Virginia Cooperative Extension
Virginia Tech • Virginia State University
www.ext.vt.edu

2016 Virginia Hop Grower Survey: Results

Laura Siegle, Agriculture and Natural Resources Extension Agent, Virginia Cooperative Extension
Holly Scoggins, Associate Professor, Horticulture, Virginia Tech

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 and 2016.

Survey Process

We developed and distributed the survey to Virginia hop growers in October-November 2016 to evaluate the status of the industry, draw comparisons to the 2014 and 2015 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 not known. 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 projected hop plant population increases. Actual statewide yield and total plant numbers may differ from those shown in this survey because it is possible that some growers chose not to complete the survey or that 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, we primarily 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, we asked growers to report varieties grown and number of plants for each variety. For our yield report, we asked growers were 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 2016 survey findings, with comparisons to the 2014 and 2015 surveys.

Grower Characterization

Table 1. Survey Participation.

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

Table 2. Grower Classification.

Grower Classification*	Percentage of Respondents Matching Criteria		
	2015	2015	2016*
I am growing hops commercially/I intend to sell my hops	48%	52%	78%
I am currently growing hops for my personal use/for non-commercial purposes	24%	33%	24%
I am not yet growing hops, but planning on it	9%	9%	4%
Other	8%	8%	4%

*If applicable, grower could choose more than one personal classification on the 2016 survey; 51 respondents provided 56 reactions to the grower classification chart.

On another question, 34.6% of 52 participants reported planted areas of one row to 0.25 acres, and 26.9% reported 0.25-0.5 acres; meanwhile, 9.6% reported growing two or more acres of hops.

Using a Virginia Cooperative Extension district map for guidance, 52 participants self-reported their growing regions:

Table 3. Reported growing region.

Growing Region	
Southwest	9.62%
Central	23.08%
Northern	53.85%
Southeast	15.38%

Years of experience growing hops

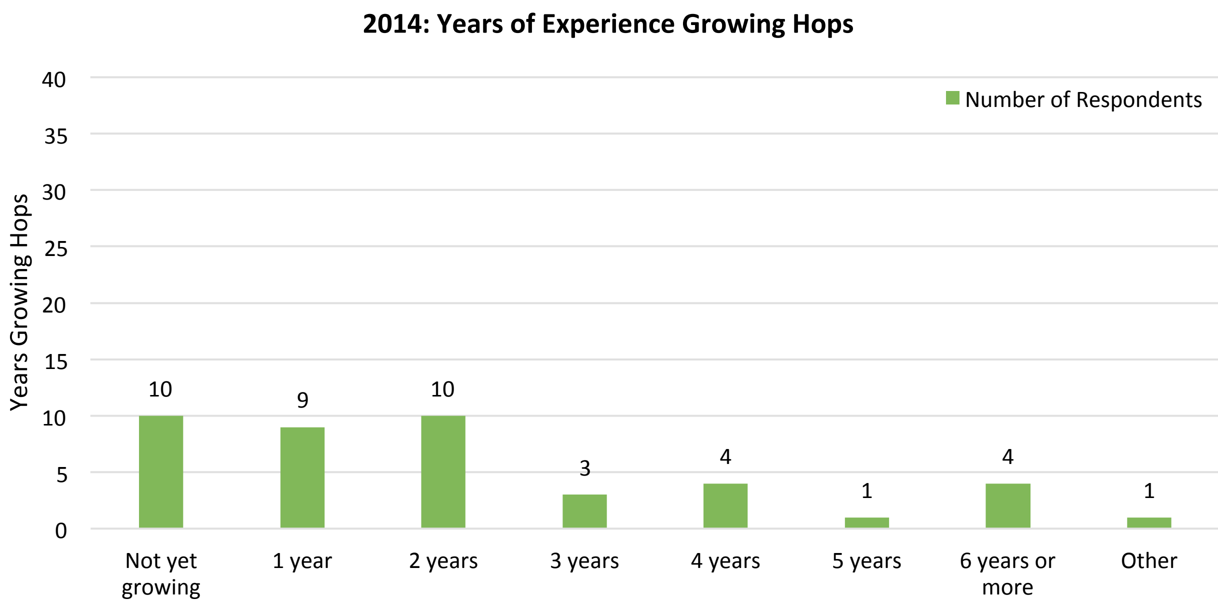

Figure 1. 2014 Years of Experience Growing Hops.

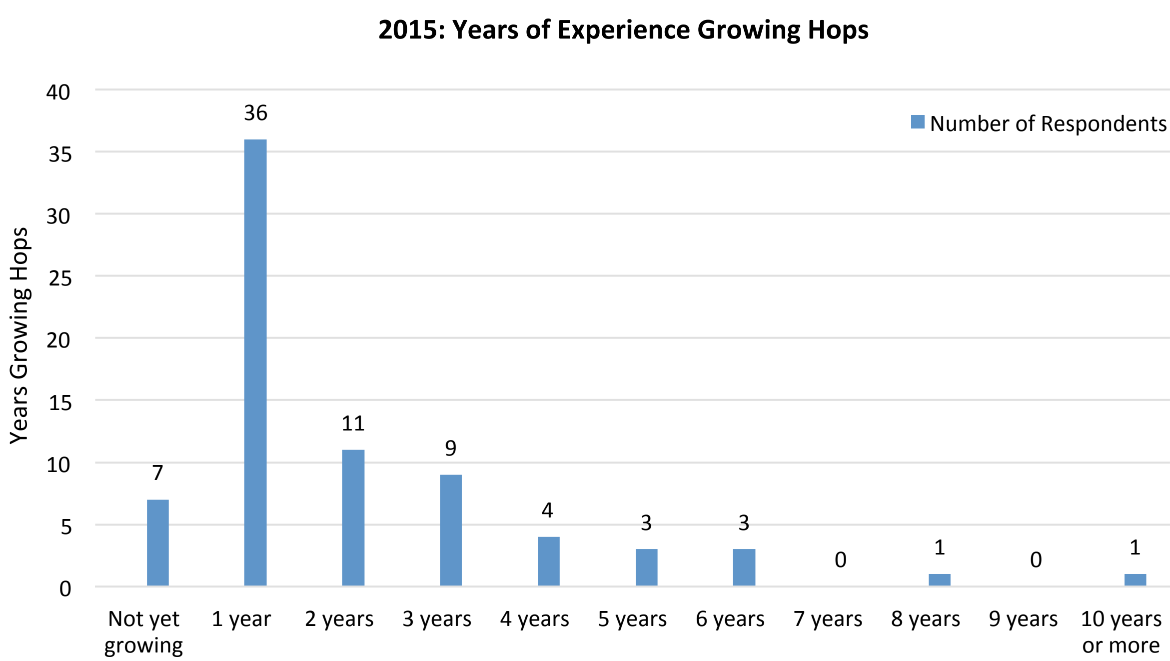

Figure 2. 2015 Years of Experience Growing Hops.

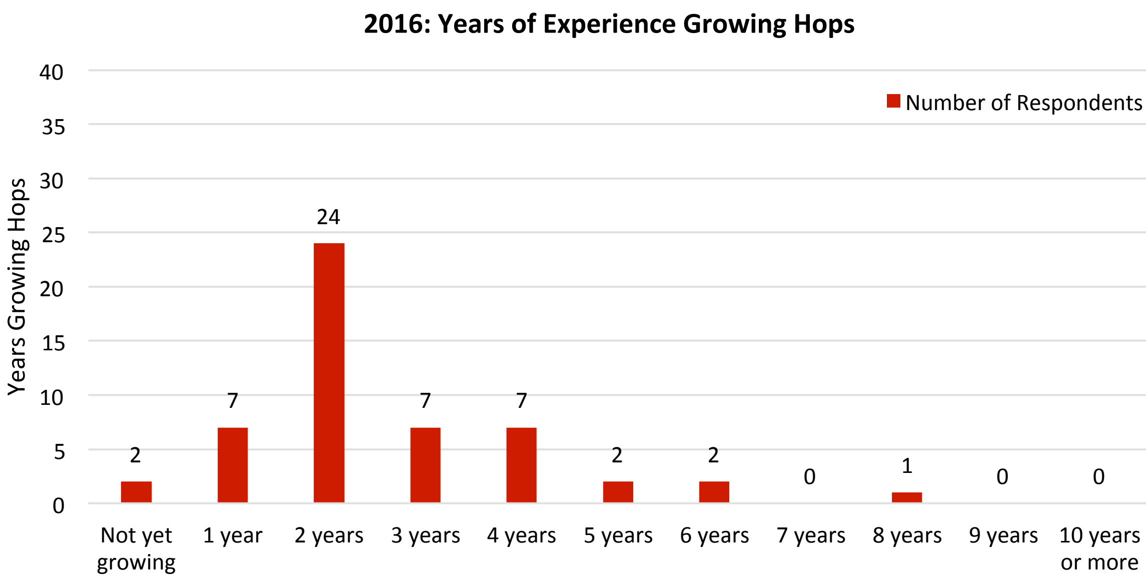

Figure 3. 2016 Years of Experience Growing Hops.

Cultivar Distribution and Yield

Growers provided a list cultivars grown, number of plants of each cultivar, and harvest data expressed in "wet" and/or "dried" pounds, as measured by the grower. Figures 4 and 5 depict the cultivar distributions in 2015 and 2016:

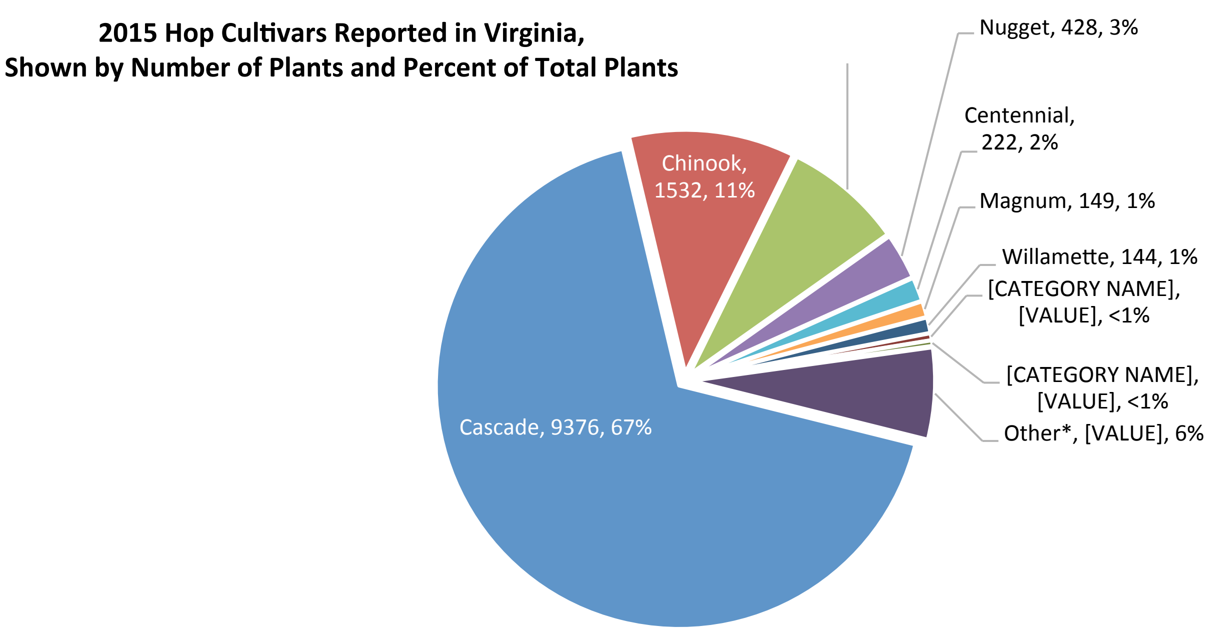

Figure 4. 2015 Cultivar Distribution.

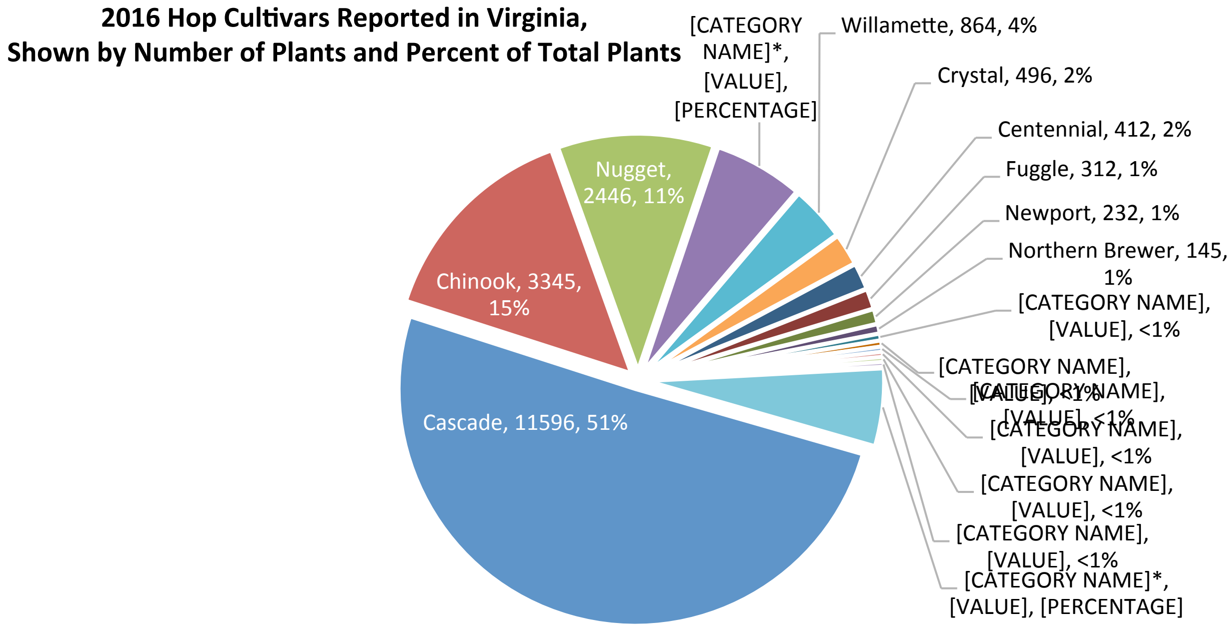

Figure 5. 2016 Cultivar Distribution.

*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 combined and reported as “CTZ.”

While the number of reported plants has increased considerably between 2014 and 2016 (table 4), the cultivar distributions in 2014 and 2015 resembled the cultivar distributions from 2016. However, the overall dominance of Cascade was somewhat reduced, and CTZ varieties surpassed Nugget in the top five rankings in 2016. Yield by variety for 2016 is detailed in table 5.

Table 4. Total Plant Counts.

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

Table 5. 2016 Hop Yield Report.

2016 Harvest Yield Data			
Cultivar	# Crowns	Reported Wet Yield (pounds)	Reported Dried Yield (pounds)

Cascade	11,596	5,794	708
Chinook	3,345	240	124
Nugget	2,446	906	10
CTZ*	1,397	131	29
Willamette	864	10	5
Crystal	496	113	20
Centennial	412	5	4
Fuggle	312	-	-
Newport	232	-	17
Northern Brewer	145	3	22
Sorachi Ace	104	15	-
Golding	92	-	-
Pacific Gem	78	-	-
Canadian Redvine	76	22	3
Southern Cross	75	16	2
Spalter Select	73	-	-
Other	1,216	1,284	10
Total	22,959	8,539	954
Total estimated yield, on a wet basis:**		12,357	

*Some growers were unable to report harvest data with their plant and cultivar totals, and some chose only to report plant numbers. The figures shown represent the values growers provided. Growers reported wet yield (for harvested batches that were measured wet/fresh) or instead reported dried yield (for hops that were measured in a dried state).
**This figure includes total reported pounds of wet hops plus total reported dried hops, converted to a "wet" basis using a "wet yield approximation." This approximation relies upon a conservative dried-hop-to-wet-hop conversion rate (1:4) to convert reported dried hop yield to an estimated wet hop yield. This enables us to more easily compare 2016 wet hop yield data with other annual totals since Virginia growers currently commonly measure and report hop yields in the wet/fresh state.

Table 6. Plant and Yield Comparisons.

Year-by-Year Comparison of Plant Totals and Reported Yield			
	2014	2015	2016
Total Plants	13,371	13,912	22,959
Total Wet Yield/Wet Yield Approximation (pounds)	8,109	5,367	12,357

Hop Sales

46 people participated in the survey question assessing the form in which hops were sold; participants could select multiple responses to characterize their hop sales. Of the 46 participants,

- 54.4% reported selling hops "wet/fresh/green"
- 35.8% reported selling hops dried, but not pelletized

- 6.5% reported selling pelletized hops
- 28.3% indicated that they did not sell their hops or that this question was not applicable for their situation. Some survey participants noted that they grew hops for their own use.

Commercial grower respondents reported on their ability to sell their 2016 harvest. 20 respondents reported that they were able to sell their entire 2016 harvest. 21 respondents reported that they did not sell their entire 2016 harvest. The following reasons were noted:

- Grower did not possess, or could not access, processing infrastructure
- Grower experienced quality issues related to weather and pests
- Grower could not secure interest from local brewer
- Grower had insufficient yield due to plant maturity, pest pressure, and/or other variables
- Grower was unable to preplan a wet hop sale to a brewer

Future Growth

Growers commented on their expansion plans. On the 2015 survey, growers indicated a collective planned increase of 8,000 plants to the existing total of 13,912. Growers did not collectively report a large planned increase for 2017 when they completed the 2016 survey, but it appears as though some growers have plans to exit, while others are making plans to expand more aggressively.

Grower Outlook

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

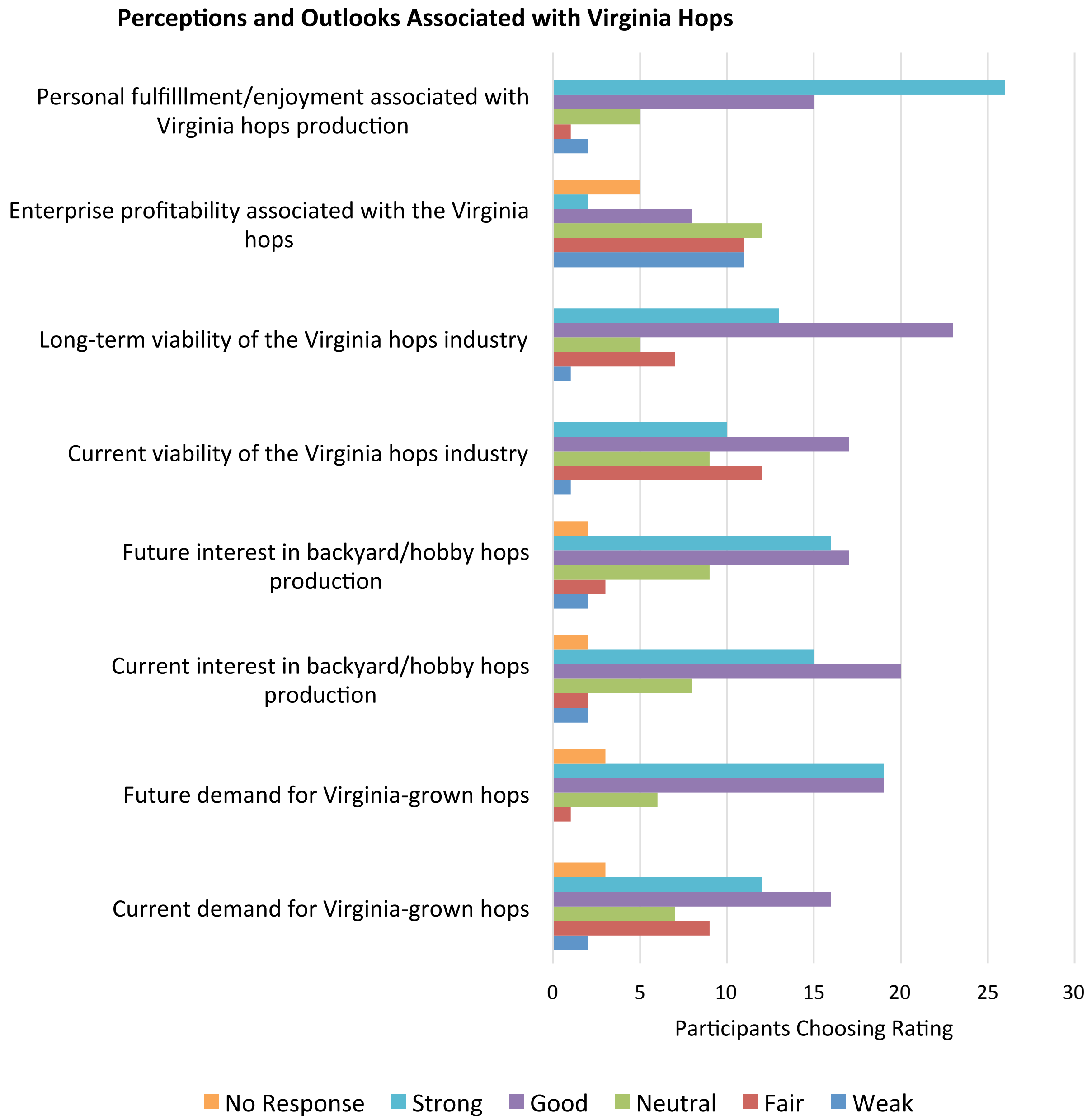

Figure 6. Grower Outlooks and Perceptions.

Marketing

Growers described how they marketed their crop in 2016.

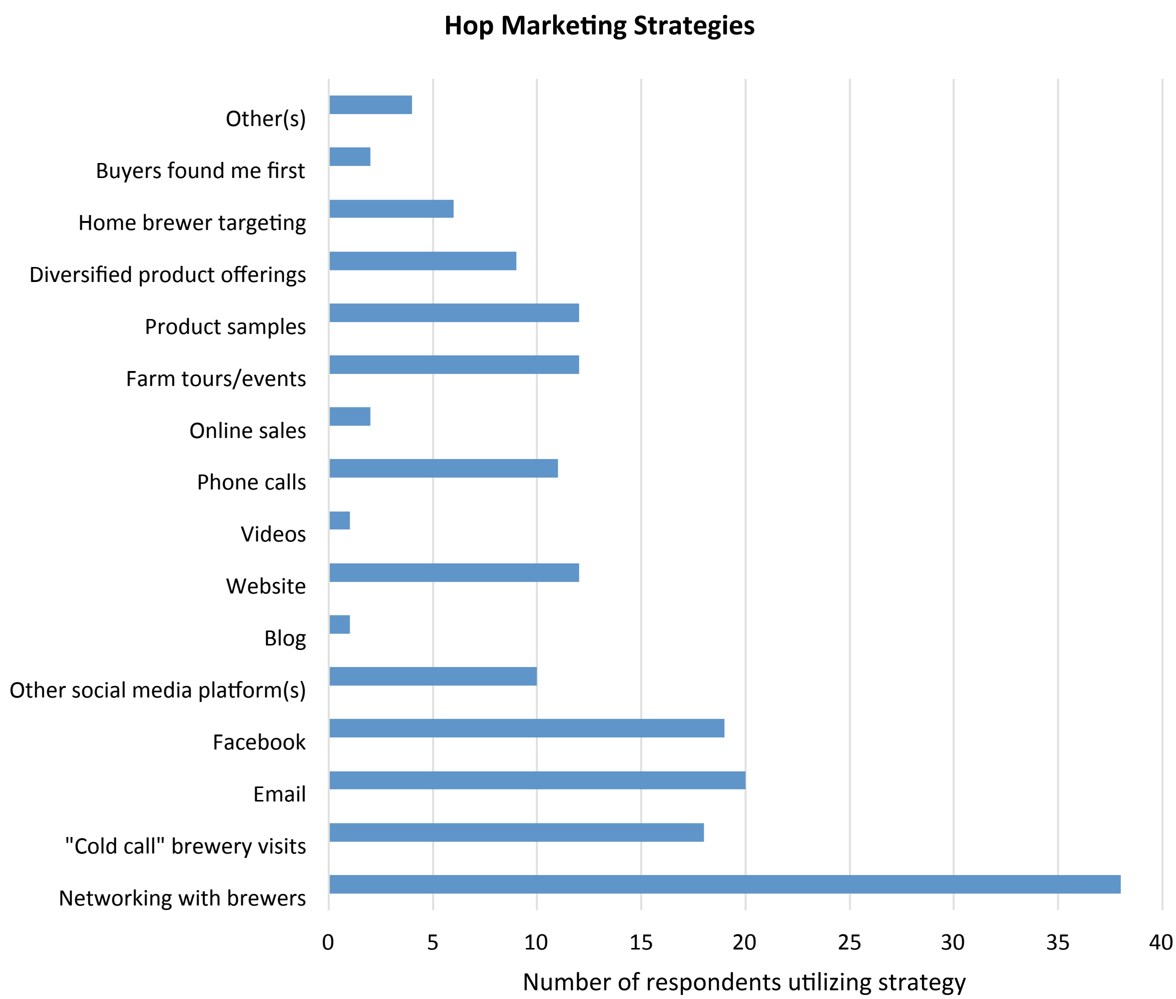

Figure 7. Marketing Strategies.

Challenges

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

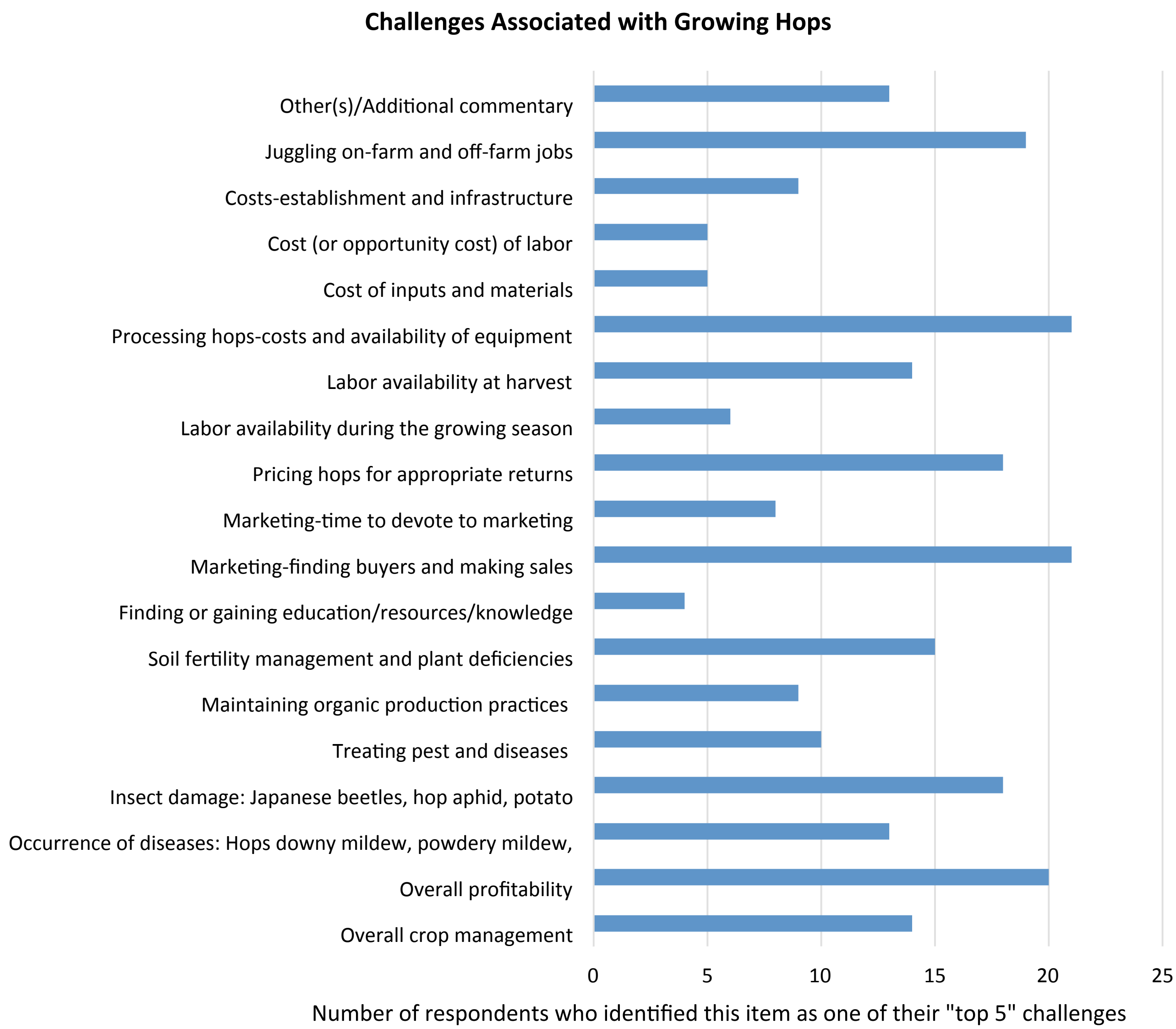

Figure 8. Grower Challenges.

Growers had the opportunity provide commentary indicating other challenges. Their responses included:

- Costly trellis materials and/or difficulties working with local suppliers
- Difficulty identifying buyers for wet hops or low local wet hop demand, compounded by the high costs of pelletizing equipment
- Challenges associated with weed control, deer pressure, and irrigation management

Summary

- Growers shared final commentary about their experiences in 2016, summarized here:
- Some growers reported difficulties with planted rhizomes.

- Insects were more problematic this year than in prior years. Japanese beetles caused some damage in many yards.
- Virginia growers need access to pelletizing equipment and/or pelletizing services; existing infrastructure may be inadequate, too distant, or not yet operational.
- Pricing hops is difficult; some growers want more guidance and uniformity to promote reasonable returns. Other expressed concerns over the profitability of small-scale hops production under the current average prices.
- Many growers tried new and less-common cultivars; results varied. Some growers reverted to Cascade replacements after experimental plantings failed. Others commented on the disadvantages Virginia growers face due to lack of access to trademarked cultivars. Growers would like more research-based guidance on cultivars adapted to local conditions.
- Some growers engaged in organic production practices this year.
- Demand for wet hops was low in some locations, creating a difficult marketing situation; conversely, a few growers reported a perceived increase in demand in their localities.
- Growers will have difficulty matching the prices of hops from the west coast; brewers are seeking hops that meet certain price points. Brewers also want assurances that local hops meet high quality standards.
- Networking, grower group meetings, conferences, and Extension programs have been helpful to some growers.
- Marketing is increasingly important to growers, and growers may be able to work with one another, industry groups, and Extension personnel to develop some out-of-the box strategies for reaching brewers.

Interest in hops remains strong; meanwhile, the cohort of growers who entered the industry in 2013-215 has gained another year of experience, and growers in this cohort are reaching critical decision points surrounding future marketing plans, pelletizing, expansion, quality assurance programs, 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.