ONTARIO HOP GROWERS' ASSOCIATION

ASSOCIATION DE CULTIVATEURS D'HOUBLON DE L'ONTARIO

Strategic and Operational Plan

April, 2016

Strategic and Operational Plan

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Summary

Our strategy is summarized in Appendix 1 – OHGA’s Strategic Template. It addresses key questions:

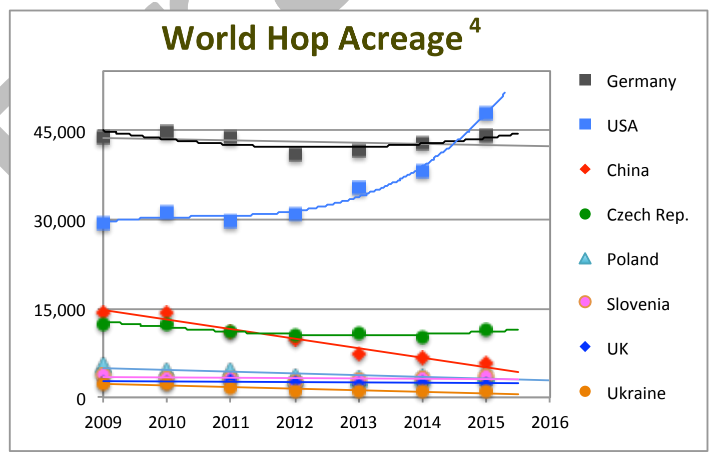
- What are OHGA’s ultimate goals?
- And strategic objectives?
- Who are our key partners?
- How do our day-to-day activities contribute to achieving our goals?
- And why do they offer value to OHGA’s members?

Background

Global Situation

Hop Acreage	Hop Yield	Craft Brewers	Beer Consumption
122,800 acres [1]	96,500 tonnes [2]	7,600 [3]	2 billion HL [3]

Key trends [2]**:**



- The hop market is on the threshold of fundamental change, driven by the internationally growing preference, particularly among young consumers, for more intensely flavoured beers.
- That said, hop acreages (particularly high alpha) are generally flat or declining with the exception of the U.S., where aroma acreages are increasing strongly.
- Global hop prices increased, in 2015, for the first time in four years – there is still considerable stockpiling at breweries following years of over-supply.
- Although there is optimism over the craft beer market, overall beer consumption is flat – sales fell by over 2% in Germany, Russia, and the U.S., in early 2015, and in Brazil and China by around 5%.

[1] jy2c2d4 is the “tinyurl” link – go to http://tinyurl.com/jy2c2d4. Ditto for all other links.
[2] zljmtkk
[3] js5yu2x
[4] jy2c2d4 and j9jo6jl and h8coos4

North America

Hop Acreage	Craft Brewers	Craft Share	Beer Consumption
45,350 acres [1]	3,950 [5]	11% by volume 19% by sales [6]	230 million HL [6]

Key trends:

- The Pacific Northwest dominates hop production – not only in overall amount (97%) but also in terms of new acreage (94%) [6].
- There is a renaissance in craft brewing – now around 4,000 craft breweries [6]. Craft beer sales are increasing by around 20% a year and account for over 10% of consumption and almost 20% of sales.

	2014	2015	% of Total	Acres Added	As % of Total
Pacific Northwest					
Washington	28,858	32,205	72%	3,347	53%
Oregon	5,410	6,807	14%	1,397	22%
Idaho	3,743	4,975	10%	1,232	19%
Great Lakes Region	793	1,052	2.2%	259	4.1%
Remainder	218	331	0.6%	113	1.8%
Total North America	39,022	45,369		6,347	

- Overall hop acreage is increasing (by 15% between 2014 and 2015) due to planting of flavour hops – yields will increase over the next few years as plants mature. For the first time, in 2015, U.S. production exceeded that of Germany [2].
- Conversely, over the last five years, roughly 4,700 acres of high alpha varieties have been removed in the U.S. – Germany remains the largest producer of alpha hops [2].
- Craft beer hopping rates have increased by over 50% – from 3.5 to 5.5 grams/litre of beer [7].
- Water shortages in the Pacific Northwest may, in the future, become a limiting factor for that region.

Great Lakes Region

Hop Acreage	Craft Brewers	Craft Beer Production	As % of N.A. Craft Beer
1,050 acres [1]	1,265 [6]	12.5 million HL [6]	42% [6]

Key trends:

- Michigan, New York, and Wisconsin are the largest hop producers (together, 70% of the region's acreage) with Ontario and Quebec closely following (10% combined).
- While insignificant in terms of hop production, the region has over a third of North America's craft brewers and produces over 40% of North America's craft beer – 12.5 million HL. With continued growth, it is sufficient to support 15,000 acres of hops.

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[5] jan423o
[6] Ref 1 and hzekjo5
[7] js7ap8k

Hops [1]	2015		Brewing [6]	2014			
	Acres	% Total	Brewers	% Total	1000 HL	% Total	Rank
Michigan	320	30%	159	12.6%	968	7.7%	5
New York	250	24%	181	14.3%	1,113	8.9%	3
Wisconsin	170	16%	97	7.7%	999	8.0%	4
Quebec	70	6.7%	119	9.4%	658	5.3%	7
Ontario	60	5.7%	167	13.2%	924	7.4%	6
Ohio	50	4.8%	110	8.7%	1,495	12.0%	2
Vermont	45	4.3%	40	3.2%	286	2.3%	10
Illinois	30	2.9%	103	8.1%	471	3.8%	9
Minnesota	26	2.5%	73	5.8%	620	5.0%	8
Indiana	25	2.4%	80	6.3%	185	1.5%	11
Pennsylvania	5.5	0.5%	136	10.8%	4,782	38.2%	1
Total	1051.5		1,265		12,502		
% of NA Total	2.3%		36.7%		42.1%		

Michigan (Michigan Hop Alliance)

- There are an estimated 100 hop growers in Michigan – closer to 60 for commercial operations of over 1 acre.
- The largest is around 200 acres – it put in an additional 200 acres last year and plans to grow to 1,000 acres in five years time.
- The total acreage is 600 with an additional 400 built but not yet producing.
- Michigan State University actively supports hop growers through its Extension program [8] and there is a degree of collaboration through the state's hop alliance [9]
- Michigan may have hit a tipping point in 2015 – a proposal to add a 400 acre hop farm in the Williamsburg area to be financed by investment capital.
- Consolidation of smaller operations is also beginning, which is a sign of a maturing business sector.

New York

TBA

Wisconsin (Wisconsin Hop Exchange)

- Wisconsin has between 150 and 200 growers and approximately 200 acres (the Hop Exchange has 71 members and there are two other groups in the State).
- The groups are considering an alliance and are currently surveying growers – there may, therefore, be additional information forthcoming.

[8] h7nt94s
[9] h57txyq

- While expanding, there is not the sense that hop-growing is at the "investment" stage, as it is in Michigan.

Quebec (Houblon de Quebec) [10]

- There are an estimated 40 hop growers in Québec with a total of between 70 and 90 acres. There are three large farms of around 10 acres each.
- Houblon de Québec is a cooperative. Its goals are to establish quality standards, make bulk purchases, and act as a broker to supply larger quantities to brewers.
- It is also working to develop new pest management and fertilization protocols and new hop varieties based on native stock.
- There is no government support in Québec or material available, in French, for growers. Some growers have joined the University of Vermont Extension program in order to take advantage of their research and development projects.
- Prices are soft. Growers find it difficult to command a price premium and there is still a memory of early difficulties with quality. Pricing is definitely a limiting factor in terms of growth of the sector in Québec.

Vermont

TBA

[10] h6rizuu

Environmental Scan for Ontario's Hop and Craft Beer Sector

Ontario

Hop Acreage	Hop Production (tonnes)	Number of Craft Breweries	Craft Beer Production (HL)	Hop Demand (tonnes)
84 [11] acres	30 [11]	284 [12]	569,000 [12]	285 [13]

Key trends:

- Ontario's hop production is roughly 10% of Ontario craft brewers' demand.
- Current production is worth roughly $1.3M with the potential to expand 10-fold [14].
- The nearby U.S. market is 150 million people with a craft beer sales penetration of 20%. It affords the opportunity for even stronger growth if Ontario growers can establish unique flavours based on local terroirs, good yields, and quality branding.
- Hop production is growing exponentially with a doubling time of around 2½ years – this level of growth can be sustained for at least another five years. However, as in Michigan today, it will require the expansion of existing yards and the opening of much larger ones. Both will require investment capital and consolidation of small operations. Hop growing will transition from a hobby/small-farming sector to a capitalized agri-business sector.
- The role of OHGA is essential to:
  - (i) build a strong partnership with the Ontario Craft Brewers,
  - (ii) help develop government policy and lever government support programs,
  - (iii) direct R&D programs to improve yields and quality,
  - (iv) establish competitive supply chains (eg, for IPM products) and efficient sales brokering.

SWOT Analysis

Strengths	Weaknesses
Growing market	Lack of knowledge and experience
Enthusiastic Membership	Poor infrastructure
OHGA is a credible framework	Growers are fragmented and disorganized
Strong partnership with OCB and craft brewers	Growers can't meet quality requirements or provide consistend supply
Consumers want local ingredients	A difficult growing environmnent
Government is supportive	High cost structure
Low Canadian dollar	

Opportunities	Threats
Develop unique flavours based on local terroirs	Competition from new and conventional suppliers
Ontario brewers are ready to switch to Ontario hops	Disease
Develop strong brands	Low yields make Ontario uncompetitive
Exporting to the U.S.	

[11] Appendix 3 assuming a yield of 75% of 1000 lb per acre
[12] Appendix 4
[13] Assuming 5 grams of hops per litre
[14] Assuming $20/lb for dried, pelletized hops

Strategic Plan – 2015-2020

Vision – *Hop growing is a vibrant, profitable and respected agri-business in Ontario*

Mission Statement – *To support the development of the hop industry in Ontario*

Ultimate Goal – *Ontario hops are the first choice of Ontario's Craft Brewers*

Ontario Craft Brewers supply a market of 150 million people – largely in the northeastern U.S. where craft beer has a sales penetration of 20%.

This demand can support a $25 million hop industry in Ontario with 1,250 acres under cultivation. Currently, there are around 80 acres.

Ontario hop growers can reasonably anticipate a strong demand for Ontario hops.

Strategic Objectives

1) **Superior Yields** – a good benchmark is 1,000 lb of dry hops per acre (assuming 1,000 plants per acre). While Ontario growers' yields have not been determined (and are proprietary), they are believed to be significantly less than this.

   Yield is a key issue for profitability – more hops harvested results in higher sales and profit. *Good yields are key to making hop growing profitable*.

   Despite Ontario's history as a hop-growing region, there is little residual knowledge. New hop growers therefore struggle with all aspects of hop husbandry including irrigation, fertilization, pest management, harvesting, handling and packaging.

   An OHGA strategic objective is to obtain superior yields – an average of 1,000 lb of dry hops per acre.

2) **High Quality –** based on our brewers' survey [12] brewers require:

   (i) Commonly used varieties – Cascade, Centennial, Chinook and Hallertau. While there is an appetite for experimenting with other varieties, for the most part *brewers want hops they know how to use and will give predictable results*.

   However, 1/3 of Ontario hop production is of other varieties [11].

   (ii) Pelletized hops – while harvest brews will always be popular, becoming a consistent (year-round) supplier requires that growers pelletize their hops.

   While a majority of Ontario's hops are pelletized (by large growers), a majority of growers do not have access to pelletizing – pelletizing and packaging infrastructure is a critical need to expand the hop sector in Ontario [11].

(iii) High alpha acid content – a "Benchmark" study at Niagara College [15] determined Ontario hops have acceptable alpha acid content. However, the few samples exhibited a number of other problems including improper drying and mislabeling.

Brewers require clear and consistent labeling that states alpha acid content, which means *growers must properly sample and test their harvest*.

However, only a quarter of Ontario growers do so and test labs are not widely available [11].

An OHGA strategic objective is high quality hops – ensuring they exceed brewers' quality requirements.

3) Expand Number and Size of Hop-yards

Larger yards (over 4 acres) are better able to make necessary investments – in spraying, harvesting, and packaging. While there will always be a place for hobby farms of less than an acre that can provide hops for harvest brews, consistent supply requires larger operations.

An OHGA strategic objective is expansion – new growers, larger operations and investment capital.

4) OHGA is Member-focused and Financially Stable

Providing value to members is the key objective from which all else follows.

Ontario is a big place and its hop growers are widely separated. At the same time OHGA members are eager to collaborate and share knowledge and ideas – through educational forums, hop-yard visits, and knowledge-sharing events.

As a Not-for-Profit organization, OHGA will always face inherent challenges – typically too much work and too few resources. Given the demands, we believe OHGA must:

(i) work hard to maximize its membership by remaining close to them and providing value,
(ii) obtain funding for a permanent Executive Director position,
(iii) its Board should comprise at least seven Directors.

OHGA's key strategic objective is to become Ontario's GoTo organization for hops.

[15] Niagara College's Benchmark Study, "Determination of alpha and beta characteristics of key commercial hop varieties", November, 2015

Strategies (in order of priority)

1) **Provide value to members**

   It is not easy for the association to balance province-wide initiatives (eg, government lobbying and R&D) with providing immediate value to members (eg, workshops and seasonal advice and information). OHGA will make value to members its top priority.

2) **Undertake relevant agri-research with capable research institutions**

   Ontario is not the easiest environment in terms of climate, quality of its soils, and disease intensity. Growers need to work smarter not harder.

   Ontario is home to outstanding research institutions (eg, Guelph University and the Vineland Research Institute).

   OHGA can be a bridge between the two to help growers obtain new, practical knowledge. Already, we have arranged and funded a comprehensive literature review (much of the work has been done in Vermont and Michigan) as a basis for undertaking continuing, targeted R&D programs in Ontario [16].

3) **Facilitate Access to Equipment and Facilities**

   Brewers demand quality, which means rapid harvesting, proper drying, pelletizing, food-safe packaging, and traceable labeling.

   OHGA is already working with the Agri-Food Venture Centre in Colborne, Ontario to develop knowledge and protocols to expand across the association.

4) **Develop Affordable Testing Facilities**

   Brewers want to know what they are buying. It means growers must test their hops for alpha acid content. OHGA has completed a benchmark study at Niagara College [15], and is establishing testing services for its members, this year.

5) **Collaborate with Other Associations and Government**

   OHGA's key partners are OCB and the Ontario government. OHGA has established a strong relationship with both:

   - OCB has funded the above-mentioned literature survey on behalf of OHGA,
   - We have met with Arthur Potts, assistant to the Minister of Agriculture to explore funding support for the association.

6) **Seek funding for an Executive Director position**

   OHGA is committed to making applications for government support to fund an Executive Director position in 2016. It will allow more consistent and effective execution and will free Board members to concentrate on steering the association and providing value to members.

[16] Under the direction of Dr. Mehdi Sharifi at Trent University

7) Continuously Improve Stock

There is currently no source of certified virus-free stock in Ontario. OHGA is meeting with the Vineland Research Institute to explore R&D programs.

8) Undertake Market Research

Marketing and branding Ontario hops is essential if Ontario is to rise above the strong competition from the likes of Michigan and New York.

As a starting point, OHGA has completed surveys of growers and brewers through Niagara College [17].

There is much more to be done.

[17] Niagara College's Commercial Feasibility Reports – 1, 2 and 3 – March, 2016

2016 Operational Plan

Reach – Ontario Craft Brewers is OHGA's primary partner

- Ontario Craft Brewers
- Home Brewers
- Stock suppliers
- Government, including OMAFRA
- Suppliers to the hop industry
- Academic Research Institutions
- Processing and Testing Facilities
- Growers – new and existing, commercial and hobby
- Other hop associations
- Related organizations, eg, Grape Growers

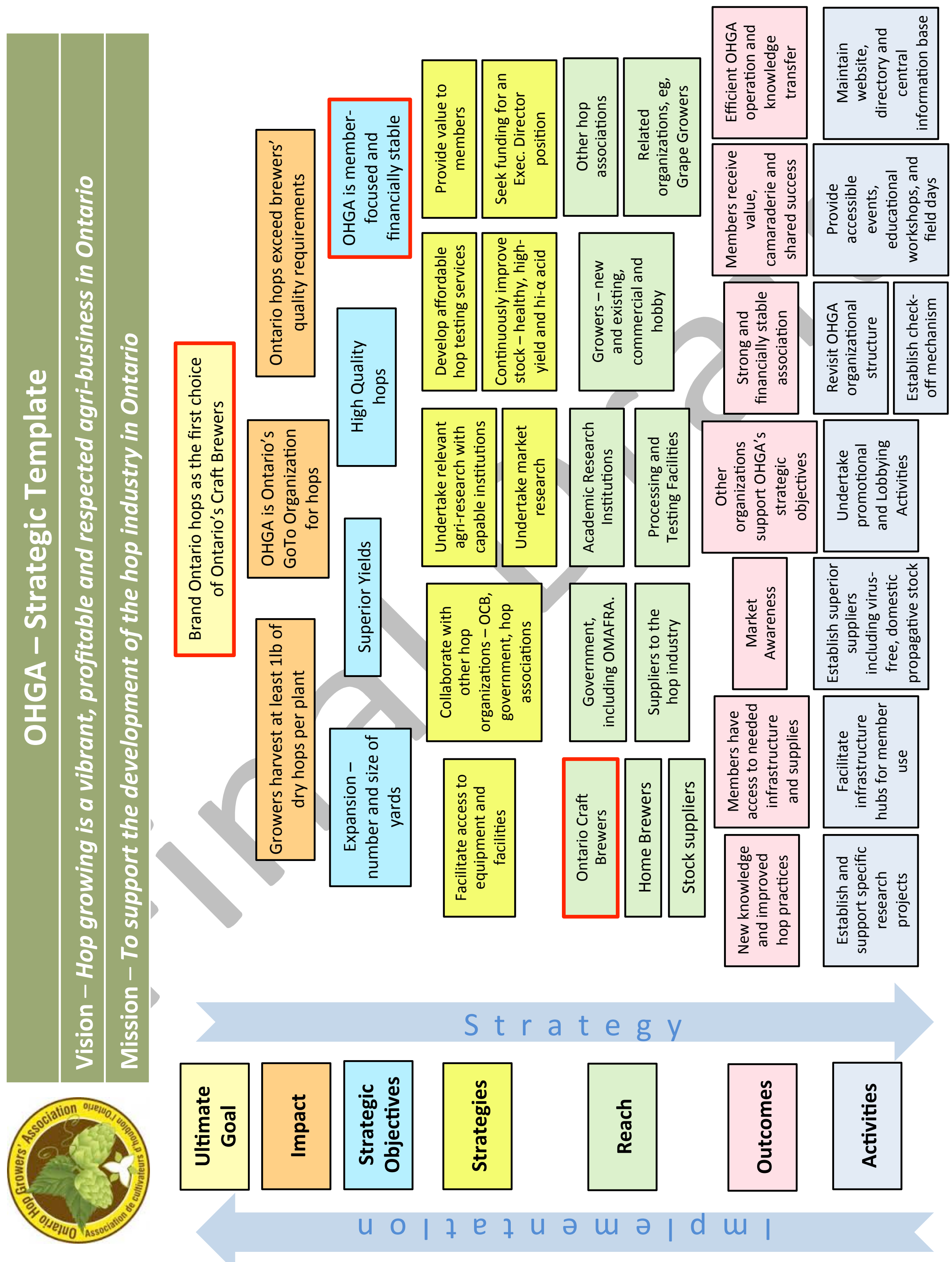
Activities (in order of priority)

#	Activity	Outcome	Accountable	Budget
1	Revisit OHGA organizational structure	Strong and financially stable association	President	None
2	Facilitate infrastructure hubs for member use	Members have access to needed infrastructure	TBD	$1,000
3	Establish and support specific research projects	New knowledge and improved hop practices	TBD	$2,500
4	Provide accessible events, educational workshops and field days	Members receive value, camaraderie and shared success	Edgar /Niagara /Board	$1,000
5	Undertake lobbying activities	Other organizations support OHGA's strategic objectives	President	None
6	Maintain website directory and central information data base	Efficient OHGA operation and knowledge transfer	Don (database) /TBD (website and directory)	$500
7	Establish check-off mechanism	Strong and financially stable association	TBD	
8	Establish superior suppliers including virus-free, domestic propagative stock	Members have access to needed stock and supplies	TBD	None
9	Undertake promotional activities	Market awareness	Albert	$500

Strategic and Operational Plan

Appendices

Appendix 1 – Strategic Template



Appendix 2 – Activities

Activity 1: Revisit OHGA Organizational Structure		**Outcome:** OHGA is a strong and financially stable association	
Accountable: President		**Completion Date:** Before March 2016 AGM	
Task	**Description**	**Responsible**	**Target Date**
1.1 Discuss and approve: • Regional Structure • Typical Activities • Financial Support	Discuss the best type of organization and activities to engage members across the province	Board	03rd Feb, 2015
1.2 Discuss and approve: • Website • Facebook / Twitter • Directory • Central spreadsheet information base	Discuss content, format, frequency of update and who is responsible	Board	03rd Feb, 2015

Activity 2: Facilitate Infrastructure Hubs for member use		**Outcome:** Members have access to the infrastructure needed to provide high quality hops to brewers	
Accountable: TBD		**Completion Date:** Continuing	
Task	**Description**	**Responsible**	**Target Date**
2.1 Agri-Food Centre in Colborne – Eastern ON	The centre supports agri-food businesses in eastern ON, including packaging and labeling. It is interested in acquiring pelletizing equipment to support hop growers.	Don Wilford	Dec, 2016

Activity 3: Establish and support specific research projects	**Outcome:** New knowledge and improved hop practices		
Accountable: Lead, Research Working Group	**Completion Date:** Continuing		
Task	**Description**	**Responsible**	**Target Date**
Research Opportunities Include:			
3.1 Micro-propagation, Cryopreservation of Hops.	Guelph University	A. Jones	
3.2 Downy Mildew.	Guelph University	M-R. Macdonald	
3.3 Hop Diseases.	Vineland Research Institute	J. Brandle	
3.4 Hop Cultivation.	Niagara College	G. MacLean	
3.5 Fertilization and Soil Health.	Trent University	M. Sherifi	

Activity 4: Provide accessible events, educational workshops, and field days	**Outcome:** Members receive value, camaraderie and shared success		
Accountable: Lead, Workshops	**Completion Date:** Continuing		
Task	**Description**	**Responsible**	**Target Date**
4.1 Educational sessions at the AGM	• Hops-growing workshops. • OMAFRA market and IPM update. • Brewers' Panel.	Hugh Brown	March 19th 2015
4.2 Spring Workshop	IPM by OMAFRA.	TBD	April 2015
4.3 Sprayer Workshop	TBA	TBD	May 2015
4.4 Scouting Workshop	TBA	TBD	June 2015
4.5 Harvesting Workshop	TBA	TBD	August 2015

Activity 5: Undertake lobbying activities	**Outcome:** Other organizations support OHGA's strategic objectives
Accountable: Lead, Lobbying	**Completion Date:** Continuing

Task	Description	Responsible	Target Date
Liaise with Provincial Government including OMAFRA on:			
5.1 Economic Development	With OCB, lobby in support of the craft brewing industry in Ontario.	TBD	
5.2 Financial support	• Transition support for an Executive Director role. • Centre of Excellence for hops, eg, at the Simco hopyard with the University of Guelph.	TBD	
Liaise with Federal Government including OMAFRA on:			
5.3 IPM	Emergency use registration.	TBD	

Activity 6: Maintain OHGA's website, directory and a supporting information base	**Outcome:** OHGA is efficient and effective in its operations and in transferring knowledge to its members
Accountable: TBD	**Completion Date:** Continuing

Task	Description	Responsible	Target Date
6.1 Maintain Website		TBD	Continuing
6.2 Maintain Directory		TBD	Continuing
6.3 Maintain Central spreadsheet information base		TBD	Continuing

Activity 7: Establish Check-off mechanism	**Outcome:** OHGA is a strong and financially stable association
Accountable: TBD	**Completion Date:** Continuing

Task	Description	Responsible	Target Date
7.1 TBD	Fred -	TBD	

Activity 8: Establish superior suppliers including virus-free, domestic propagative stock	**Outcome:** Members have access to needed infrastructure and supplies
Accountable: Supplier Working Group	**Completion Date:** TBD

Task	Description	Responsible	Target Date
8.1 Group Purchases for members	Coir, W-clips and applicators, chemical products.	TBD	
8.2 Develop supplier partnerships	Demonstrate in-use efficacy of hop supplies and preferred purchase price for members.	TBD	
8.3 Develop consultant partnerships	Identify specific consultants to assist hop growers.	TBD	
8.4 Certified virus-free plant stock	Establish a source in Ontario.	TBD	
8.5 Develop preferred testing providers	Identify and develop preferred supplier relationships.	TBD	
8.6 Crop Insurance	Source preferred supplier and price discount	TBD	

Activity 9: Undertake promotional activities	Outcome: Market awareness		
Accountable: Lead Promotions	**Completion Date:** TBD		
Task	**Description**	**Responsible**	**Target Date**
9.1 Develop trade-show collateral	Banner, handouts, etc.	Lead	
9.2 OCB	Annual Event		
9.3 Guelph Organic Conference	Annual Event		
9.4 Ontario Fruit and Vegetable Growers	Annual Event		
9.5 Regional Events	Regional Leads		

Appendix 3 – Highlights of Niagara College's Hop-growers Survey Report

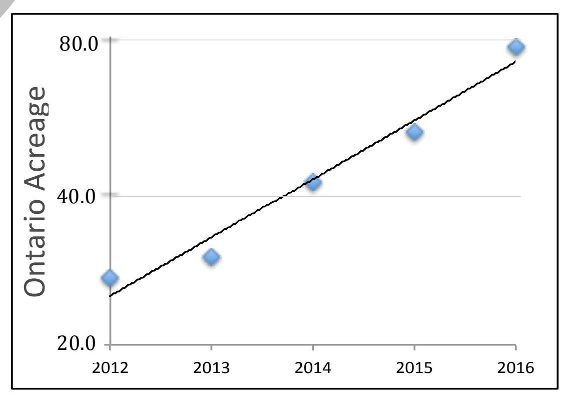
Demographics

	Number of Plants (1000 per acre) [18]	Survey Sample: Number of Growers [19]	Survey Sample: Total Acres [20]	OHGA Members: Number of Growers	OHGA Members: Total Acres [21]	All Ontario Growers: Number of Growers [22]	All Ontario Growers: Total Acres [23]
S	0 - 999	22	6	23	6	26	8
M	999 - 3,999	12	15	12	15	13	17
L	4,000 - 9,999	3	31	4	38	7	59
	Total	37	52	39	59	46	84

- The overall response to the survey was outstanding – 37 out of an estimated 46 growers (however, not all respondents answered all survey questions).
- A majority of growers are beginners – small- and medium-sized and growing hops for three seasons or less.
- A majority are OHGA members. Unfortunately, a majority of the large growers who responded to the survey (40% of total acreage) were not.
- A majority of acreage is in southwestern Ontario (includes the Niagara region).

Hop Yard

- Ontario currently has 84 [24] acres of hops (2015) with an additional 24.6 acres planned for 2016. Acreage is increasing exponentially with a doubling time of 2.6 years.
- Within the sample survey, a majority of acreage is comprised of four hop varieties – Cascade (33%), Centennial (15%), Chinook (10%) and Hallertau (6%). 16 other varieties (18 acres) – a total of 20 varieties – are being cultivated.



[18] Less than 1,000 plants (nominally 1 acre – "Small") designates a hobby grower. More than 4,000 plants (4 acres – "Large") a commercial grower. "Medium" growers are in-between.

[19] 67 respondents opened the survey but only 35 completed it. 37 provided acreage.
Niagara College used a different criteria (2,000 plants) for "Large", ie, Medium = 8 and Large = 7 instead of Medium = 12 and Large = 3. The difference in numbers is small but will have the effect that characteristics of commercial growers will be "diluted" throughout the survey report.

[20] Estimated from Niagara College's reported acreages with large growers defined as greater than 2 acres.

[21] The extrapolation to the OHGA membership (done on the basis of average acreage for each bucket) is so slight that it can be done with great confidence.

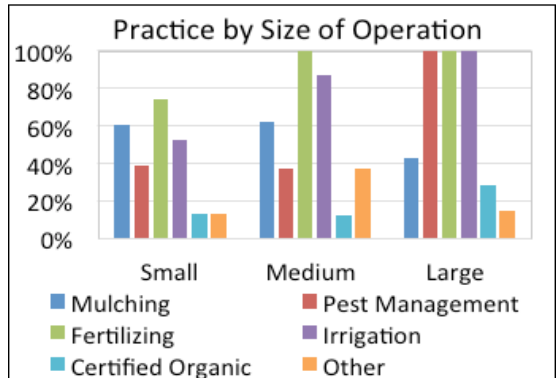
[22] OHGA's best estimate based on identified growers. There may well be more.

[23] Extrapolated from OHGA's numbers.

[24] The survey sample identified 52 acres – 84 acres is extrapolated for Ontario. The graph of acreage is for the survey sample and is plotted with a logarithmic scale.

- Cascade and Chinook are considered easiest to grow and Centennial and Sterling most difficult.
- Cascade and Chinook are considered to have the highest yields and Centennial and Nugget the lowest.

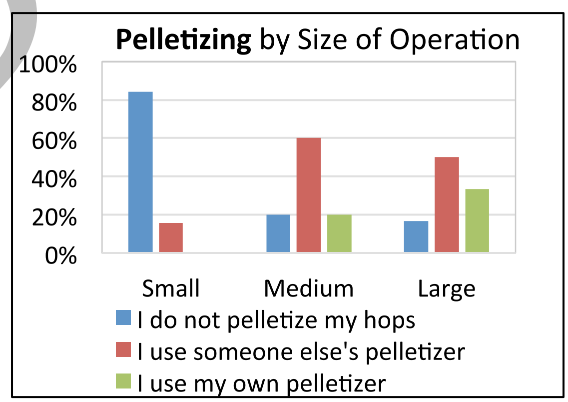
- Farming Practices:
  - All large growers practice pest management, fertilization, and irrigation.
  - A majority of small and medium growers practice irrigation and a minority pest management.
  - Approximately half of growers practice mulching.



- Equipment Purchase:
  - Sprayers: acquisition increases with size – from just under 20% for small growers to just over 80% for large.
  - Tractors: the trend is similar with the exception that only 35% of large growers purchased a tractor – most likely because they already had one for non-hops operations.

Hop Processing

- Most large and medium growers (80%) use a harvester and pelletizer – their own (58%) or someone else's (22%) equipment[25].
- Most small growers (82%) harvest by hand and do not pelletize.
- However, when acreage is taken into account, <u>80% of hops are pelletized.</u>
- Most growers dry their hops, the majority using their own equipment.

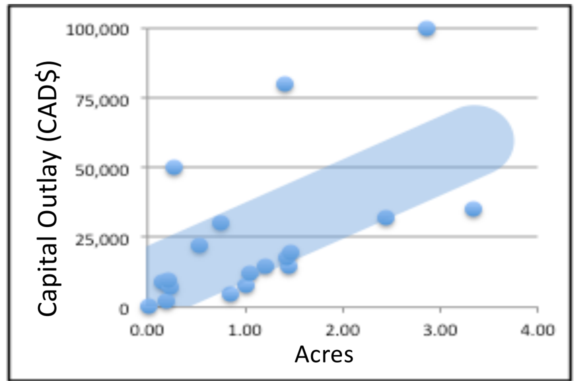


- A majority of growers vacuum seal their hops – half in plastic and a quarter in foil laminated bags.
- Only a quarter of growers undertake lab testing on their hops.
- Equipment:
  - Harvesters include Wolf models 140, 170, and 240; and a custom harvester.
  - Pelletizers include Lawson Mills and Granulart.
  - Dryers include home-made wooden cabinets with shelves, drawers, and bins; electric and propane heaters; fans; and dehumidifiers.

[25] The sample size was 30 respondents, of which seven reported using their own pelletizer but only three provided information on type or size.

Investment

- Base investment (trellising, plants, etc. and excluding harvesting and processing equipment) is close to what has been previously reported – broadly $15,500 per acre – there is a wide variation depending on what fraction of supplies has been purchased rather than scavenged from other farm operations.
- Additional equipment and other costs are:
  - Harvesters up to $50,000.
  - Pelletizers between $20,000 and $50,000.
  - Land, buildings, and general equipment - up to over $100,000.



Marketing

- The two most important markets are craft brewers and home brewers. Only 1 respondent reported selling to hop brokers.
- Over 80% of hops are sold as pelletized.
- Face-to-face meetings with brewers is the most common type of marketing.

Type of Process	% of hops by weight
Pelletized	81%
Wet whole flowers	17%
Dried whole flowers	1.3%
Other	0.5%
Extracts	0.4%

Growers' Opinions

- Most growers are optimistic about the current and future demand and plan to grow their operations.
- Challenges are listed in order of priority, albeit with the caution that they are biased towards the greater number of new, inexperienced growers.
- OHGA members felt the association's efforts should be focused on:
  - Lobbying government / OMAFRA and promoting the hop sector.
  - Education and educational material to assist members become successful growers.
  - Research into: disease and pesticides and disease free plant stock.
  - Providing facilities, infrastructure and supplies.
  - Acting as a broker between growers and buyers.

Growers' Challenges	Score
Growing	29%
Lack of resources	26%
Beginner challenges	26%
Harvesting efficiency	25%
Processing	24%
Obtaining good plant stock	24%
Marketing	19%

Appendix 4 – Highlights of Niagara College's Brewers' Report

Demographics

	Volume Production (kHL/yr)[26]	Survey Sample		OCB Brewers[29]		All Ontario Brewers	
		Number of Breweries[27]	Volume[28] kHL/yr	Number of Breweries	Volume kHL/yr	Number of Breweries[30]	Volume[31] kHL/yr
S	0 - 4.99	21	43.5	59	73	274	339
M	5.00 - 14.99	2	20	6	56	6	56
L	15.00 - 75.00	3	97.5	4	174	4	174
	Total	26	161	69	303	284	569

- The overall response to the survey was good – 26 out of 69 Ontario Craft Brewers' members (however, not all respondents answered all survey questions).
- As can be seen, the vast majority of brewers, in Ontario, are small – producing less than 5,000 HL of beer a year.

[26] Microbrewery
A brewery that produces less than 15,000 barrels (17,600 hectoliters) of beer per year with 75 percent or more of its beer sold off-site.
Brewpub
A restaurant-brewery that sells 25 percent or more of its beer on site. The beer is brewed primarily for sale in the restaurant and bar.
Contract Brewing Company
A business that hires another brewery to produce its beer. It can also be a brewery that hires another brewery to produce additional beer. The contract brewing company handles marketing, sales and distribution of its beer, while generally leaving the brewing and packaging to its producer-brewery (which, confusingly, is also sometimes referred to as a contract brewery).
Regional Craft Brewery:
- Regional Brewery – a brewery with an annual beer production of between 15,000 and 6,000,000 barrels.
- Large Brewery – a brewery with an annual beer production over 6,000,000 barrels.

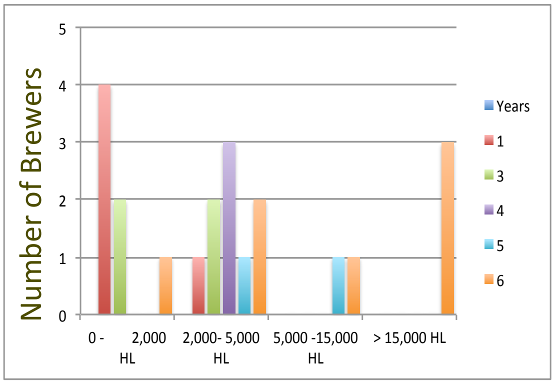
[27] The three "buckets": "Small" (0 – 4,999 HL), "Medium" (5,000 – 14,999 HL) and "Large" (> 15,000 HL) are used by the Ontario Craft Brewers. Niagara College included an additional bucket within the "Small" category: S1 (0 – 1,999 HL – 12 respondents) and S2 (2,000 – 4,999 HL – 9 respondents). They have been added together for a total of 21.
35 respondents opened the survey, 27 provided limited information and 16 fully completed it.

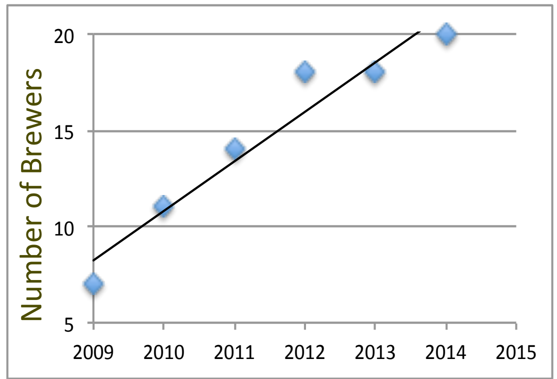
[28] Calculated assuming the mid-point volume production times the number of breweries (Small production of 43,500 HL is the addition of S1 (12,000 HL) and S2 (31,500 HL).

[29] Number of breweries and volume production were provided by OCB. Extrapolating the survey sample production volumes by number of breweries requires that 28% of Small breweries are S1 (0 – 1,999 HL) and the remainder S2. The extrapolation under-estimates Large production (130 instead of 174 HL) for a total of 263 HL instead of 303 HL. That said, the discrepancy is only 15% and well within the limits of extrapolating from 26 to 69 breweries. It therefore provides confidence in the overall findings.

[30] It is not easy to keep tabs on the rapidly increasing number of small breweries. The number of 274 (Small breweries) was provided by OCB based on its best knowledge.

[31] Extrapolated from OCB's numbers.





- As might be expected within the craft brewery sector, all recently opened breweries are Small (less than 5,000 HL a year). All Large and Medium breweries are at least 5 years old [32].
- The number of breweries is increasing roughly linearly with time.

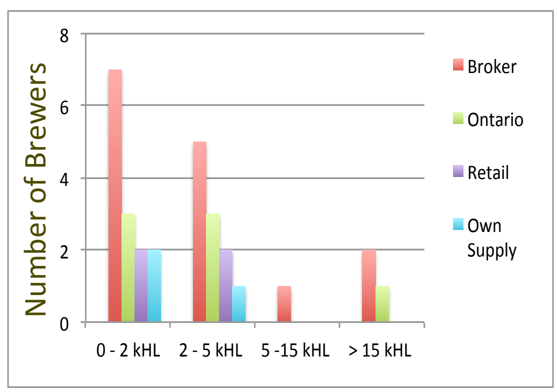
Hops Data

- All brewers prefer pelletized hops over any other form (eg, whole flowers).
- The most popular varieties are Cascade, Centennial, Chinook, and Hallertau.
- "Other" includes varieties that were not listed in the survey question including: Simcoe, Amarillo, Fuggle and Nelson Sauvin.
- Brewers also expressed interest in: Amarillo, Summit, Magnum, Simcoe, Perle, Galaxy, and Northern Brewer.

Variety	% Usage (by weight)
Cascade	15.3%
Centennial	13.0%
Chinook	11.6%
Hallertau (U.S)	10.6%
Other (19 varieties)	49.4%

Sourcing [33]

- A majority of respondents prefer to contract for their hops because it offers consistency of supply.
- Almost all (94%) use a broker to source their hops (the majority of hops are from: U.S., Germany, Poland and Canada – B.C. and Quebec).
- 40% already contract or partner with Ontario growers as well.
- There is a strong interest in Ontario hops – more than half have used them and an additional 29% are planning to do so in the future, although mainly for small volume purchases.
- But brewers face challenges regarding quality and supply from Ontario growers – only half the brewers who use Ontario hops are able to fully and consistently meet their demand [34].



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[32] Sample size is 21.

[33] Sample size is 17.

Purchasing Factors [35]

- **Quality**: is essential – brewers will not purchase low quality hops, even if they are locally grown and pelletized.
- **Pelletized**: the majority of brewers believe pelletizing is essential to their operations.
- **Local**: the majority of brewers believe it is important to source hops locally and most are interested in doing so.
- **Selection**: over half of brewers feel a wide selection of varieties is important and most are interested in having a wide selection available.
- **Price**: only half of respondents believe price is a critical issue and a majority is comfortable paying either contract or spot prices [36].

Commercialization Potential

- Almost all respondents would consider switching to Ontario hops all other things being equal, ie, if hops are of good quality, pelletized, and there is a good selection.
- A majority would be prepared to source more than 70% of their hops locally.
- All would be prepared to pay a price premium of between 0 and 10% [37].
- A majority is also interested in organically grown hops.

Brewers' Opinions

- Quality is the highest priority. Brewers need pelletized hops that are of consistent quality and have documented high alpha acid content. Currently, most Ontario growers cannot meet these requirements.
- The majority of respondents want to use Ontario hops. They expressed an interest in buying local products, and in helping the local economy.
- Many brewers recognize there is a market for beer made with locally grown ingredients. Many indicated it is something their consumers are demanding.
- There is some interest in exploring new flavours offered by hops grown in unique, local terroirs.
- Brewers want to build relationships with Ontario growers. As well as marketing, they believe it offers a degree of independence of supply.
- Brewers suggest hop growers should stick to varieties that work in Ontario's climate and offer high quality and unique flavour.

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[34] Sample size is 8.
[35] Sample size is 16.
[36] Sample size is 15.
[37] Sample size is 9.