



2017 Virginia Hop Grower Survey: Results

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Hops (*Humulus lupulus*) are an essential component of beer production. Though hops have been grown in Virginia since the 1700s, Virginia hop production has been minor in past decades. Most major hop production in the U.S. takes place in Washington, Oregon, and Idaho. However, in recent years, the number of craft breweries in Virginia has increased and interest in local hop production has grown. Virginia Cooperative Extension has seen a steady increase in requests for hop-focused information and resources. Prior to 2014, no systems were in place to formally assess the scope of the Virginia industry, and national hop acreage reports did not provide data for Virginia. In 2014, Virginia Cooperative Extension faculty developed and distributed the first Virginia hop grower survey and shared the results in a publication. The state-wide survey effort was updated and repeated in 2015, 2016, and 2017.

Survey Process

A survey was distributed to Virginia hop growers in November–December 2017 to evaluate the status of the industry, draw comparisons to the 2014–2016 surveys, and develop benchmarks for future growth assessments. The survey was developed with Qualtrics online survey software and administered by Virginia Cooperative Extension.

The survey was marketed and distributed as widely as possible through email lists, grower groups, Extension agents, and social media. Industry stakeholders also assisted with distribution. As a result, exact survey distribution and the resulting response rate are unknown. In prior years, because some Virginia growers maintain very small plantings and mixed-use plantings, survey outreach efforts did not differentiate between hobby and commercial grower target audiences; beginning and prospective growers were also included in outreach efforts since portions of the survey assessed their growing experiences and future plans. However, due to industry progression, in 2017 the survey was targeted at operations deemed “commercial” in nature, independent of hop yard size—growers were asked to self-characterize and complete the survey if they had intent to sell hops, acted as a farm brewery, or otherwise grew hops for purposes other than strict hobby.

Actual statewide yield and total plant numbers may differ from those shown in this survey if some growers chose not to complete the survey or if some growers were not reached by the survey. Furthermore, growers had the option to omit questions as desired, so not all respondents chose to report yield and other specific information

Though national reports supply acreage statistics for the major hops-producing states, the survey also assessed the total number of plants on Virginia operations. Many Virginia growers have hop yards of less than one acre, and trellis design and spacing vary. For these reasons, growers were asked to report cultivars grown and number of plants for each cultivar. For the yield report, growers were asked to distinguish between pounds of wet hops harvested and pounds of dried hops harvested since some growers choose to weigh their hops at harvest while others choose to weigh them after processing.

Survey Results: Hops in Virginia – Scope of the Industry

The following sections highlight key 2017 survey findings, with comparisons to the 2014-2016 surveys.

Grower Characterization

Table 1. Survey Participation.

Survey Year	Number of Survey Participants
2014	46
2015	78
2016	52
2017	31

Using a Virginia Cooperative Extension district map for guidance, 31 participants self-reported their growing regions:

Table 2. Reported growing region.

Percent Respondents Per Growing Region	
Southwest	9.7%
Central	16.1%
Northern	67.7%
Southeast	6.5%

Years of experience growing hops

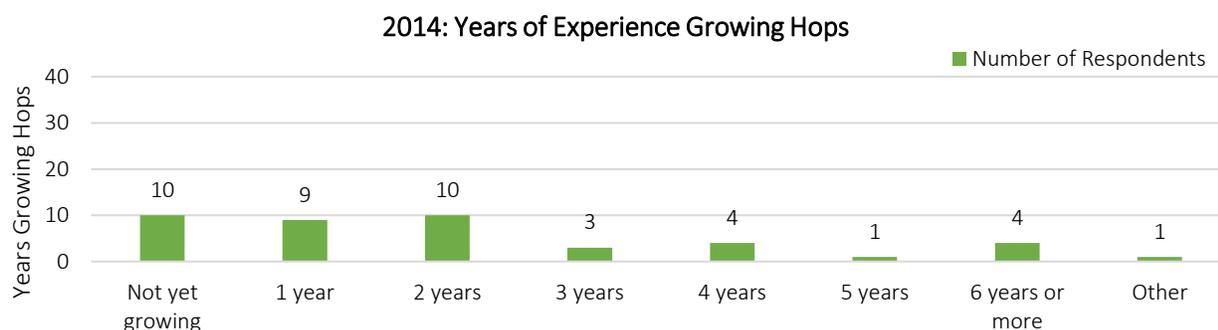


Figure 1. 2014 Years of Experience Growing Hops.

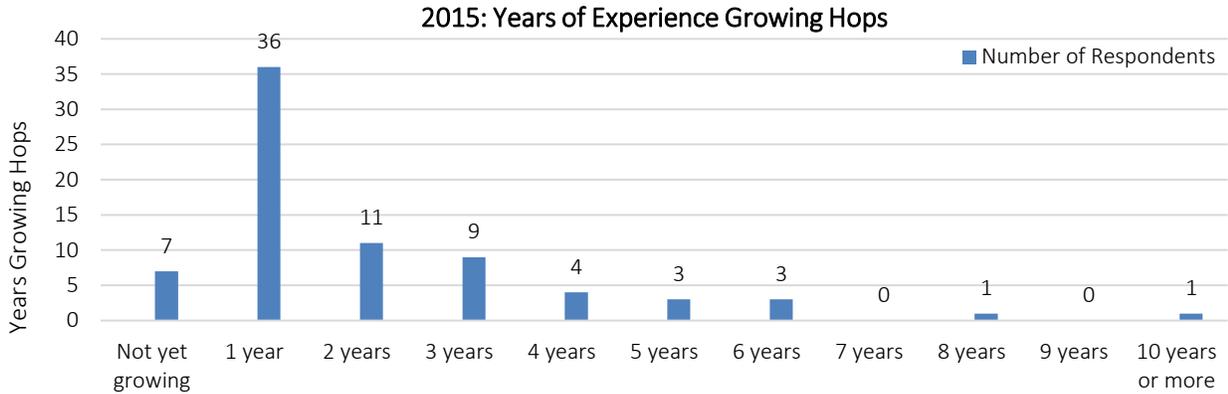


Figure 2. 2015 Years of Experience Growing Hops.

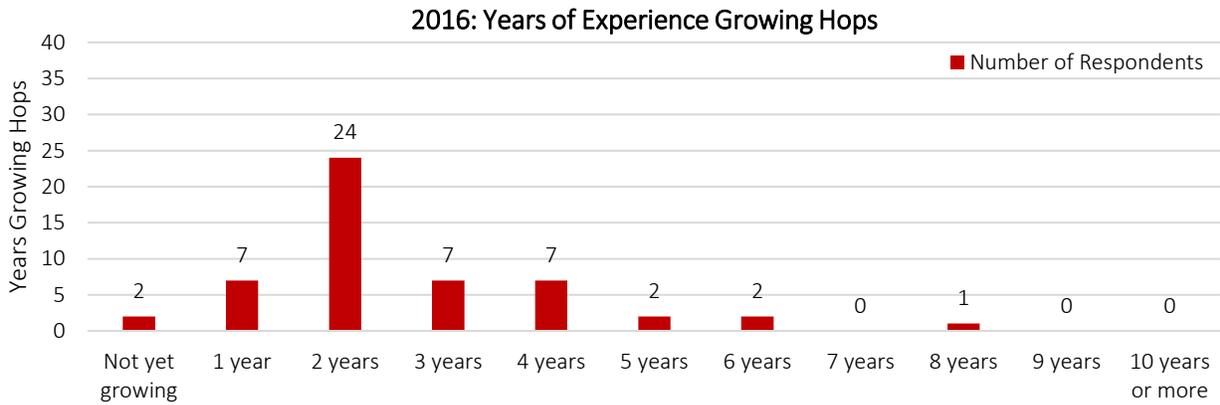


Figure 3. 2016 Years of Experience Growing Hops.

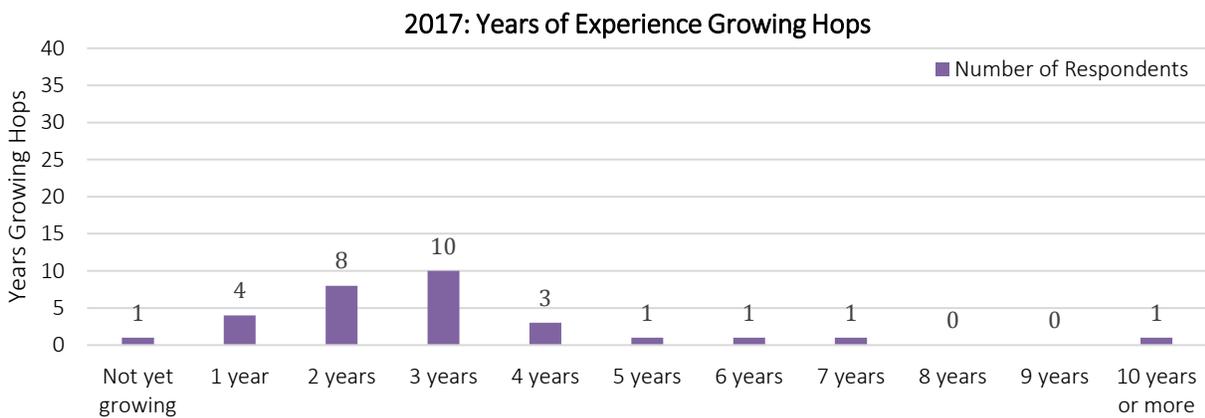


Figure 4. 2017 Years of Experience Growing Hops.

Cultivar Distribution and Yield

Growers provided a list of cultivars grown, number of plants of each cultivar, and harvest data expressed in “wet” and/or “dried” pounds, as measured by the grower. Figures 5-7 depict the cultivar distributions in 2015, 2016, and 2017:

**2015 Hop Cultivars Reported in Virginia,
Shown by Number of Plants and Percent of Total Plants**

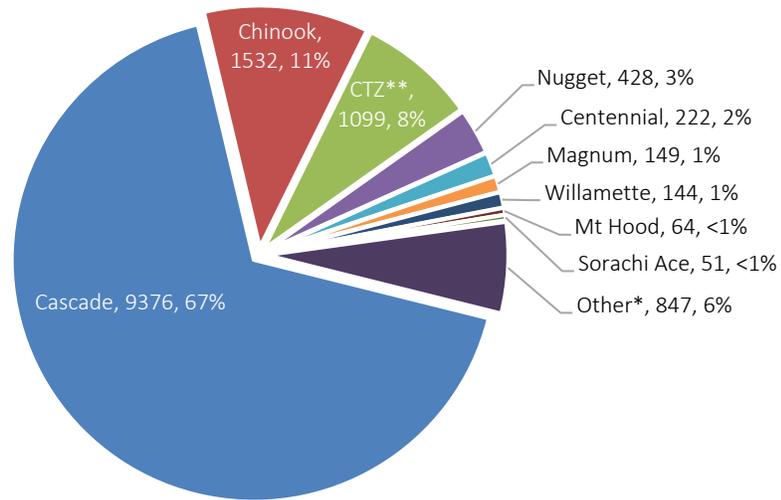


Figure 5. 2015 Cultivar Distribution.

**2016 Hop Cultivars Reported in Virginia,
Shown by Number of Plants and Percent of Total Plants**

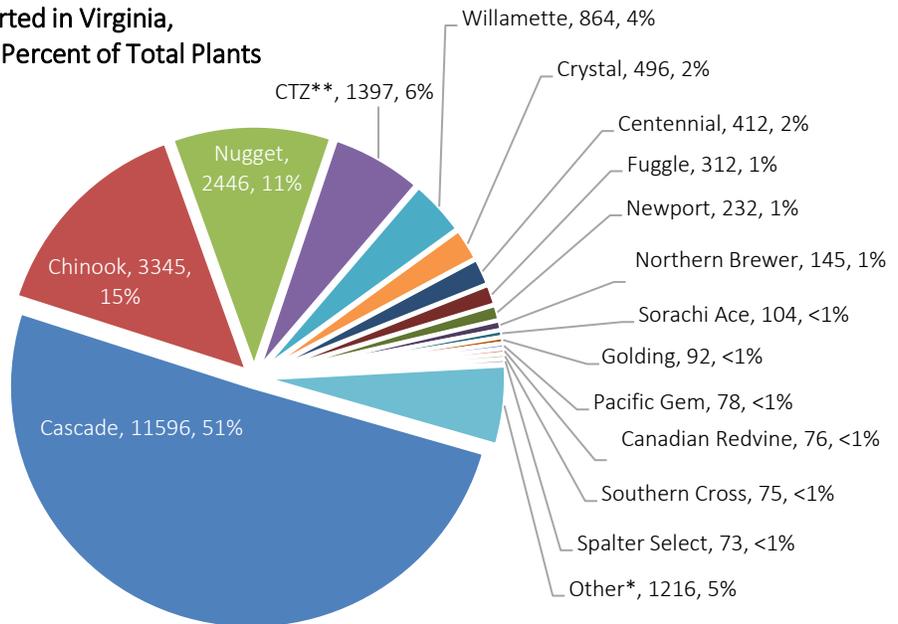


Figure 6. 2016 Cultivar Distribution.

**2017 Hop Cultivars Reported in Virginia,
Shown by Number of Plants and Percent of Total Plants**

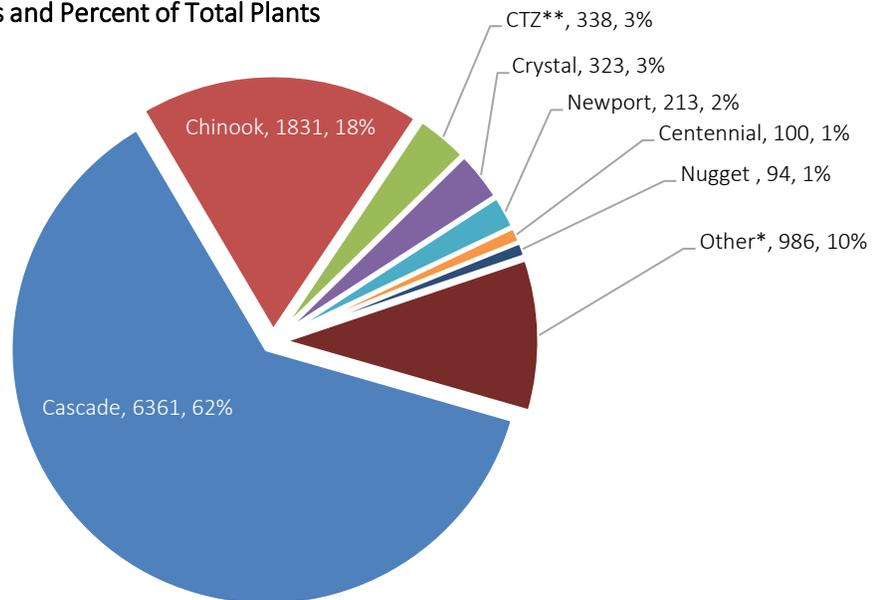


Figure 7. 2017 Cultivar Distribution.

*30 different cultivars were reported in 2017. To protect the confidentiality of grower data, the “other” designation was utilized for any cultivars with fewer than 50 reported plants in the state OR any cultivars grown by only one respondent. The “other” category also includes data from growers who reported plants but did not specify cultivars or provide data by cultivar.

**Totals for plants reported as “CTZ,” “Columbus,” and “Zeus” were reported as “CTZ.”

Yield by cultivar for 2017 is detailed in table 4.

Table 3. Total Plant Counts.

Survey Year	Total Number of Plants Reported in Virginia
2014	13,317
2015	13,912
2016	22,959
2017	10,246

Table 4. 2017 Hop Yield Report.

Cultivar	2017 Harvest Yield Data		
	# Crowns	Reported Wet Yield (pounds)	Reported Dried Yield (pounds)
Cascade	6,361	1,856	458
Chinook	1,831	137	34
CTZ	338	85	15
Crystal	323	30	14
Newport	213	5	2
Centennial	100	11	8
Nugget	94	90	0
Other	986	315	15
Totals as Reported	10,246	2,529	546
Total estimated yield, dried basis**:		1,052 lbs	

* The figures shown represent the values growers provided. Growers reported wet yield (for harvested batches that were measured wet/fresh) or dried yield (for hops that were measured in a dried state). Some growers were unable to report harvest data with their plant and cultivar totals, and some chose only to report plant numbers or to omit this question.

**This figure includes total reported pounds of dried hops, plus the total reported pounds of wet hops converted to a dried and pelletized basis. This relies upon an estimated wet-hop-to-dried-hop conversion rate (1:5) and an assumption of 8% moisture pelletized. This conversion rate was guided by input provided by industry personnel. Please note, however, that yield converted to a dried basis is an estimate only—other factors during processing and variations in actual moisture leave room for deviations between estimated dried yield and any actual dried yield.

Table 5. Plant and Yield Comparisons.

	Year-by-Year Comparison of Plant Totals and Reported Yield			
	2014	2015	2016	2017
Total Plants	13,371	13,912	22,959	10,246
Total estimated yield, dried basis	1,622	1,102	2,662	1,052

Reported Hop Acreage

Table 6. Total Estimated Planted Area per Grower

	Estimated Total Planted Area					
	0-0.25 acres	0.26-0.5 acres	0.6-1 acres	1.1-1.5 acres	1.6-2 acres	2+ acres
Number of growers in this range (30 responses)	9	9	7	4	1	0

Total reported planted area	10.7-21.8 acres
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Hop Sales

Growers characterized the form in which hops were sold; participants could select multiple responses to characterize their hop sales.

- 38.5% reported selling hops “wet/fresh/green”
- 33.3% reported selling hops dried, but not pelletized
- 12.8% reported selling pelletized hops
- 15.4% indicated that they did not sell/use their hops or that this question was not applicable for their situation.

Growers reported on their ability to sell or utilize their 2017 harvest. 18 out of 29 question respondents reported that they were able to sell or utilize their entire harvest. 8 respondents reported that they did not sell or utilize their entire harvest. 3 respondents chose “other.” Commentary from growers is summarized below:

- Some growers had farm breweries and utilized their harvest for on-site brewing
- Some grower harvested hops and opted to donate/give them away instead of selling them
- Some growers packaged their hops and marketed them to home brewers
- Some growers did not have adequate growth to support a harvest and/or other management challenges disrupted production of a marketable crop
- Some growers experienced difficulties marketing their hops

Prices Received

Growers were asked to provide the price received for their hops. 18 respondents reported pricing info; while responses for dried hop and pelletized hop prices were too few in number to generate reasonable averages, 13 responses for wet/fresh hop prices showed an average of \$14 per pound for wet/fresh hops.

Future Growth

Growers commented on their expansion plans. On the 2017 survey, growers indicated a collective planned increase of 5,901 plants to the existing reported total of 10,246.

Grower Outlook

Using their experiences, observations, and personal feelings, growers rated their perceptions and outlooks on the Virginia hops industry.



2017 Perceptions and Outlooks Associated with Virginia Hops

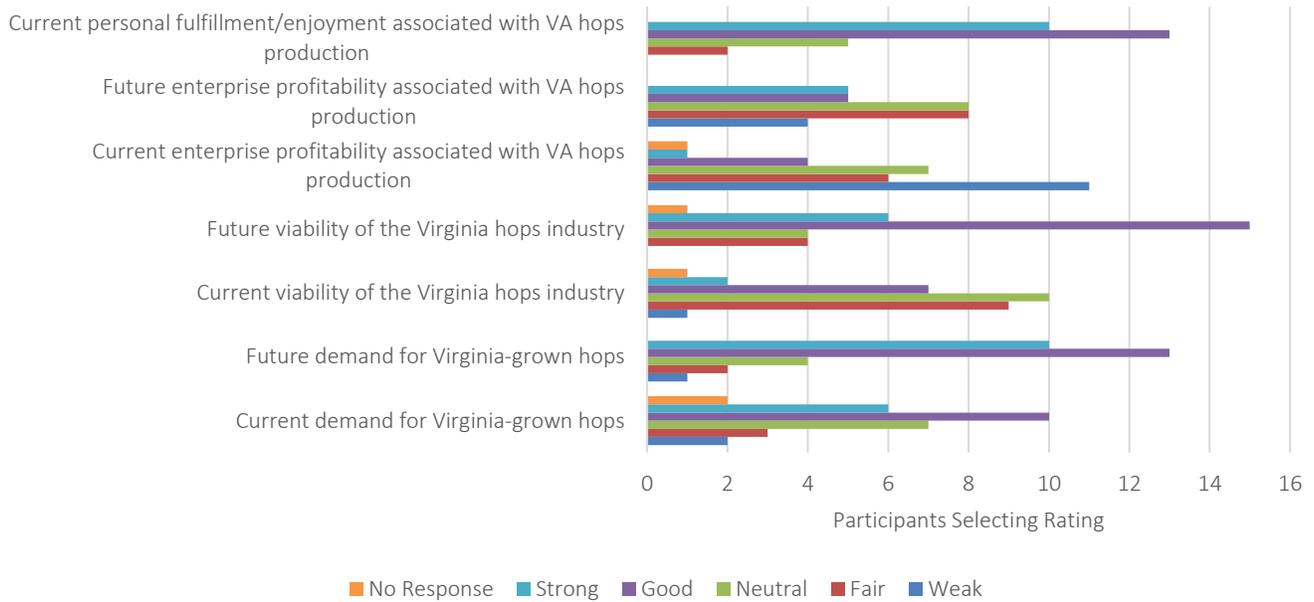


Figure 8. Grower Outlooks and Perceptions.

Marketing

Growers described how they marketed their crop in 2017.

2017 Hops Marketing Strategies

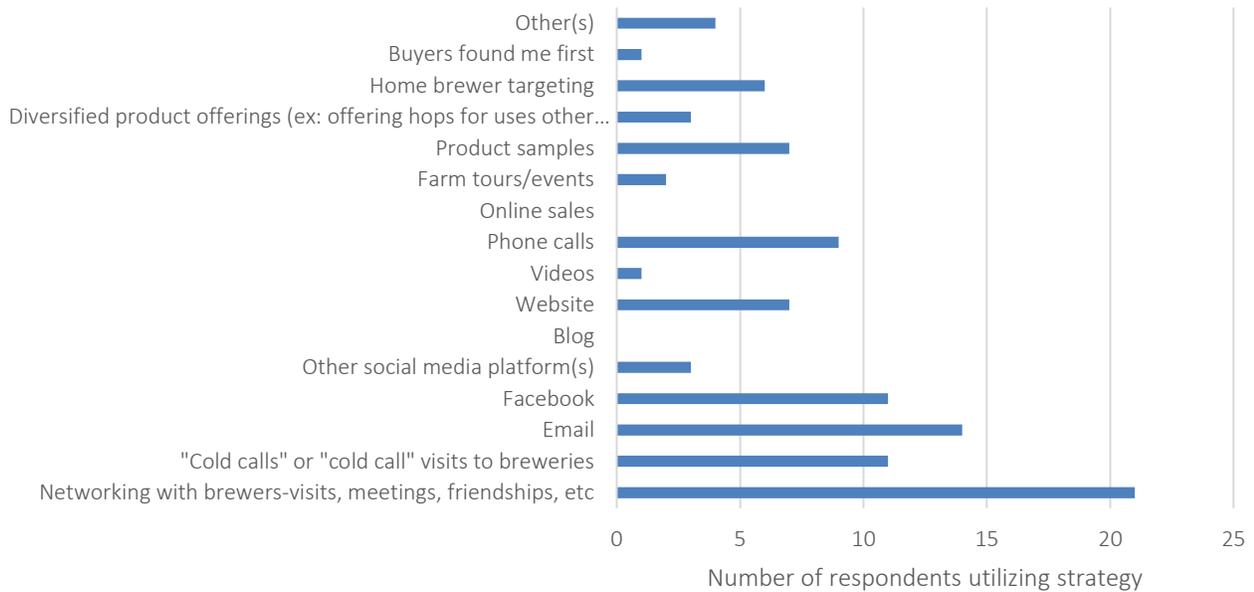


Figure 9. Marketing Strategies.

Challenges

Growers selected their top five challenges related to Virginia hops production.

2017 Challenges Associated with Growing Hops

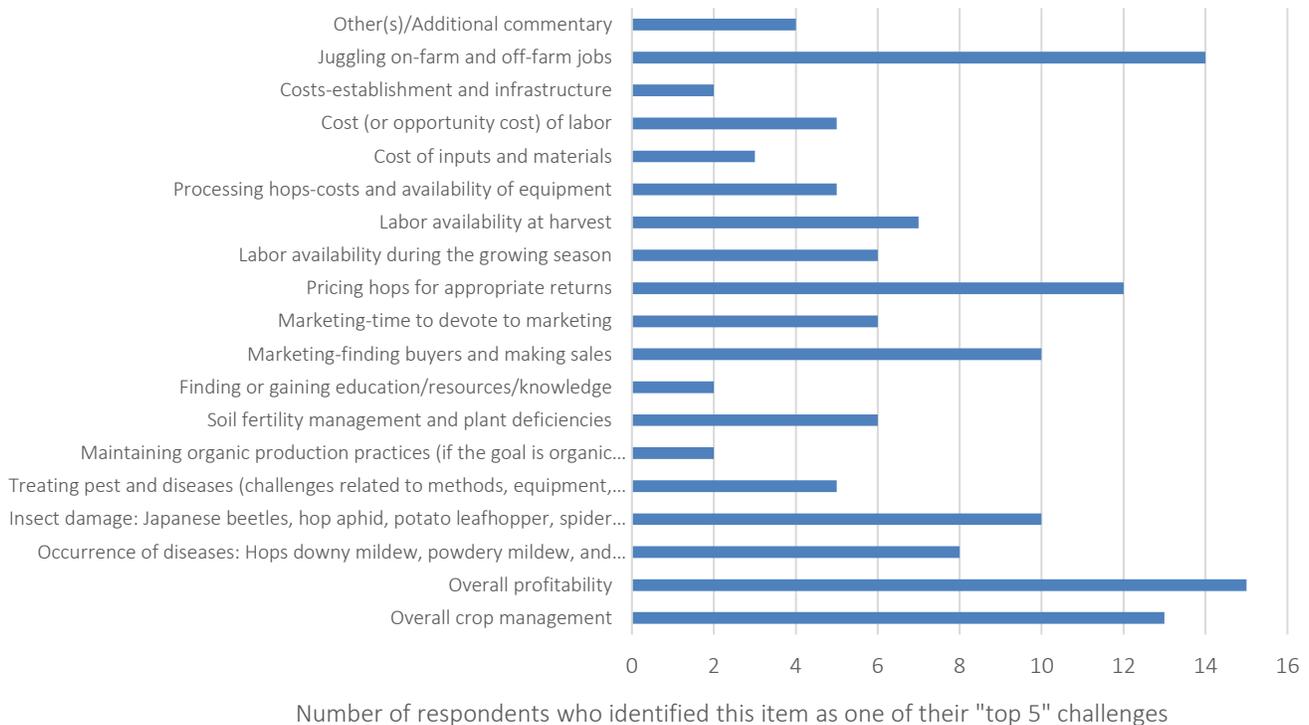


Figure 10. Grower Challenges.

Growers had the opportunity to provide commentary or indicate other challenges. Their responses included:

- Difficulty predicting and choosing harvest dates
- Difficulty with cultivar selection matching local growing conditions
- Challenges associated with weed control and irrigation management

Summary

The cultivar distributions in 2014-2016 resembled the cultivar distributions from 2017; cascade remains the dominant cultivar. The most notable difference between this survey and previous surveys is a reduction in both respondents and reported yield and plant figures. Several factors may account for this. First, the survey was targeted towards commercial growers, whereas in prior years, the survey did not request "commercial" self-categorization as a condition for participation. Next, the survey distribution and/or response rate may have differed from previous years; it is likely that some growers may have chosen not to complete it or to add their yield information. Third, the industry may be seeing the exit of some growers, a slowdown in hop yard expansion and/or entrance of new growers, and some yield depression due to 2017 climate, disease, and pest factors.

Growers shared some final commentary about their experiences and outlooks in 2017. Their perspectives are broadly summarized here:

- Growers should strive to improve hop quality in order to compete with the current market at the high prices that most VA growers must seek for adequate returns. Competing with pelletized hops from other regions could be challenging.
- Wet hops are a novel product, but high-quality harvest, drying, and pelletizing practices will enable the industry to expand.
- Grower-brewer communication is critical to improve quality and enable both parties to better understand the needs of one another. Brewer relationships are critical.
- Growers wish to see breeding and cultivar development programs focused on yield challenges and specific hop traits. Hop research and resources remain key needs for east-coast growing conditions. Some growers feel that long-term viability will be challenging without the addition of well-adapted cultivars for the east coast. Patents serve as barriers to access to certain cultivars from other regions.
- Hop trellis materials can be difficult to locate; meanwhile, growers may need experience and support with handling, construction, and stringing of trellises and the associated safety issues.
- The general public is relatively unfamiliar with hops production, creating challenges in some instances and raising discussions on land use.
- Processing infrastructure will improve the marketability of Virginia hops. However, processing remains too costly for most small-scale operations to engage in under current circumstances.
- Larger-acreage hops production can capture scale advantages, but large-scale efforts may be risky. Meanwhile, small farms engaging in wet hop sales may encounter marketing challenges. Diversification into other brewing ingredients and the continuation of small-scale production may enable some to mitigate risk.
- Growers would benefit from a marketing networking linking them to craft brewers.
- Opportunities exist to collaborate with brewers on shared interests and farm breweries; tax benefits and diversified/value-added marketing are other possible avenues that may serve some growers.
- Growers may benefit from focusing on the uniqueness of Virginia offerings in contrast to serving as alternative suppliers of hops, in competition with major hop-growing regions.
- Partnerships with research faculty have been valuable to some growers.

General interest in hops remains high; meanwhile, the cohort of growers who entered the industry primarily around 2013-2015 has gained another year of experience, and growers in this cohort are reaching critical decision points surrounding future marketing plans, pelletizing, expansion, quality, and pricing. This cohort of growers has also gained more management knowledge, and many growers are currently taking advantage of Extension services, industry services, and networking opportunities.

