


Producers marketing a novel crop: a field-level view of hemp market channels

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From the Field

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Abstract

We assess emerging relationships between production decisions and market channel selection among a small sample of hemp growers (22) in Colorado and Kentucky using qualitative interviews. We found producers differences by market channel, product and state. For instance, producers who relied on intermediated marketing strategies cultivated more acres on average and used fewer distinct market channels and strategies than those relying on direct markets. Product differences were found regarding processing, storage and perishability. Respondents identified four factors critical to their choice of market channels for their hemp products: research, profitability, trust and knowledge. The findings can help inform public and private decision-making regarding best hemp marketing practices and future needs of the hemp industry.

Introduction

The 2014 and 2018 US Farm Bills established hemp programs at the state and federal levels, respectively, enabling producers to cultivate hemp for the first time in over four decades (Mark *et al.*, 2020). As a result, hemp planted area in the US grew from 1534 acres in 2015 to 146,780 acres in 2019, although it has since declined to 35,364 in 2021 (USDA FSA, 2022). This recent cooling-off period resulted partly due to several market and policy challenges. Challenges include lack of available data, market analysis and scientific research for hemp growers or farmers to use in decision-making (Mark *et al.*, 2020). Another challenge is that the cultivation, processing and marketing of hemp products are highly regulated, which may impact the viability of the emerging sector (Hill *et al.*, 2020).

Whereas regulatory- and policy-based discussions about hemp often treat it as a single commodity, its cultivation, handling and further processing result in a highly differentiated constellation of final products and intended markets. The three most common hemp farm products are hemp flower, grain/seed and fiber. Supply chains for these farm products are emerging, but whether producers' marketing channels and strategies will parallel similar marketing strategies used for other differentiated products (e.g., moving through direct and intermediated channels) is not well understood. Moreover, they are likely to vary by region and cultivation system. An understanding of market channels for other goods and current hemp marketing strategies will be needed to inform best hemp marketing practices in the future.

The purpose of this *From the Field* brief is to begin documenting hemp operations' supply chain and marketing practices using a market channel assessment approach. A market channel assessment approach focuses on understanding the implications for the profitability, viability or growth of a farm business based on the types of markets to which producers sell product as opposed to an overall farm-level assessment of the operation (Jablonski *et al.*, 2019). Previously, market channel assessments have provided producers with a more nuanced set of data to compare the downstream marketing labor and costs of various channels and assist them in refining their marketing strategies (Jablonski *et al.*, 2019). For hemp market channel assessments, we conducted individual interviews with hemp growers in two states: Colorado and Kentucky. We chose these states for this study because they were among the first to establish state programs for this novel crop under the 2014 Farm Bill. In 2021, Colorado was the largest hemp-producing state and Kentucky ranked as the 11th highest producing state (USDA NASS, 2022). In 2021, these two states accounted for around one-fourth of planted US hemp acres (USDA NASS, 2022).

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Table 1. The type of hemp cultivation system largely differentiates markets for hemp products, this table outlines the unique characteristics of the three most common hemp systems, fiber, seed/grains and flower/cannabinoids

Characteristic	Fiber (6% ^a)	Seed/grains (7% ^a)	Flower/cannabinoids (87% ^a)
<i>Desired plant material</i>	Stalks (bast fibers and hurd/core fibers)	Seeds (high in oil and protein)	Flowers (dried and cut or ground)
<i>Planting considerations</i>	Dense spacing to discourage branching and flowering	Dense spacing to discourage branching and flowering	Wide spacing to promote branching and flowering
<i>Physical considerations</i>	Taller plants and less leafy material	Shorter plants and less leafy material	Bushy plants with wide branches
<i>Harvesting considerations</i>	Compatible with haying equipment	Narrow harvest window due to seed scatter issues	Harvest is highly labor intensive
<i>Primary uses</i>	Pulp and fiber applications	Food and animal feed applications	Cannabinoid extraction

Modified from Table 9 in the CHAMP report (State of Colorado, 2021).

^a2021 percent of value of hemp production (USDA NASS, 2022).

Market channels for hemp

Currently, markets for hemp products are differentiated mainly by the type of hemp cultivation system used to produce the raw materials for those products. Hemp is most often cultivated with the goal of harvesting floral, grain/seed or fiber material for further processing. Hemp cultivated for floral material is typically used in cannabidiol (CBD) extraction. Hemp grown for fiber seeks to extract materials from the bark and inner core of the stalks that can be used in pulp and fiber applications. Hemp for grain is used in food and feed applications like hulled seeds and seed oils (see Table 1).

Marketing channels for raw and further processed hemp products continue to evolve, including vertical grower–processor relationships and spot markets. However, reliable information on hemp marketing channels is scarce, and notable regional differences exist between the states considered in this study. In Colorado, there were more than 30 approved dealers and more than 30 approved commodity dealers for hemp as of mid-2020. Unprocessed industrial hemp seed purchased for resale or processing will fall under a commodity handler license, while the rest of the industrial hemp plant will fall under the approved dealers license.

Additionally, between 2017 and spring 2020, there were more than 640 businesses approved to supply food and supplement grade hemp products such as CBD and other essential oils or protein, including over 110 extractors. About three-quarters of these original licensed processors continued to handle hemp as of mid-2020 (Hill *et al.*, 2020). Within the state of Kentucky, the number of processors grew from 9 in 2014 to a peak of 200 in 2019. Most of these processors are small floral extractors. However, Kentucky is home to the only hemp flooring manufacturer in the United States and one of the few hemp grain processors (Kentucky Department of Agriculture, 2022).

Methodological approach

This research piloted the adaptation of a market channel assessment approach previously used with diversified vegetable growers in New York and Colorado: the Market Channel Assessment Tool (MCAT) (LeRoux *et al.*, 2010; Christensen *et al.*, 2017; Jablonski *et al.*, 2019). The MCAT was developed at Cornell University in 2008 to evaluate and compare marketing channels of individual farms and inform decision-making for farmers wishing to change their marketing mix, increase profitability or decrease the amount

of labor involved in their current marketing activities (LeRoux *et al.*, 2010). The original MCAT project identified six factors to assess the channel: profit, lifestyle preference, sales volume, labor required, risk and channel-specific costs. While the factors for vegetable and hemp growers are similar, based on preliminary discussions with four hemp growers in New York, we found that the characteristics of the products are quite different, particularly regarding processing, storage and perishability. Thus, operational assessments of channels differ (LeRoux *et al.*, 2022). Based on this assessment, we developed a conceptual framework for the hemp marketing channel selection and assessment factor and developed a standardized set of questions suitable for hemp grower interviews that would facilitate cross-farm comparison. The interview guide is provided in the Supplemental materials. Questions were grouped into the following four primary and 14 secondary categories:

- Production: length of time farming; diversification of operation; acres in production and genetic selection
- Product and processing: hemp products sold; description of how product(s) is made and product perishability
- Channel utilization: market channels used; how markets are evaluated; lifestyle questions (e.g., enjoyment of direct sales interactions) and preference questions (e.g., favorite and least favorite markets)
- Marketing and sales: estimating demand; finding and retaining customers and regulatory issues

Data

Colorado

We interviewed 12 hemp growers in Colorado in 2021 with a focus on 2020 and 2021 production and marketing. Producers were selected using the list of all Colorado active industrial hemp registrations, all registrants were contacted and all who were willing were interviewed. Four of the hemp operations were based in the greater Denver area, three in the Pikes Peak (Colorado Springs) area, and one each in the upper front range, Northwest, intermountain, Gunnison Valley and Grand Valley regions. A map of the Colorado regions can be found in the Supplementary materials. The producers varied greatly by production methods and scale (acres planted) in 2020. This included two with greenhouse-only production, three cultivating one to four acres, two with five to 10 acres, three with 21–50 acres and

two with more than 50 acres (note that the average acres planted in Colorado in 2020 were 26). Fifty percent of the hemp growers had farmed previously, and none reported being part of a multi-generational operation. More than 83% of operations used a hand cultivation process (more than 16% used machines).

In Colorado, ten of the growers interviewed grew hemp for CBD markets, one for the fiber market and one for the seed market. The respondents reported selling an average of 4.2 different products (range 1–14), and 82% of producers interviewed reported selling more than one product. The products produced by Colorado hemp growers include a range of value-added activities from simply selling bulk hemp to highly refined, consumer-ready products (e.g., CBD topicals and edibles or pet products).

Kentucky

In Kentucky, we interviewed ten hemp growers in 2021, asking about their 2020 and 2021 production and marketing experiences. The group of farmers for Kentucky were selected through the following means. The producers needed to have multiple years of production and preference was given to those that has production pre- and post-2019 as well as producers who had grown hemp for grain/fiber. In 2020, two had no planted acreage (they started production in 2021), two had one-half to four acres cultivated, one had five to 10 acres, two had 11–20 acres, one had 21–50 acres and two had more than 50 acres. A map of the Kentucky regions can be found in the Supplementary materials. In 2020, the average number of acres planted in Kentucky was 38. More than three-quarters of farms interviewed had farmed previously, and 40% reported being from a multi-generation operation. Almost 43% of the operations interviewed used a hand cultivation process (compared to 57% that used machines). On average, the Kentucky growers sold two products (range one to seven), and 60% sold only one product. Value-added products such as CBD oils, topicals, capsules and tinctures.

Marketing strategies and channels

We collected information from our respondents about the markets into which they sold products in 2021. Overall, the Colorado respondents were slightly more diversified in their market channel selection and marketing strategies including selling through: online venues, farmers markets, storefronts, wholesale, white label (a product or service produced by one company that other companies rebrand as their own), social media, manufacturer, word of mouth and booths at tradeshows. Kentucky respondents' markets included online venues, farmers market, storefront, wholesale, social media, manufacturer and word of mouth (see Fig. 1).

Results: views from the field

To support analysis, we grouped the market channels and strategies into two broad categories akin to how the US Department of Agriculture currently classifies local and regional food markets following Low *et al.* (2015): direct and intermediated. Direct channels and strategies include online, farmer's market, storefront, social media, word of mouth and tradeshows. Intermediated channels and strategies include sales to: wholesale, manufacturer and white labels. Here we summarize several interesting insights from the analysis:

- When comparing outdoor acres cultivated by market channel, we observed an increase in the average acres cultivated by operations using intermediated-only or a combination of direct and intermediated channels and strategies from 2020 to 2021. However, operations using direct-only channels and strategies decreased outdoor acres cultivated over the same period, perhaps suggesting less volume is moved through such channels.
- Looking further back in time at markets presented a challenge. Most of the operations in our interviews were relatively new hemp growers (even if in agriculture for many years), and we have limited data regarding 2019 outdoor acres cultivated. However, three of the operations for which we do have 2019 production data used intermediated-only markets. They cultivated fewer acres in 2020 and 2021 compared to 2019.
- Operations using intermediated-only channels also used fewer marketing channels and strategies on average (1.2 channels and strategies) relative to direct-only or a combination of direct and intermediated markets (2.7 and 3.5 channels, respectively).
- Colorado hemp growers using both direct and intermediated market channels and strategies sold a larger number of hemp products on average (5.8 products) compared to those direct-only or intermediated-only channels and strategies (3.0 and 2.8 products, respectively). There was only one hemp grower from KY that used both direct and intermediated market channels, which is why we only included the CO averages.

We asked growers open-ended questions about how they evaluate a market channel or strategy since it is likely that different factors were driving choices when compared to the produce markets explored in earlier market channel assessments. The Supplementary material file presents word clouds illustrating responses to these open-ended questions. Across all markets, 'research' and 'profitability' emerged as the most important factors, followed by 'trust' and 'knowledge'.

- For direct channels, there was more emphasis on personal relationships such as 'phone conversation' relative to the other channels.
- Growers with sales through intermediated markets noted valuing 'clear expectations' around partnerships, which did not come up from growers using other channels.
- 'Federal government law' was only mentioned by operations selling through both direct and intermediated channels, perhaps due to the challenges of navigating varying regulatory systems across multiple channels.
- Overall, more than 80% of producers across all market channels mentioned that regulations in general (not specifically federal) impacted their business (mostly negatively).

Conclusions

The reintroduction of hemp in 2014 has led to its nascent status as a novel crop in US agriculture. Whereas a growing body of research investigates the cultivation of hemp farm products—flower, grain/seed and fiber cultivation systems—relatively little information is available about producers' use of market channels and strategies. This *in the field* report provides some of the first preliminary evidence of the relationship between market channel selection and production decisions. Despite broad churn in cultivation acreage overall, there appears to be a relationship between market channel selection and cultivation decisions, particularly when hemp production and markets were changing quickly.

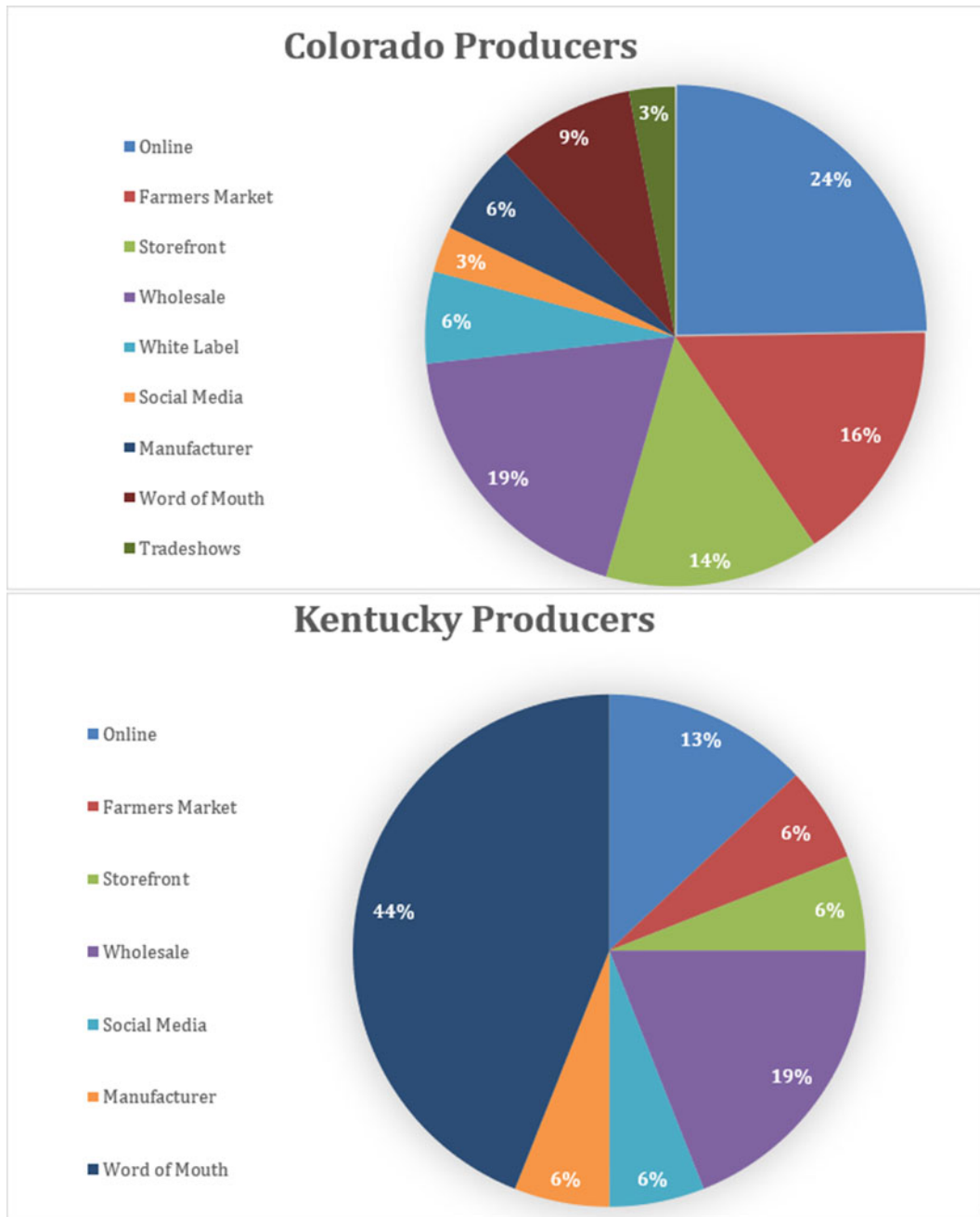


Figure 1. Percent of Colorado and Kentucky hemp grower respondents by market channel. Many producers of specialty crops use multiple channels for marketing their products such as intermediated and direct channels. This is also true of hemp producers.

Given that 70% of producers interviewed indicated an emphasis on profitability or market channel opportunity, and 30% of interviewed producers indicated that their motivations for market channel selection was cause driven, a better understanding of this profitability relationship is worth continued investigation. In addition to sample constraints, hemp stakeholders face two additional challenges: the lack of information regarding access to processing and regulatory uncertainty. For processing, currently there is little to no hemp specific information related to the infrastructure to serve multiple and diverse markets. This uncertainty around processing infrastructure was seen in our interviews. Fifty-six percent of those interviewed indicated that they maintain operations throughout the production of

their products. For the remaining producers (44%) who do rely on others for processing, the majority conduct some form of value added on farm usually in the form of drying. Regulatory uncertainty, which occurs at multiple levels ranging from product testing to label claims, is also slowing the growth of the industry and impacting market channel accessibility as regulations continue to evolve.

Supplementary material. The supplementary material for this article can be found at <https://doi.org/10.1017/S1742170523000145>.

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References

- Christensen J, Thilmany D, Jablonski BBR, Sullins M and Naasz *E** (2017) Assessing market channel performance for Colorado fruit and vegetable producers. *Journal of Food Distribution Research*. Conference Proceedings Issue. **48**, 61–67.
- Hill R, Mooney D and Thilmany D** (2020) Making headway on the hemp industry in Colorado: the CHAMP Initiative. *Western Economics Forum* **18**, 86–94.
- Jablonski BBR, Sullins M and McFadden DT** (2019) Community supported agriculture marketing performance: results from pilot market channel assessments in Colorado. *Sustainability* **11**, 2950.
- Kentucky Department of Agriculture** (2022) Hemp program overview. Kentucky Department of Agriculture Webpage. Available at <https://www.kyagr.com/marketing/hemp-overview.html>.
- LeRoux MN, Schmit TM, Roth M and Streeter D** (2010) Evaluating market channel options for small scale fruit & vegetable producers. *Renewable Agriculture & Food Systems* **25**, 16–23.
- LeRoux MN, Schmit TM and Van L** (2022) *An Assessment of Marketing Channels and Suggested Methodology for Channel Assessment for Hemp Products*. Ithaca, New York: Charles H. Dyson School of Applied Economics and Management, Cornell University.
- Low SA, Adalja A, Beaulieu E, Key N, Martinez S, Melton A, Perez A, Ralston K, Stewart H, Suttles S, Vogel S and Jablonski BBR** (2015) Trends in U.S. local and regional food systems. U.S. Department of Agriculture, Economic Research Service. Administrative Publication Number 067. 92 pp. Available at https://www.ers.usda.gov/webdocs/publications/42805/51173_ap068.pdf?v=42083.
- Mark TB, Shepherd J, Olson D, Snell W, Proper S and Thornsbury S** (2020) Economic viability of industrial hemp in the United States: a review of state pilot programs. *Economic Research Service*. Available at <https://www.ers.usda.gov/webdocs/publications/95930/eib-217.pdf?v=6894>. February. EIB-217, 83 pp.
- State of Colorado** (2021) Colorado Hemp Advancement and Management Plan C.H.A.M.P. Colorado Department of Agriculture Webpage. Available at <https://ag.colorado.gov/plants/hemp/champ-initiative>.
- U.S. Department of Agriculture, Farm Service Agency (USDA FSA)** (2022) *Crop Acreage Reports*. Washington, DC: USDA FSA.
- U.S. Department of Agriculture, National Agricultural Statistics Service (USDA NASS)** (2022) *National Hemp Report*. Washington, DC: USDA NASS.