

Brewer's Guide

to Ontario-Grown Hop Varieties
2022-2023



This guide is published for informational purposes only. The Province of Ontario, as represented by the Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA), disclaims any express or implied warranties related to the use of this guide, including all contents, any link to or the contents of any third party site or source, including, without limitation, warranties of non-infringement or of fitness for any particular purpose. In no event shall the Province of Ontario or its directors, officers, employees, servants or agents accept any liability for any failure to keep the guide's contents up to date or for any errors or omissions within it or in any link or third party site or sources that may be referenced within it or for any damages (including, without limitation, damages for loss of profits, business interruption, loss of information, or direct, indirect, incidental, special consequential or punitive damages), whatsoever arising out of or related to the use of or inability to use this guide (including all contents), any link or any third party site or works, whether under contract, in tort or under any other basis of liability. It is the user's responsibility to

ensure they have chosen the best course of action for their own particular circumstances. Furthermore, any mention of brand names or products within this guide is neither an endorsement of that product nor a suggestion that similar competitor's products may be ineffective or less effective. The contents of this guide (including, without limitation, the graphics, icons, and its overall appearance) are the property of the Province of Ontario. The Province does not waive any of its proprietary rights therein including, but not limited to, copyrights, trademarks and other intellectual property rights. No user of this guide may sell, republish, print, download, copy, reproduce, modify, upload, post, transmit or distribute in any way any portion of this guide or its contents without the prior written consent of the Province, except for reasonable printing, downloading and copying for the private information and use of the user. The availability of any of the contents of this guide shall under no circumstance constitute a transfer or waiver of any copyrights, trademarks or other intellectual property rights of the Province to any user or to any third party.

Published by the Ministry of Agriculture,
Food and Rural Affairs

© Queen's Printer for Ontario, 2022
Toronto, Canada

*Cette publication est aussi disponible
en français.*

Photo Credits: see page 28.

Contents

Purpose of this Guide	1
Sourcing Ontario Grown Hops	2
“Taste Ontario” with the BrewON Program.....	3
Hop Production and Craft Beer in Ontario	4
Ontario Hop Terroir	6
Storage Requirements for Ontario-Grown Hops	8
Hop Varieties at a Glance	10
The ONHops BrewOff	25
References	26
Resources	27





Brewer's Guide to Ontario-Grown Hop Varieties

Editor

Evan Elford, Ontario Ministry of Agriculture, Food and Rural Affairs (OMAFRA)

Design Editor

Andrea Vieira, OMAFRA

Acknowledgements

The authors would like to thank the following organizations and people whose photos, text, logos, data, and knowledge were used in creating this publication: Ontario hop growers; The Ontario Hop Growers' Association (OHGA) and BrewON program; Scott and Todd Hayhoe, Hayhoe Hops; The University of Guelph; The Ontario Craft Brewers (OCB); Dirk Bendiak, Technical Advisor, OCB; Mirella Amato, Beerology; Chris Gillis, Durham College; The Ontario Fruit and Vegetable Convention (ONHops BrewOff), The Canadian Food and Wine Institute Innovation Centre at Niagara College.

The authors would like to thank the following people for reviewing this publication: Melanie Filotas, OMAFRA; Sean Westerveld, OMAFRA; Jeffery Hanson, OHGA; Scott Hayhoe, OHGA; Scott Simmonds, OCB.

Resources

Information used in this guide has been compiled from a number of sources including Ontario hop industry experience as well as scientific research and extension publications from: OMAFRA, University of Guelph, Durham College, The Canadian Food and Wine Institute Innovation Centre at Niagara College, OHGA, and OCB.

Feedback

As this guide is a work in progress and will be updated on a regular basis, we invite feedback and additional information that better represents Ontario hops to the brewing sector. Brewing values (alpha and beta acids, oils, etc.) will be updated regularly for all varieties across growing regions and seasons in Ontario and this is not possible without the support of Ontario hop growers and brewers. If you have information to share about your Ontario-grown hop varieties please contact Evan Elford, OMAFRA New Crop Development Specialist at evan.elford@ontario.ca.



Purpose of this Guide

This guide is intended as a resource to connect Ontario brewers with hop varieties currently grown and available from Ontario growers.

Varieties are listed in alphabetical order and grouped in two sections based on selection or registration status (wild, registered trademarked, etc.) or classification by the International Hop Growers Convention (IHGC). Additional information such as brewing values specific to the varieties grown under Ontario conditions (where information is currently available) are provided to assist in recipe planning and development.

Information on specific varieties has been gathered from Ontario research trials, Ontario farms, and from resources in other jurisdictions in cases where Ontario data is not currently available. The information contained within this guide will be updated regularly to provide as much locally available data as possible.

Additional information and resources have been supplied to assist brewers in sourcing and storing locally grown hops. Programs related to marketing and promotion of Ontario beer using Ontario hops are also included.

There is sometimes confusion about the terminology for “varieties” versus “cultivars”. In agriculture, the terms “variety” and “cultivar” are often used interchangeably. Almost all hops available today for commercial production are selected through breeding and their characteristics are maintained through vegetative propagation. Consequently, they are “cultivars” (cultivated varieties) rather than “varieties”, which tend to occur naturally. In this guide we have used the term “variety” as it is more recognizable by the wider industry and is applicable to all hop names contained herein.

We hope you enjoy learning more about Ontario-grown hops and exploring the diversity of varieties available for your brewing needs.

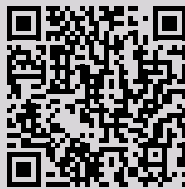




Sourcing Ontario Grown Hops



Hop varieties are available from many farms across the province in varying quantities and formats (i.e. fresh or dried whole leaf hops and pelletized hops).



The best way to locate a hop grower near you is to access the [Ontario Hop Farm Directory](#) on the [Ontario Hop Growers' Association \(OHGA\)](#) website or search online for "Ontario Grown Hops".

Ontario hop farmers take pride in being good stewards of the land and helping to preserve it for future generations. Buying local also means your hops come from closer to home, and the closer, the fresher! Brewers can be confident that the hops they are purchasing are grown in Ontario by looking for the Foodland Ontario logo on hop packaging. Foodland Ontario is a consumer promotion program of the Ontario Ministry of Agriculture, Food and Rural Affairs.

Using the Foodland Ontario logo on your hops and marketing materials is the best way to help buyers identify Ontario ingredients.



Good Things Grow in Ontario



Follow this link to find out more about using the Foodland Ontario logo for your hops at no charge.

“Taste Ontario” with the BrewON Program

The [BrewON](#) program provides a logo indicating to consumers that the craft beer or cider they are drinking is made with Ontario-grown hops.

BrewON is about local. Where the hard work, experience and passion of Ontario craft brewers and cider makers and the hop growers of the [Ontario Hop Growers' Association \(OHGA\)](#) make a difference towards an authentic, locally sourced, craft beer and cider.

Two labels are available to celebrate locally sourced beer and cider:



Standard level recognizes beer or cider using 50%–99% hops from OHGA member growers



Gold level celebrates beer or cider using 100% hops from OHGA member growers



For more information about the BrewON program visit the [BrewON website](#), contact brewon@ohga.ca, or contact any of the hop growers listed on the [OHGA Hop Farm Directory](#).

BrewON is an initiative of the [Ontario Hop Growers' Association](#). The BrewON logo is a registered trademark of the Ontario Hop Growers' Association.



Hop Production and Craft Beer in Ontario

Commercial hop production has re-emerged across Ontario thanks to interest from Ontario's craft brewers. Ontario's hop growers and their families have been working hard by investing in new technology to grow the industry and provide brewers with a consistent supply and wide range of high-quality, hop varieties.



Ontario's hop acreage has expanded over 1200% in the last decade with over 45 hop varieties currently grown in the province.

Commercial hop production requires a significant investment in capital and labour and usually takes 2 to 3 years to produce the first viable crop.

Hop quality has rapidly increased in Ontario with investments in hop research, education on cultural management, pest management, harvest and post-harvest practices.

Most Ontario-grown hops sold in the province include brewing values (e.g. alpha and beta acids, hop oils, and hop storage index) from analytical testing facilities to assist brewers with recipe development.

The growing season in Ontario begins in April and progresses through to harvest from mid-August to mid-September.



Fresh hops for harvest ales are available but pre-orders are usually required. Most hops grown in Ontario are dried, pelletized and packaged according to industry standards and are available for bulk sales year-round or in smaller packages for test batches and home brewing.

Ontario's craft brewing industry is currently the largest buyer of Ontario-grown hops. There are more than 300 craft breweries province-wide who produce over 800,000 hL of craft beer each year. Ontario brewers require high quality inputs to produce distinctive beers for their customers. Ontario-grown hops, some with unique terroir, are the perfect local ingredient for Ontario craft beer.





Ontario Hop Terroir

Is there an Ontario hop terroir?

Preliminary work supported by the Ontario Craft Brewers and the Ontario Hop Growers' Association and conducted by Durham College and industry partners suggests there is!

Terroir is the unique taste or flavour characteristics exhibited by a crop due to the environment and cultural practices under which it is grown. With hops, that means unique tastes and flavours could be imparted by a variety to the beer depending where and how it is grown. In this initial study the characteristics of two hop varieties, *Cascade* and *Centennial*, grown in Ontario and the USA were evaluated. Panels comprised of industry and sensory experts assessed small batches of hops and beer brewed with those hops.

Overall, the panellists noted that hop varieties grown in different locations were similar in their general attributes with notes of floral, grassy, and spicy characteristics being present. What this means is that brewers will obtain the same general characteristics from a variety grown in

Ontario versus a variety grown elsewhere. In some cases, attributes were noted in the hop samples but were not present in the beer and vice versa.








While the general attributes were similar, each hop variety exhibited some subtle differences ascribed to the individual growing regions. Examples of the unique attributes found in beer brewed with Ontario-grown *Cascade* hops include notes of peach while Ontario-grown *Centennial* hops imparted notes of strawberry.

Figure 1 provides an overview of all aromas and flavours assessed in the hop and beer samples throughout the study. Characteristics highlighted in green indicate where Ontario-grown hops imparted unique attributes in the brewing samples that were not found in beer brewed using USA-grown hops. The results of the study suggest more comprehensive research on Ontario hop terroir is needed to expand our understanding of the distinct tastes and flavours derived from Ontario's hop growing regions.



Figure 1. Preliminary Hop Terroir Results Summarizing Aroma Profiles in Ontario and USA-Grown *Cascade* and *Centennial* Hops and Beer Brewed with those Hops.

Columns depict hop aroma categories and characteristics, the number of panellists noting the hop aromas in Ontario-grown vs USA-grown *Cascade* and *Centennial* hop samples, and subsequent attributes noted in beer samples brewed with Ontario-grown hops. Rows marked in green highlight unique flavour attributes found only in beer made with Ontario-grown hops. A 'dash' represents no attribute was present in the beer sample.

Hop Aroma Profile		Number of Panellists Noting Aroma Characteristic Present in Hop Sample				Attributes Noted in Beer Sample	
Category	Characteristic	Ontario Cascade	USA Cascade	Ontario Centennial	USA Centennial	Cascade	Centennial
Berry 	Blackcurrant	3	0	0	3	-	-
	Strawberry	0	2	3	0	-	✓
Floral 	Geranium	4	4	2	5	-	-
	Jasmine	2	0	3	1	-	-
	Lavender	1	1	0	4	-	-
	Potpourri	1	4	0	2	-	-
Grassy 	Fresh Cut Grass	11	8	8	6	-	-
	Hay	0	6	2	2	✓	✓
	Lemongrass	2	5	1	8	✓	-
Herbaceous 	Cannabis	6	3	1	0	-	-
Spicy 	Black Pepper	5	10	5	4	✓	✓
Stone Fruit 	Apricot	1	1	0	4	-	-
	Peach	2	3	5	3	✓	-
Woody 	Cedar	5	4	4	7	✓	✓
	Pine	2	4	4	8	-	-
	Resinous	4	5	3	7	-	-

Source: Adapted from "Is there an Ontario Hops Terrior" presentation by Durham College and the Ontario Craft Brewers, 2019.

Storage Requirements for Ontario-Grown Hops

Hop resins can deteriorate over time depending on:

- Storage temperature
- Storage duration
- Exposure to oxygen and light
- Hop variety

Hops should always be stored in chilled and anaerobically packaged conditions to preserve oil content and characteristics.


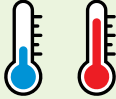


Packaged hops that have been opened for use should be re-flushed, sealed, and returned to cold storage or used within a few days of opening.

Refer to Figure 2 for guidelines on suggested best practices to help maintain the quality of your Ontario-grown hops.





Figure 2. Hop Storage Temperature, Conditions and Duration Guidelines

Hop Form 	Temperature 	Packaging/Storage Conditions 	Storage Duration 
Fresh Hops	1°C to 20°C	Loosely packed in thin layers; provide continuous air flow through perforated/mesh containers; exclude light.	Up to 48 Hours
Dried Whole Leaf Hops	-21°C to 2°C	Anaerobic packaging; exclude light	Up to 12 Months
Pelletized Hops	-21°C to 2°C	Anaerobic packaging; exclude light.	12+ Months

Note: Dried, pelletized hops stored at room temperature (20°C) in anaerobic packaging can lose 20-25% of alpha acids within 12 months. Dried, pelletized hops stored at room temperature exposed to air in opened packages can lose 64-88% of alpha acids in the same time period. The rate of alpha acid deterioration increases after 6 months of storage.

Sources: Adapted from A. Mikyska and Krofta, K. 2012 and the Postharvest Center, University of California.

Hop Varieties AT A GLANCE

The following is an alphabetical list of hop varieties known to be grown in Ontario at the time of publication. For more detailed descriptions and expected ranges for brewing values of Ontario-grown hops, refer to the individual variety profiles in the following pages.

In this guide, hop varieties have been categorized into two groups. The first group includes unique wild hops selected by Ontario growers along with registered, trademarked, and public hop varieties without a classification by the International Hop Growers Convention (IHGC). The second group contains public and trademarked hop varieties with a classification by the IHGC (i.e. aroma or bitter).

Data has been sourced from the University of Guelph hop cultivar trials (McDonald, M.R. et al 2016), reports prepared for the OHGA from the Canadian Food & Wine Institute Innovation Centre at Niagara College and data submitted by Ontario hop growers. In circumstances with insufficient Ontario-based variety data, information has been supplemented using data collected from the USDA ARS Hop Breeding & Genetics Program, the USA Hops Variety Snapshot 2017, propagator websites or directly from farm websites.

Ontario brewing value ranges are provided as a guideline only and are based primarily on pelletized hops corrected to 10% moisture or pelletized hops/dry leaf hops without moisture correction across different hop ages, production methods, and growing seasons. Brewers should request test results for each variety/year directly from the farm if it is not already provided on the product label.

Unclassified Hops Grown in Ontario:



Ontario Wild, Public, Registered, and Trademarked Varieties

Bertwell	12	Sasquatch®	13
Canadian RedVine	12	Vista	13
Heritage	12	Vojvodina	14
Mackinac™	12	Wild Loyalist	14
Michigan Copper™	13	Wild Turkey	14
Old Hill	13		

Hops Classified by the International Hop Grower Convention (IHGC) Grown in Ontario:

Public and Trademarked Varieties

Alpharoma (Rakau™)	15	Newport	20
Bitter Gold	15	Northern Brewer.....	20
Brewers Gold	15	Nugget.....	21
Cascade.....	15	Perle	21
Cashmere	16	Saazer (Saaz)	21
Centennial	16	Santiam	21
Chinook.....	16	Sorachi Ace	22
Cluster	16	Sterling.....	22
Columbia.....	17	Super Alpha (Dr. Rudi).....	22
Columbus (CTZ) see also Zeus.....	17	Tahoma	22
Comet	17	Tettnanger (Swiss Tettnanger) ..	23
Crystal	17	Triple Pearl	23
Fuggle	18	Triumph	23
Galena	18	Ultra.....	23
Glacier	18	Vanguard.....	24
Golding.....	18	Williamette.....	24
Golding East Kent	19	Yakima Gold.....	24
Hallertauer MF/Hallertauer	19	Zeus (CTZ) see also Columbus	24
Horizon.....	19		
Magnum Hallertauer.....	19		
Mt. Hood	20		
Mt. Ranier	20		


 **Bertwell** 

IHGC ASSIGNMENT
Ontario Wild Hop
No IHGC Assignment

ALPHA
2.2–5.5%

BETA
2.9–5.6%

COHUMULONE
N/A



Canadian RedVine 

IHGC ASSIGNMENT
No IHGC Assignment

ALPHA
4.8%

BETA
3.5%

COHUMULONE
N/A


 **Heritage** 

IHGC ASSIGNMENT
Ontario Wild Hop
No IHGC Assignment

ALPHA
3.6–5.5%

BETA
3.5–5.8%

COHUMULONE
N/A

Mackinac™ 

IHGC ASSIGNMENT
No IHGC Assignment

ALPHA
9.0–11.0%

BETA
2.4–4.0%

COHUMULONE
35%

Data Source:



Replicated Ontario Field Trials and/or Ontario Field Production.




USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.



Ontario Wild Hops.

N/A Not Available.



Michigan Copper™ 

IHGC ASSIGNMENT
No IHGC Assignment

ALPHA
10.7%

BETA
3.4%

COHUMULONE
N/A


 **Old Hill** 

IHGC ASSIGNMENT
**Ontario Wild Hop
No IHGC Assignment**

ALPHA
6.9%

BETA
5.1%

COHUMULONE
N/A


Sasquatch® 

IHGC ASSIGNMENT
No IHGC Assignment

ALPHA
5.0–7.3%

BETA
8.2%

COHUMULONE
34–35%

Vista 

IHGC ASSIGNMENT
No IHGC Classification

ALPHA
12.4%

BETA
2.7%

COHUMULONE
32.4%

Data Source:



Replicated Ontario Field Trials and/or Ontario Field Production.




USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.



Ontario Wild Hops.

N/A Not Available.



Vojvodina 

IHGC ASSIGNMENT
No IHGC Assignment

ALPHA
6.1–10.5%

BETA
2.3–4.7%

COHUMULONE
30%



 **Wild Loyalist** 

IHGC ASSIGNMENT
**Ontario Wild Hop;
No IHGC Assignment**

ALPHA
N/A

BETA
N/A

COHUMULONE
N/A

 **Wild Turkey** 

IHGC ASSIGNMENT
**ON Wild Hop;
No IHGC Assignment**

ALPHA
13.0–16.0%

BETA
N/A

COHUMULONE
N/A

Data Source:



Replicated Ontario Field Trials and/or Ontario Field Production.




USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.



Ontario Wild Hops.

N/A Not Available.


Alpharoma (Rakau™) 

IHGC ASSIGNMENT
Bitter

ALPHA
4.8–12.1%

BETA
2.3–4.0%

COHUMULONE
N/A


Bitter Gold 

IHGC ASSIGNMENT
Aroma

ALPHA
12.1%

BETA
4.9%

COHUMULONE
N/A


Brewers Gold 

IHGC ASSIGNMENT
Aroma

ALPHA
5.5–7.3%

BETA
2.3–3.1%

COHUMULONE
N/A

Cascade 

IHGC ASSIGNMENT
Aroma

ALPHA
4.3–10.1%

BETA
4.2–7.9%

COHUMULONE
N/A

Data Source:



Replicated Ontario Field Trials and/or Ontario Field Production.




USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.



Ontario Wild Hops.

N/A Not Available.


Cashmere 

IHGC ASSIGNMENT
Aroma

ALPHA
5.4–8.5%

BETA
5.7–6.2%

COHUMULONE
N/A


Centennial 

IHGC ASSIGNMENT
Aroma

ALPHA
6.6–12.8%

BETA
2.9–6.2%

COHUMULONE
N/A


Chinook 

IHGC ASSIGNMENT
Aroma

ALPHA
6.4–12.7%

BETA
2.8–7.0%

COHUMULONE
N/A

Cluster 

IHGC ASSIGNMENT
Aroma

ALPHA
4.6–5.4%

BETA
3.2–3.3%

COHUMULONE
N/A

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Columbia 

IHGC ASSIGNMENT
Aroma

ALPHA
5.7–6.6%

BETA
2.3–2.4%

COHUMULONE
40%


Columbus (CTZ) 
 see also Zeus

IHGC ASSIGNMENT
Bitter

ALPHA
8.7–10.1%

BETA
2.5–3.3%

COHUMULONE
N/A


Comet 

IHGC ASSIGNMENT
Aroma

ALPHA
10.5%

BETA
4.4%

COHUMULONE
N/A

Crystal 

IHGC ASSIGNMENT
Aroma

ALPHA
3.3%

BETA
5.8%

COHUMULONE
N/A

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Fuggle 

IHGC ASSIGNMENT
Aroma

ALPHA
2.9–5.4%

BETA
2.3–4.1%

COHUMULONE
N/A


Galena 

IHGC ASSIGNMENT
Bitter

ALPHA
7.5–11.6%

BETA
5.2–6.3%

COHUMULONE
N/A


Glacier 

IHGC ASSIGNMENT
Aroma

ALPHA
4.1–5.2%

BETA
4.7–6.0%

COHUMULONE
N/A

Golding 

IHGC ASSIGNMENT
Aroma

ALPHA
4.4%

BETA
5.4%

COHUMULONE
N/A

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Golding East Kent 

IHGC ASSIGNMENT
Aroma

ALPHA
5.0–6.0%

BETA
2.0–3.0%

COHUMULONE
29%


Hallertauer MF/ Hallertauer 

IHGC ASSIGNMENT
Aroma

ALPHA
3.3–8.1%

BETA
6.0–6.2%

COHUMULONE
N/A


Horizon 

IHGC ASSIGNMENT
Aroma

ALPHA
5.4%

BETA
4.2%

COHUMULONE
N/A

Magnum Hallertauer 

IHGC ASSIGNMENT
Bitter

ALPHA
6.4–14.7%

BETA
2.6–6.4%

COHUMULONE
N/A

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Mt. Hood 

IHGC ASSIGNMENT
Aroma

ALPHA
2.4–7.3%

BETA
3.9–6.6%

COHUMULONE
N/A


Mt. Ranier 

IHGC ASSIGNMENT
Aroma

ALPHA
5.2–8.3%

BETA
3.6–6.8%

COHUMULONE
N/A


Newport 

IHGC ASSIGNMENT
Bitter

ALPHA
7.1–9.7%

BETA
3.3–8.0%

COHUMULONE
N/A

Northern Brewer 

IHGC ASSIGNMENT
Aroma

ALPHA
4.6–6.0%

BETA
4.4–4.6%

COHUMULONE
N/A

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Nugget 

IHGC ASSIGNMENT
Bitter

ALPHA
10.9–13.4%

BETA
4.1–5.7%

COHUMULONE
N/A


Perle 

IHGC ASSIGNMENT
Aroma

ALPHA
7.9–12.9%

BETA
2.9–5.0%

COHUMULONE
28%


Saazer (Saaz) 

IHGC ASSIGNMENT
Aroma

ALPHA
4.7–6.6%

BETA
3.2–4.7%

COHUMULONE
N/A

Santiam 

IHGC ASSIGNMENT
Aroma

ALPHA
5.0–7.0%

BETA
6.0–8.0%

COHUMULONE
22–24%

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Sorachi Ace 

IHGC ASSIGNMENT
Aroma

ALPHA
10.3–11.0%

BETA
4.8–6.1%

COHUMULONE
N/A


Sterling 

IHGC ASSIGNMENT
Aroma

ALPHA
2.7–3.4%

BETA
3.0–4.4%

COHUMULONE
N/A


Super Alpha (Dr. Rudi) 

IHGC ASSIGNMENT
Bitter

ALPHA
7.3–8.4%

BETA
5.1–6.0%

COHUMULONE
N/A

Tahoma 

IHGC ASSIGNMENT
Aroma

ALPHA
7.2–8.2%

BETA
8.5–9.5%

COHUMULONE
15–17%

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Tettnanger
(Swiss Tettnanger) 

IHGC ASSIGNMENT
Aroma

ALPHA
4.1–6.3%

BETA
3.6–5.7%

COHUMULONE
22%


Triple Pearl 

IHGC ASSIGNMENT
Aroma

ALPHA
7.3–10.1%

BETA
3.1–3.7%

COHUMULONE
N/A


Triumph 

IHGC ASSIGNMENT
Aroma

ALPHA
11.8%

BETA
3.9%

COHUMULONE
N/A

Ultra 

IHGC ASSIGNMENT
Aroma

ALPHA
8.0–9.7%

BETA
3.5–4.4%

COHUMULONE
N/A

Data Source:




Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.


Vanguard 

IHGC ASSIGNMENT
Aroma

ALPHA
3.6–7.4%

BETA
4.8–6.2%

COHUMULONE
N/A


Williamette 

IHGC ASSIGNMENT
Aroma

ALPHA
3.5–5.7%

BETA
2.3–6.0%

COHUMULONE
N/A


Yakima Gold 

IHGC ASSIGNMENT
Aroma

ALPHA
8.8–10.5%

BETA
4.3–5.0%

COHUMULONE
21–23%

Zeus (CTZ) 
see also Columbus

IHGC ASSIGNMENT
Bitter

ALPHA
11.0–17.3%

BETA
4.9–5.8%

COHUMULONE
N/A

Data Source:



Replicated Ontario Field Trials and/or Ontario Field Production.



USDA ARS Hop Breeding & Genetics Program, USA Hops Variety Snapshot, and/or Propagator Data.

N/A Not Available.



The ONHops BrewOff

The ONHops BrewOff began in 2013 and brings together Ontario hop producers and craft brewers to showcase unique flavours and characteristics of beer made right here in Ontario with local ingredients. The goals of the competition are to:

- Create a credible venue for hop growers and brewers to work together and encourage commerce.
- Introduce the next generation of Ontario brewers to the hop growing community.
- Promote the use of Ontario-grown hops.

Eight certified judges examine flavour profiles of a pre-determined beer style submitted by 18 teams each year. Teams are comprised of one craft brewer and up to two hop growers. The event is held during the Ontario Fruit and Vegetable Convention each February at the Scotiabank Convention Centre in Niagara Falls, Ontario. All participants receive written scores, comments, and feedback

from the judging panel. The winning team is awarded the coveted "Bottomless Cup".



Photos by Denis Cahill, courtesy The Grower



For More Information

To learn more about the competition, rules, regulations, and past winners, please visit the competition webpage www.ofvc.ca/ONHOPS_about.html or contact onhopsbrewoff@ofvc.ca.



References

- BSG Brewing, 2021. *New Zealand Dr. Rudi (Super Alpha)*,
www.bsgcraftbrewing.com/dr-rudi-super-alpha
- Clear Valley Hops, *Wild Turkey*,
www.clearvalleyhops.com/product-page/wild-turkey-1lb-cold-press-pellets
- Great Lakes Hops, 2019, *Michigan Copper*. Dutch Touch Growers, Inc.,
www.greatlakeshops.com/michigan-coppertrade.html
- Hop Growers of America, 2017, *USA Hops Varieties Snapshot 2017*,
www.usahops.org/cabinet/data/USAHops_VarietySnapshot_2017_SinglePage.pdf
- Hops Connect, 2020, *Sasquatch Hops*,
www.hopsconnect.com/project/sasquatch/
- Institute of Brewing & Distilling, A. Mikyska and Krofta, K. 2012. *Assessment of changes in hop resins and polyphenols during long-term storage*. 118: 269-279.
- McDonald, M.R., et al., 2016. *Hops: a potential niche crop for Ontario, Final Report*.
- Ontario Craft Brewers, 2021,
www.ontariocraftbrewers.com
- Ontario Craft Brewers, 2019, *Is there an Ontario Hop Terroir?*.
Oral presentation.
- Ontario Craft Brewers, 2021, *Ontario Craft Beer Facts and Figures*.
www.ontariocraftbrewers.com/FactsAndFigures.html
- Ontario Hop Growers' Association, 2021, *BrewON Program*,
www.brewon.ca
- Ontario Hop Growers' Association, 2021, *Ontario Hop Farm Directory*,
www.ontariohopgrowersassociation.ca/ontario-hop-growers
- Ontario Hop Growers' Association, 2021,
www.ontariohopgrowersassociation.ca
- Ontario Ministry of Agriculture, Food and Rural Affairs, *Foodland Ontario*.
Queen's Printer for Ontario, 2021. www.ontario.ca/foodland/page/about-us
- Postharvest Centre, University of California, *Storage Recommendations*
www.postharvest.ucdavis.edu/Commodity_Resources/Storage_Recommendations/

Scientia Agriculturae Bohemica, L. Vent and A. Rybka. 2014. *Influence of storage technology on the quality of fresh hops*. 2:124–128.

The Hop Chronicles, Found, Ray. USDA 074,
www.brulosophy.com/2015/12/03/the-hop-chronicles-usda-074/

USDA ARS Hop Breeding & Genetics Program, 2018, *Hop Cultivar Descriptions*,
www.ars.usda.gov/pacific-west-area/corvallis-or/forage-seed-and-cereal-research-unit/people/john-henning/cultindex/

Yakima Valley Hops, 2021, *Triumph Hops*,
www.yakimavalleyhops.com/products/triumph-hop-pellets

Resources

Growing Hops in Ontario
www.omafra.gov.on.ca/english/crops/hort/hops.html

Ministry of Agriculture, Food and Rural Affairs, 2018. *Starting a Craft Brewery in Ontario*, Queen's Printer for Ontario, 2018.
www.omafra.gov.on.ca/english/food/business-development/brewery-guide.pdf

ONSpecialtycrops Blog
www.onspecialtycrops.ca

Specialty Croportunities
www.omafra.gov.on.ca/CropOp/en/index.html

Photo Credits

- FC Brewers showing hops, Adobe Stock, 115242140
- p.iii Fresh green hops on a wooden table, Shutterstock, 594538163
- p.iv Green fresh hop cones for making beer, Adobe Stock, 143030631
- p.1 Hops in pellet for brewing, Shutterstock, 1393196780
- p.2 Hops orchard, Hayhoe Hops
- p.3 Craft Beer bubbles, Shutterstock, 487064743
- p.4 Hop field landscape in sunny day, Shutterstock, 1503125315
Father and son in hops field, Hayhoe Hops
- p.5 Craft beer processing, Ministry of Agriculture, Food and Rural Affairs,
Evan Elford
- p.6 Fresh green hop cones, Ministry of Agriculture, Food and Rural Affairs,
Evan Elford
- p.8 Jar full of hops pellets used for brewing beer, Shutterstock, 1732292242
- p.9 Hops cones on bine, Ministry of Agriculture, Food and Rural Affairs,
Evan Elford
- p.10 Fresh green hop cones on black wooden background.
Shutterstock, 725366851
- p.25 ON Hops BrewOff: Hop Rub, The Grower, Dennis Cahill
ON Hops BrewOff: Bottomless Cup Trophy, The Grower, Dennis Cahill
- BC Beer: Focus On Hops Being Added to Wort, Adobe Stock, 176898639

