. With its staggering number of applications, versatility and growing consumer sentiment focused on information, health and wellness, self-care, natural products with functionality, and sustainability, the hemp industry shows no signs of slowing.

To read related content, check out the [“Hemp/CBD: Market evolution”](#) digital magazine.

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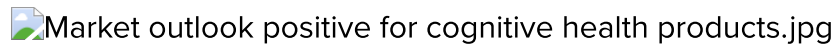
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December 6, 2018



Market outlook positive for cognitive health products

The brain health category—which includes memory, focus and cognitive function—has been a \$1 billion (and climbing) industry in 2020.

Joy Choquette | Oct 06, 2020



The brain health category—which includes memory, focus and cognitive function —has been a \$1 billion industry in 2020, sitting within the \$54 billion supplement industry, according to Claire Morton Reynolds, senior industry analyst at *Nutrition Business Journal (NBJ)*. She noted an anticipated 12.1% growth rate this year alone for brain health. “It’s been a category that’s had a lot of momentum in the last five years and one that we expect will continue to grow.”

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approximately 30% of supplements for brain health, Reynolds said. Newer ingredients and formulations have hit the market and are gaining a wide following, too, though. In its annual study, *NBJ's* "[2020 Condition Specific Report](#)" data indicate "other specialty" ingredients are on the rise. Some examples include medium-chain triglyceride (MCT) oil, mushrooms and apoaequorin—a key ingredient in PrevaGen, a product of Quincy Bioscience. Reynolds noted PrevaGen "came out swinging" in 2016, spiking sales to help drive the brain health category's 10.2% growth rate.

Citing the [Innova Database](#), Tom Vierhile, vice president of insights at Innova Market Insights, said launches of products making a brain health or brain/mood health claim in the U.S. increased at a compound annual growth rate (CAGR) of 22% from 2016 to 2019. "Three categories—Supplements, Sports Nutrition, and Baby & Toddlers—have accounted for just over 90% of new product innovation from Jan. 1, 2016, to Aug. 27, 2020," Vierhile added.

Drinks, including soft drinks, hot drinks and dairy, are steady category innovators, according to Vierhile. He stated that hot and iced tea—primarily hot—accounted for 37% of new product innovation during that time period. Meal replacements and other drinks (and energy drinks) are most likely to see ongoing brain health-related advancement.

To read this article in its entirety, check out [Healthy aging: Cognitive health – digital magazine](#).

Content writing and journalism are high on the list of Joy Choquette's interests. Writing professionally for the past 12 years, her work has appeared in national magazines, regional newspapers and many websites. She specializes in health and wellness, business, and environmental topics. Learn more by visiting her