

Technical Memorandum 1: The Current Market for BC Grown Hops

Part 1 of 4 for the project entitled: "The current feasibility and working business models for small-scale commercial hop farming in BC.

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Executive Summary

This technical memorandum is the first part of a four-part project entitled: The current feasibility analysis and working business models for small-scale commercial hop farming in BC. The four parts include:

1. Current Market for BC grown hops
2. Assessing the feasibility of small scale hops farming in BC
3. Developing a business plan template for a small scale commercial hop yard
4. Performing outreach and communication of the findings from this project

This project is partially funded by the Investment Agriculture Foundation and attempts to build off previous work that has been done by Left Field Farms (*Small-Scale and Organic Hops Production manual*).

The purpose of this report is to assess the current market for BC grown hops by reviewing the hops history in BC, current industry trends, and reporting on the perspectives of commercial brewers with respect to the opportunity and challenges for BC hops in order to gain a snapshot of the current market potential for BC grown hops.

Meeting the objective of the report was done by performing desktop research, conducting phone interviews and developing a survey for BC microbreweries and brewpubs.

The results suggest that there is a viable opportunity for the BC commercial hops industry to grow along side the craft beer industry in BC. There appeared to be general consensus among all commercial brewers that locally sourced BC hops would be a preferred option if the quality and brewers specifications were met on a consistent basis and that a marginal pricing premium would be accepted.

Introduction

What are hops?

Hops are one of the principle ingredients in the beer making process and provide the balance to the beer that often gives the beer its signature. These “spices” are responsible for providing the beer with aroma, bittering and hop flavouring. Although many of the same varieties of hops are grown in different parts of the world, hops are often characterized by their location in addition to their variety, having what wine makers call “terroir”.

Hops are a herbaceous perennial vine and are members of the plant family *Cannabaceae* (Kneen, 2004). Hops are native to temperate zones of the

northern hemisphere and are most commonly found between the 30th and 50th parallels (Kneen, 2004). These plants typically live over 25 years and take approximately 4 years to fully establish. An established hops plant can grow up to 6 m high and is able to produce upwards of 2 pounds of dried hops per plant in ideal growing conditions (Kneen, 2004). During the spring, the hops bines start growing at a fairly rapid rate, sometimes as much as 30 cm per day. Once the plant has reached its maximum height, it begins to produce clusters of hops that typically mature between late summer and early fall, which is when they are picked, processed, and ready to be used for making delicious craft beer. Hops can be used in their whole form or as pellets. Pellets are the most commonly used for commercial brewing, as many brew houses are not equipped to use whole hops in the brewing process.

History of Hops in BC

The earliest cultivation of hops in BC dates back to 1862 when farmers in Saanich, just north of Victoria, began growing hops to sell to local brewers (Evans, 2004). A shortage in other countries allowed big profits in BC, and interest spread to other parts of the province (Evans, 2004). In the Chilliwack area, the industry continued to grow until the 1940's when nearly 2,000 acres were under cultivation, with 4,000 people employed during the harvest each year (Evans, 2004).

At its peak the Fraser Valley represented the largest hop-growing region in the entire British Commonwealth (Evans, 2004). But after World War II, the industry began shrinking, and in the 1950's, the farms began using mechanized pickers, which ended the need for large numbers of workers (Evans, 2004). Declining, too, was the actual size of the industry, which now had to face the competition of the massive hop production of the Yakima and Willamette Valleys, in Washington and Oregon to the south. The province's major corporate-owned breweries were buying cheaper hops almost exclusively from Washington State's heavily subsidized hops industry. Fewer and fewer farmers chose to grow hops until the last of the great Fraser Valley hop farms closed down in 1997 (Evans, 2004).

Current Industry Trends

The current industry trends for BC grown hops is based on the recent growth of the craft beer industry in addition to the increasing demand for local products. Within the last decade, the craft beer industry in North America has been booming. In 2013, the US experienced an 18% increase in craft beer sales despite a decrease in overall beer sales of 2%. In addition to growth in market share, craft beer prices also increased by 2.3% (DENCBC, 2014). Craft beer in BC has been booming as well. A recent article in the Vancouver Sun stated:

“B.C. has been adding about a dozen new craft breweries a year during the past five years, growth that is mirrored south of the border,

where at least 1,000 craft breweries have opened across the United States in that period” (Zeschky, 2014).

In BC, craft beer’s market share accounts for nearly 15% of all beer sold according to the Craft Brewers Association of British Columbia, who maintain that brewers are experiencing sales growth between 15 and 20% per year. Since 2007, BC microbreweries (breweries that produce less than 160,000 HL per year) have experienced a 140% increase in sales (BCLDB, annual reports 2007 to 2013), as sales have almost tripled from approximately \$60.5 million to \$169.6 million (Figure 1). Coupled with the boom in craft beer sales, the number of microbreweries in BC has boomed as well. In 2012, there were roughly 55 microbreweries in BC, in 2013 that number grew to 64, and this year already there are 22 more breweries in BC, bringing the total number of breweries to more than 85 (BCBeer.ca).

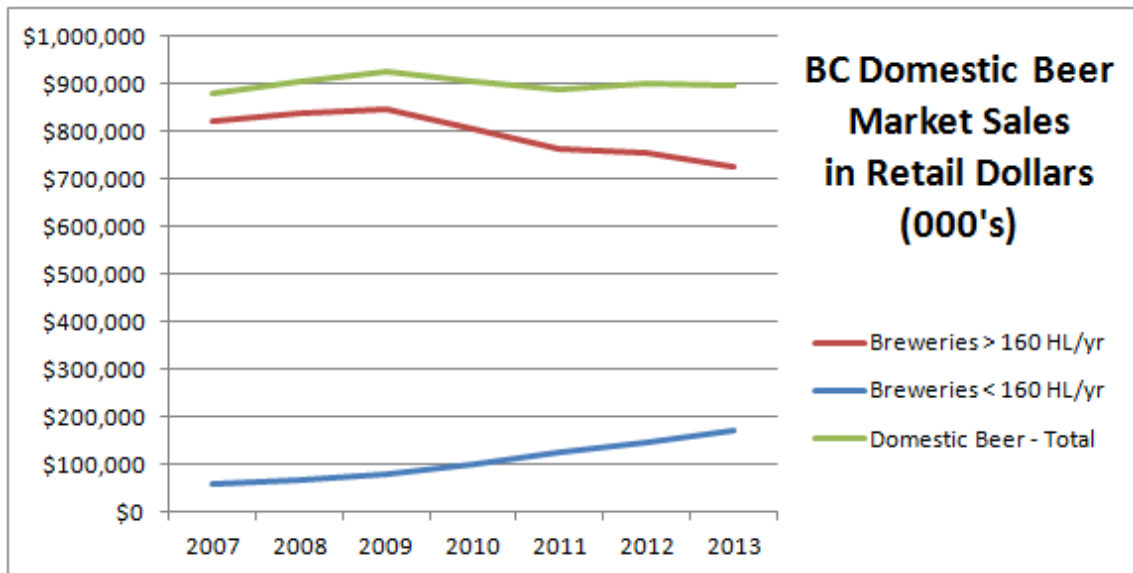


Figure 1: Annual BC beer sales for microbreweries, macrobreweries, and total domestic beer from 2007 to 2013



Figure 2: General location of microbreweries in BC – July 2014

The market for local goods has also recently experienced large growth as the awareness for "food miles" and the carbon footprint of food has been steadily increasing among the general consumer (USDA). Public interest in the source of food (which includes beverages) has meant a real growth in small-scale agriculture marketing direct to the consumer right across North America. Many campaigns have been initiated to specifically address and encourage the marketing and production of local food (www.usda.gov/knowyourfarmer). In the US, direct sales from farms and local foods doubled (\$600 million to \$1.2 billion) between 1992 and 2007. While, the national count of farmers markets increased by over 360% (1,755 to 8,144) between 1994 and 2013.

Market Segment

The market for BC grown hops consists primarily of BC microbreweries and Brewpubs in BC and within Canada and the US. Other potential buyers of BC grown hops include homebrew supply stores, home brewers, and online hops retailers. This report focuses on the largest of these market sectors, commercial breweries and brewpubs.

Research Objectives

The goal of this report is to help assess the feasibility of a commercial hops industry in BC. Our specific objectives were to address the following research questions:

- What is the current market for BC grown hops amongst BC's craft breweries? (market size and segments)
- Do BC's craft breweries currently have access to BC Grown hops?
- What are the breweries looking for in their hops? (quality, form, variety)
- Would BC's craft breweries switch to BC grown hops and price would they expect to pay for BC grown hops?
- What interests BC's craft breweries want to use BC grown hops?

Methods

Desktop Research

Desktop research was conducted to examine the history of hops in BC, current industry trends, and the opportunity for a BC hops industry. Data from the British Columbia Liquor Distribution Branch (BCLDB) was used to determine industry trends from sales for micro (breweries that produce less than 160,000 Ha per year) and macro breweries (more than 160,000 Ha) in BC. Trends in microbrewery beer sales in BC can be viewed as an indicator of the potential size of the market for hops in BC amongst BC's craft breweries and smaller regional breweries.

Trends in the sale of locally produced goods were also investigated to see if "buy local" might further impact the feasibility of a BC grown hops product. While published trends in the sale of locally produced goods were not readily available for Canada, trends from the US were available and are discussed.

Interviews

Phone interviews were conducted with breweries and brewpubs to discuss the hops industry and the market for BC grown hops. In total, 1 brew pub and 6 breweries in BC were interviewed. Interviews were designed without scripted interview questions to promote dialogue with breweries. Interviews covered the following topics: current hops supply, interest in purchasing locally grown hops, brewers requirements for quality and other specifications, price points, and current challenges.

Survey

A survey of craft breweries in BC was conducted to characterize the market for BC grown hops among BC's craft breweries. The survey was developed using Google Documents and distributed online to 45 breweries and brewpubs in BC on July 18, 2014. An email was sent to all survey recipients prior to distribution of the survey requesting recipients participate and explaining the purpose of the survey and who was conducting it. All surveys were directed either to the Head Brewer or person responsible for purchasing of hops. Following distribution of the survey itself, a follow up email was sent to all recipients encouraging them to complete the survey and explaining the purpose of the research. Eleven

completed survey responses were received by the deadline of August 12, 2014. A copy of the survey questions is provided in Appendix A. Survey results are summarized below. The results from the survey are provided in Appendix B.

Results

Interview Results

All of the interviewees, except one, indicated that they would support locally grown hops and pay a premium for BC hops if specifications and quality requirements were met. Many of the responses on “local hops” were in relation to the local food movement and supporting local BC farmers. One respondent noted that their support for local products was based on enhancing the resiliency of local economies.

For price, there was a general consensus from all brewers that they would pay a premium for BC grown hops. It was estimated that the current prices of imported hops range from \$5 to \$17. One respondent noted that they would pay double the price for Cascade if it was available from BC and another noted that they would pay \$15 per lb (also for Cascade).

In general, quality of hops and meeting brewers specifications was the top priority for brewers. One respondent noted that brewers need to be consistent with their beer, thus, require a consistent quality in their hops. Another respondent noted that quality with hops from a small scale hops farm in BC has been an issue, however, they would still purchase local hops if quality specifications were met.

In regards to the hops industry in general, there appeared to be an indication that this industry is highly competitive. Most of the interviewees were currently in contracts with large hops brokers such as Hops Union, Country Malt, or Hop Steiner. One respondent noted that the contracts may be difficult to cancel. Another respondent further indicated that some suppliers may “not have you back” if a regular contract was cancelled and filled by a different supplier. A new brewery (1 year old at the time of the interview) noted that it was challenging for young small breweries to obtain contracts with the big brokers, which limits the access to varieties of hops. In situations where the hops market experiences a shortage, often brewers will turn to the spot market for hops but, as noted by one respondent, the spot market was not preferred because of the high costs that are often associated. Another noted that they used to purchase solely from select supplies on the spot market, however, their supplier switched to contracts, which made obtaining desired hop varieties more challenging. Overall, it appeared that contracts were preferred as they allow brewers to secure desired quantities of hops, however, they can be limiting because of strict purchasing agreements.

On the subject of varieties, some brewers noted “the big C’s” (Cascade, Centennial, Columbus and Chinook) as varieties of interest. One brewer noted

that the varieties that are popular today may not be as popular tomorrow, which would drive the price down in the event of a surplus. Therefore, it was advised that hops farmers should be looking ahead as to what might be popular in the coming years. Marketing was also mentioned by one respondent and it was suggested to distribute samples so that potential buyers can try the hops before establishing a purchasing agreement. Organic hops appeared to be not as important as interviewees noted that organic beer or hops are not a major selling point for their product.

Survey Results

Of the 11 surveys received, 73% of respondents were production breweries, while 27% of respondents were brewpubs with production breweries. Respondents ranged in size from 0-2000HL/yr (5 responses) to 15000-50000 HL/yr (3 responses), and in the volume of hops consumed annually (60 kg – 25,000 kg) (Figure 3).

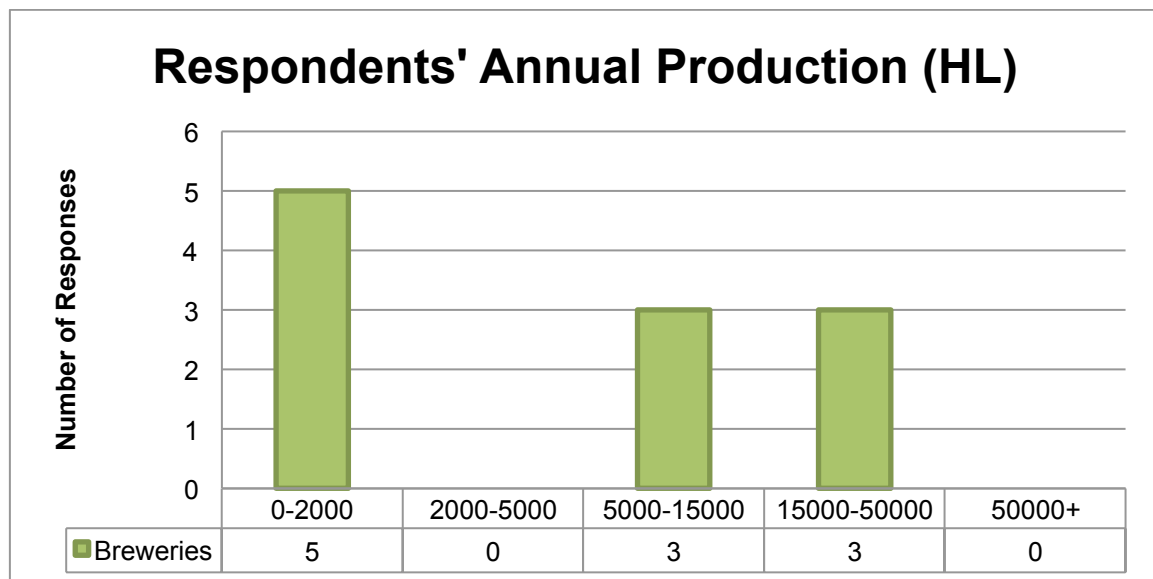


Figure 3: The number of survey respondents per size of operation

64% of respondents had brewed with BC grown hops at a commercial scale, and 100% would do it again if the quality of hops was the same or better. 45% currently do not have access to a source of good quality, BC grown hops. Of those respondents that currently do have access to a source of good quality BC grown hops, 67% indicated suppliers are not able to consistently meet their demand for the product. Of breweries that source their hops directly from a BC farmer or from their own farm operation, 67% of respondents indicated this represented 0-5% of their annual supply of hops.

82% of breweries currently purchase pelletized hops, while only 9% purchase only whole dried hops, and another 9% purchase both pelletized and whole dried hops. In terms of what breweries are looking for, breweries were asked to rate a number of factors on a five-point scale. Results are summarized in the table below.

Table 1: Responses on questions regarding consistency, pellets, securing BC hops, and price of BC grown hops

Factor	% of Breweries Who Rated This a 5/5	% of Breweries Who Rated This a 4/5	Average Rating
How important is it that hops must be consistently of high quality?	91	9%	4.9/5
How important is it that hops be processed into pellets?	64%	9%	4.2/5
How interested are you in securing a source of BC grown hops that meet quality specifications?	45%	36%	4.3/5
How important to you is price point?	9%	36%	3/5

Breweries were asked what hop varieties they would be interested in purchasing from local BC growers. The varieties that generated the most interest from breweries were Amarillo, Citra, Simcoe, and Cascade, followed by Centennial and Magnum, Columbus and Mosaic. A complete list of responses is provided in the table below.

Production of certain proprietary hop varieties like Amarillo, Citra, and Simcoe, is licensed to a limited number of farms outside Canada and hop rhizomes cannot be purchased for growers in BC at this time. To identify hop varieties that can be grown in BC at this time and that are of interest to breweries in BC, breweries were asked to select their top 2 picks for locally grown hops from a list of varieties potentially available to BC growers. Cascade was the top choice, followed by Centennial.

Breweries prefer to purchase hops from multiple suppliers (73%), citing reasons such as “spreading the risk”, “better access to popular/proprietary varieties”,

necessity and security of supply. Breweries preferring to purchase hops from a single supplier cited reasons including simplicity and cost savings on shipping/freight. Most breweries (64%) prefer to contract for their hops, citing reasons that include security of supply, ease of planning, price certainty, and cash flow implications (pay as you draw on contract vs. purchase all at once on spot market). Most (80%) do not employ any formal tender process when purchasing hops, but may seek multiple quotes, shop around or use other less formal processes.

When asked to rate the importance of multiple factors in selecting where to purchase hops, quality and variety were among the most popular factors. Detailed results are provided in the table below.

Table 2: Survey Responses on the preferred varieties of hops if they were available from BC farmers

Variety	# Responses	Variety	# Responses
Cascade	10	Willamette	3
Citra	10	Northern Brewer	3
Centennial	9	Calypso	3
Amarillo	9	Summit	3
Simcoe	9	Challenger	2
Columbus	7	Crystal	2
Magnum	7	Other	2
Mosaic	7	Bramling Cross	1
Chinook	6	Liberty	1
Fuggles	4	Nugget	0
Sterling	4	Galena	0
US Goldings	3		

Table 3: Responses on the importance of factors for brewers that influence where they purchase their hops

Factor	% of Breweries Who Rated This a 5/5	% of Breweries Who Rated This a 4/5	Average Rating
Product Quality	73%	18%	4.6/5
Available Varieties & Selection	64%	18%	4.5/5
Customer Service	36%	36%	4.1/5
Buying Local	18%	45%	3.7/5
Product Price	9%	36%	3.3/5

All else being equal (e.g. product quality, variety, etc.) 100% of survey respondents indicated they would consider switching to local BC grown hops for some or all of their supply if the option was available. Of these, 91% indicated they would consider switching to local BC grown hops if the option was available and if it meant paying a price premium. When asked how much of a premium breweries would be willing to pay for BC grown hops, responses varied considerably, with 50% of respondents indicating they would pay 5-15% more, and 50% of respondents indicating they would pay 25% or greater than 25% more.

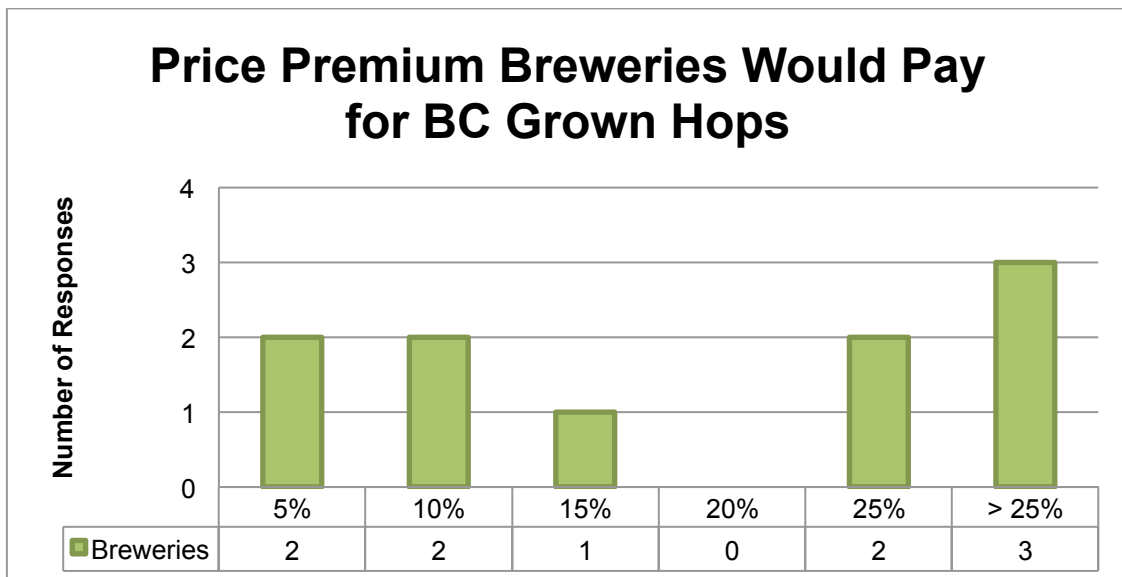


Figure 4: Survey responses on price premiums for BC grown hops

When asked what proportion of their annual hops consumption breweries would like to purchase from BC grown sources, breweries' answers varied widely with

10-20% of annual consumption being the top answer (36% of responses). Another 36% of responses indicated they would like to purchase 80-90% or 90-100% of their annual consumption from BC grown sources. In general, larger breweries indicated lower proportions of their annual consumption coming from BC grown sources.

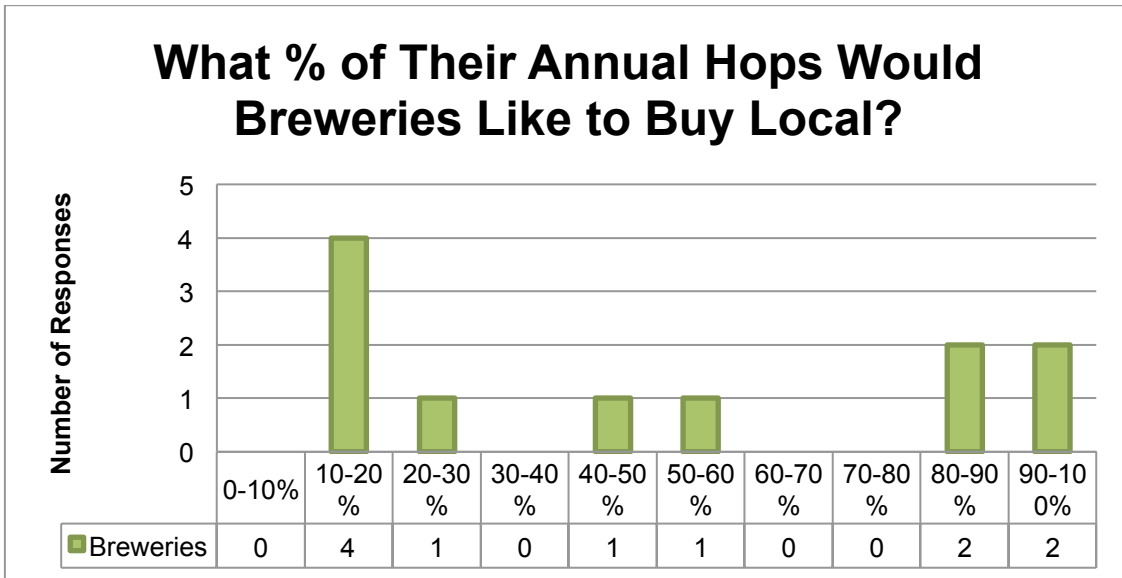


Figure 5. What percent of hops breweries would purchase locally from BC

Breweries were asked how much they would be willing to pay per dry pound for BC grown, high quality pelletized hops. Responses varied, but generally ranged from \$8-\$10/lb to \$14-\$16/lb. When asked how much they would be willing to pay for BC grown, high quality whole dried hops, a majority of breweries (57%) indicated \$8-\$10/lb.

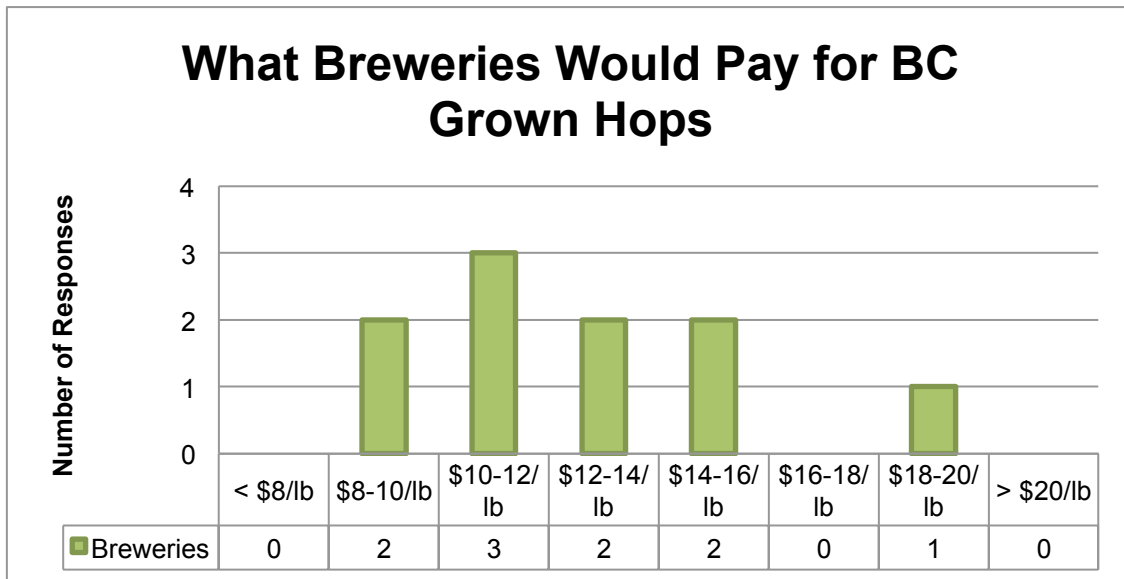


Figure 6. How much breweries would pay for BC grown hops

Discussion

BC’s craft beer industry isn’t just growing it is exploding. Desktop research shows tremendous growth in BC’s craft beer industry. New start-up craft breweries continue to come online every year in BC. 38 BC Breweries were represented at the Great Canadian Beer Festival in Victoria in 2013 while the BC Beer Guide (bcbeer.ca) lists 76 craft breweries operating in BC on their website. Joe Wiebe, the author of the book *Craft Beer Revolution – The Insider’s Guide to BC Breweries*, admits that his 2013 book was “out-of-date the moment it was published”.

Based on the volume of hops consumed annually by breweries responding to the market survey, it is estimated that the 76+ craft breweries in BC require approximately 360,000+ kg of dried hops annually (792,000+ lbs), or the equivalent of 450-500 acres of farmland in full production. Jon O’Connor, president and CEO of Hops Connect, a hops processing and brokering company based out of Pemberton, BC that does business with over 65 craft breweries in BC, estimates there are perhaps 20 hop farms in BC currently with either mature or maturing crops (Vancouver Sun, Aug 2, 2014). The largest of these is the 13 acre Sartori Hop Farm near Chilliwack BC. This indicates a considerable amount of room for new hop farming enterprises to service the market represented by BC’s craft breweries.

The interview and survey responses showed a general consensus that BC breweries would switch to BC grown hops if quality and brewers specifications were consistently met. A number of breweries already have access to a source of locally grown hops, however most noted challenges with inconsistent quality or supply. Brewers indicated a willingness to pay a premium for BC hops, although

purchasing decisions would still be based on multiple factors including the quality of the product, varieties, and product price. Breweries appear willing to pay prices of up to \$14-16 per pound for high quality pelletized hops and up to \$12 per pound for high quality whole dried hops.

Conclusions

This study indicates a market opportunity for BC growers to supply the province's craft breweries with hops provided their product can meet brewers' specifications for quality, form and varieties while remaining relatively price competitive with modest pricing premiums. There was general consensus amongst all breweries consulted that they would switch to a BC grown supply for all or a portion of their hops provided these conditions could be consistently met. The estimated total size of the market for hops represented by BC's craft breweries and brewpubs is equivalent to 450-500 acres under full production. This far surpasses the province's current production which is limited to a small number of farms operating at very small scales, the largest of these being the Sartori Hops Farm at 13 acres.

When asked to comment on what interested them about BC grown hops, brewers responses indicated a desire to source interesting ingredients that help brewers make interesting beers, interest in hops with a unique to BC character that would help distinguish their beers, and a desire to support a hops industry for British Columbia.

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