Brewers Association 2019
Hop Industry Update

2018 Hop Survey Results
Inventory and National Hop Report
Federal Affairs
“There is at least one point in the history of any company when you have to change dramatically to rise to the next level of performance. Miss that moment - and you start to decline"

- Andy Grove, Intel
Objectives

• Brewing & Hop Industry Updates
• Annual BA Hop Usage Survey Results
• USDA-NASS Hop Stocks Report Analysis
• Federal Affairs Update
• Grants & Research Support
• Public Breeding Sensory Update
2018 Brewing Industry Update

- Total U.S. beer sales down ~1.0%
- Imports grew, but U.S. domestic volume was off ~1.5-2%
- Craft volume growth rate remained positive at ~4%, landing at around 26 MM barrels
- Total number of U.S. breweries tops 7,000 for first time ever (6,150 one year ago)
2018 Brewing Industry Update

US Craft Beer Volume Change YOY

Production Year
2018 Brewing Industry Update

US Craft Beer Production Volume (MM US BBL)

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<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>5.3</td>
<td>5.3</td>
<td>5.4</td>
<td>5.5</td>
<td>5.5</td>
<td>5.8</td>
<td>6.3</td>
<td>7.1</td>
<td>8.0</td>
<td>8.5</td>
<td>9.1</td>
<td>10.1</td>
<td>11.5</td>
<td>13.2</td>
<td>18.8</td>
<td>22.2</td>
<td>23.1</td>
<td>24.1</td>
<td>24.9</td>
<td>25.9</td>
</tr>
</tbody>
</table>

25.9 est.
2018 Hop Industry Update

- Ttl U.S. acres increased from 56,492 to 57,468 (+1.7%), an all-time high
  PACNW acres increased by 1,046 (1.9%)
  Non-PACNW acres decreased by 70 from 2504 to 2433 (1.7%)

- The proportion of aroma acreage actually decreased in 2018

- Ttl U.S. production increased from 107.5 MM to 108.4 MM pounds (~1% vs CY2017: 20%). Non-PACNW production decreased 20%

- PACNW yield down slightly from 1959 to 1943 pounds per acre (~1%)
  Non-PACNW yield decreased 750 to 617 (18%)

- Idaho acreage surpassed Oregon as the number 2 U.S. hop acreage and production state

- Citra acreage surpassed Cascade (6,400 vs 6,200)
2018 Hop Industry Update

Chart Courtesy HGA Stat Pack © 2018
2018 Hop Industry Update

U.S. Hop Crop Farm Gate Values, 1975 - 2018
(Millions of 2017 Dollars)
U.S. Barley vs Hop Crop Farm Gate Values, 1975 - 2018
($$MM 2017)

2017 U.S. Crop Values
Hops: $591 MM (56,500 acres)
Barley: $614 MM (1.95 MM acres)

70% to Beer
99% to Beer

7-10% to Beer Industry

Millions

Barley Crop Value
Hop Crop Value
2018 Brewers Association Hop Survey Results

• Annual Survey in July & August
• 11 Years of Data collected 2008 - 2018
• Look back to production years 2007 – 2017
  • 2018 Survey = 2017 Beer Production ~= 2016 Crop Yr
• Only includes craft volume as defined
• A SURVEY, so the results shown are NOT totals: “Actual Mileage May Vary”
2018 Hop Survey Results Summary

- Number of Respondents at an all-time high (250)
- Hop Usage Rate: increased +2.5% over ’17 rate from 1.54 to 1.58 PPB
- Top Ten varieties shifted significantly in 2017 beer production year
- Licensed varieties continue to become more important
- Variety Usage increased to an all-time high of 154 varieties
2018 Hop Survey Results Summary (Con.)

• U.S. craft brewers remain loyal to U.S. varieties at 85% of total pounds

• Shortfalls measured in 2017 in different varieties from 2016

• Galaxy repeats as highest impact imported variety

• Hop Cost Per Barrel Continues to Increase Sharply

• Proportion of US 2017 crop consumed by craft decreased

• Contracting rates have declined to pre-2007 shortage levels: 63% overall, and 45% among brewers < 2,500 bbls
2018 Hop Survey Results

Number of Survey Respondents

<table>
<thead>
<tr>
<th>Year</th>
<th>Respondents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>216</td>
</tr>
<tr>
<td>2009</td>
<td>108</td>
</tr>
<tr>
<td>2010</td>
<td>69</td>
</tr>
<tr>
<td>2011</td>
<td>88</td>
</tr>
<tr>
<td>2012</td>
<td>66</td>
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<tr>
<td>2013</td>
<td>88</td>
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<tr>
<td>2014</td>
<td>159</td>
</tr>
<tr>
<td>2015</td>
<td>131</td>
</tr>
<tr>
<td>2016</td>
<td>75</td>
</tr>
<tr>
<td>2017</td>
<td>87</td>
</tr>
<tr>
<td>2018</td>
<td>252</td>
</tr>
</tbody>
</table>
2018 Hop Survey Results

Average Craft Hopping Rate (Pounds per Barrel)
2018 Hop Survey Results

Year on Year Change in Average Craft Hopping Rate
(Pounds per Barrel)
## 2018 Hop Survey Results

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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</thead>
<tbody>
<tr>
<td>Centennial</td>
<td></td>
<td>Centennial</td>
<td></td>
<td>Centennial</td>
<td></td>
<td>Centennial</td>
<td></td>
</tr>
<tr>
<td>Chinook</td>
<td>Centennial</td>
<td></td>
<td>Centennial</td>
<td></td>
<td>Centennial</td>
<td></td>
<td>Centennial</td>
</tr>
<tr>
<td>Willamette</td>
<td></td>
<td>CTZ</td>
<td></td>
<td>Simcoe</td>
<td></td>
<td>Simcoe</td>
<td></td>
</tr>
<tr>
<td>Simcoe</td>
<td></td>
<td>Simcoe</td>
<td></td>
<td>CTZ</td>
<td></td>
<td>Citra</td>
<td></td>
</tr>
<tr>
<td>CTZ</td>
<td>Amarillo</td>
<td></td>
<td>Amarillo</td>
<td></td>
<td>Hall Mitt (Ger)</td>
<td></td>
<td>Citra</td>
</tr>
<tr>
<td>US Golding</td>
<td>Crystal</td>
<td></td>
<td>Crystal</td>
<td></td>
<td>Amarillo</td>
<td></td>
<td>Mosaic</td>
</tr>
<tr>
<td>Crystal</td>
<td></td>
<td>Willamette</td>
<td></td>
<td>Crystal</td>
<td></td>
<td>Crystal</td>
<td></td>
</tr>
<tr>
<td>Amarillo</td>
<td>Saaz (CZ)</td>
<td></td>
<td>Citra</td>
<td></td>
<td>Magnum (Ger)</td>
<td></td>
<td>Mosaic</td>
</tr>
<tr>
<td>Ahtanum</td>
<td>US Golding</td>
<td></td>
<td>Saaz (CZ)</td>
<td></td>
<td>CTZ</td>
<td></td>
<td>Magnum (Ger)</td>
</tr>
<tr>
<td>Survey Yr</td>
<td>Production Yr</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- **Cascade**: Representative hop variety.
- **Centennial**: Representative hop variety.
- **Chinook**: Representative hop variety.
- **Willamette**: Representative hop variety.
- **Simcoe**: Representative hop variety.
- **CTZ**: Representative hop variety.
- **US Golding**: Representative hop variety.
- **Crystal**: Representative hop variety.
- **Amarillo**: Representative hop variety.
- **Saaz (CZ)**: Representative hop variety.
- **Magnum (Ger)**: Representative hop variety.
- **Hall Mitt (Ger)**: Representative hop variety.
- **Mosaic**: Representative hop variety.
- **El Dorado**: Representative hop variety.
2018 Hop Survey Results

Total Number of Varieties Used By U.S. Craft Brewers

- 2008: 90
- 2009: 88
- 2010: 92
- 2011: 97
- 2012: 105
- 2013: 114
- 2014: 132
- 2015: 135
- 2016: 125
- 2017: 146
- 2018: 154
2018 Hop Survey Results

Imported Hop Usage as % of Total Pounds Consumed

- 2008: 19.6%
- 2009: 20.6%
- 2010: 17.4%
- 2011: 15.5%
- 2012: 11.2%
- 2013: 12.4%
- 2014: 12.2%
- 2015: 15.30%
- 2016: 15.2%
- 2017: 16.6%
- 2018: 14.3%
2018 Hop Survey Results

% of Respondents Reporting Shortfall in Variety 2017

- Galaxy (AU): 10.4%
- Nelson Sauvin (NZ): 7.2%
- Citra: 4.8%
- Mosaic: 3.6%
- Amarillo: 2.0%
- Simcoe: 1.2%
- Tettnang (US): 1.2%
- Cascade: 0.8%
- Centennial: 0.8%
- E Kent Goldings (UK): 0.8%
2018 Hop Survey Results

Variety Impact (Rank of pounds + frequency) 2017 Production year

- Cascade: 2
- Centennial: 5
- Citra: 5
- Mosaic: 8
- Simcoe: 11
- Chinook: 11
- Amarillo: 14
- CTZ: 16
- El Dorado: 20
- Galaxy (AU): 25
2018 Hop Survey Results

Average Craft Brewer Hop Cost $$ per Barrel

Survey Year

2014: $15.42
2015: $15.09
2016: $15.60
2017: $19.67
2018: $23.38
2018 Hop Survey Results

% TTL US Crop Consumed by Craft (Crop Year)
2018 Hop Survey Results

Craft Brewer Contracting Rates

- **84.1%** (2009)
- **83.0%** (2010)
- **89.0%** (2011)
- **92.8%** (2012)
- **92.0%** (2013)
- **96.6%** (2014)
- **95.8%** (2015)
- **96.0%** (2016)
- **89.0%** (2017)
- **89.0%** (2018)

- **73.3%** (2009)
- **71.1%** (2010)
- **82.4%** (2011)
- **86.1%** (2012)
- **92.0%** (2013)
- **91.2%** (2014)
- **93.0%** (2015)
- **91.4%** (2016)
- **89.0%** (2017)
- **71.0%** (2018)

- **63.3%** (2018 for <2,500 bbls)
- **45.0%** (2018 for all brewers)

Legend:
- Light blue line: All brewers
- Red line: <2,500 bbls
# 2018 Hop Stocks Analysis

<table>
<thead>
<tr>
<th>Change</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>+2350</td>
<td>Craft and Medium User Growth in 2016 (assume all aroma, 7% craft volume growth)</td>
</tr>
<tr>
<td>+1460</td>
<td><strong>Net Export Growth of +2.5 MM pounds at 1713 pounds per acre</strong> (assume mix of aroma and alpha exports, no yield change)</td>
</tr>
<tr>
<td>-4054</td>
<td>Surplus Acres Carried Into 2017 (assume all aroma)</td>
</tr>
<tr>
<td>-244</td>
<td>Total Net New Acres Needed</td>
</tr>
<tr>
<td>~5000 ??</td>
<td>Potential Planned New Acres (assumes 1500 ID, 1500 OR, 2000 WA)</td>
</tr>
<tr>
<td>5244</td>
<td>Surplus 2017 Acres (alpha AND aroma)</td>
</tr>
</tbody>
</table>
## 2018 Hop Stocks Analysis

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<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>+1680</td>
<td>5% craft volume growth</td>
</tr>
<tr>
<td>+1275</td>
<td>Net Export Growth of +2.5 MM pounds at 1959 pounds per acre (assume mix of aroma and alpha exports, no yield change)</td>
</tr>
<tr>
<td>-4054</td>
<td>Surplus Acres Carried Into 2017 (assume all aroma)</td>
</tr>
<tr>
<td>-1100</td>
<td>Total Net New Acres Needed</td>
</tr>
<tr>
<td>3500</td>
<td>2017 New US Acres</td>
</tr>
<tr>
<td>4600</td>
<td>Surplus 2017 Acres (alpha AND aroma)</td>
</tr>
</tbody>
</table>
2018 Hop Stocks Analysis

Source: USDA-NASS 2018 Hop Stocks Report
2018 Hop Stocks Analysis

September Total Stocks (Carryout) as Proportion of Prior Year Crop Pounds

Data Source: USDA-NASS 2018 Hop Stocks Report
2018 Hop Stocks Analysis

September Dealer & Grower Stocks Less Brewer Stocks As A Proportion of Prior Year Crop

Data Source: USDA-NASS 2018 Hop Stocks Report
# Federal Affairs Policy Efforts

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
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</thead>
<tbody>
<tr>
<td>Public Hop Research Program Support</td>
<td>$0.8 MM Discretionary</td>
<td><strong>$1.8 MM Appropriated</strong></td>
<td>$1.8 MM Appropriated</td>
<td>??</td>
</tr>
<tr>
<td>Public Hop Researchers</td>
<td>1.7 FTE</td>
<td><strong>2.0 FTE</strong></td>
<td>3.0 Perm FTE / 1.0 Temp</td>
<td>3.0 Perm FTE / 1.0 Temp</td>
</tr>
<tr>
<td>Farm Bill Items</td>
<td>None</td>
<td>None</td>
<td><strong>Crop Insurance; PM &amp; DM Research</strong></td>
<td><strong>Crop Insurance; PM &amp; DM Research</strong></td>
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<tr>
<td>Excise Tax Reduction: Craft Beverage Modernization &amp; Tax Reform Act</td>
<td>Bill</td>
<td><strong>Law</strong></td>
<td>Law</td>
<td>Permanent? Tax Increase?</td>
</tr>
<tr>
<td>Hops As Produce</td>
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<td></td>
<td><strong>Continued outreach with congress</strong></td>
<td></td>
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Federal Affairs Outreach
Federal Affairs Outreach
Resolution
Nuremberg, 12 November 2018

The International Hop Growers’ Convention (IHGC) represents 34 national hop producing associations and hop merchants’ companies from 20 countries worldwide. Twelve of these members are located within the EU and produced over 50% of the world hop crop in 2018. The IHGC covers various aspects of the hop industry, but one of the main objectives is to secure plant protection products focused on Integrated Pest Management (IPM), to keep economical, safety and environmental issues in balance while providing the customers in the brewing industry with a safe and high quality ingredient.
Grants and Research Funding Update

<table>
<thead>
<tr>
<th>Years</th>
<th>2015 - 2018</th>
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<tbody>
<tr>
<td>Competitive Research Grants</td>
<td>$778,144</td>
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<tr>
<td>HGA Sponsorships and Projects</td>
<td>$26,500</td>
</tr>
<tr>
<td>HRC Dues &amp; Growout Funds</td>
<td>$154,205</td>
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<tr>
<td>USDA Breeding Program</td>
<td>$588,637</td>
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<tr>
<td>Total Hop Industry Support</td>
<td>$1,547,486</td>
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Public Breeding Sensory Update
CHEERS!