Craft Brewing and Hop Usage

Bart Watson, Ph.D.
Chief Economist
Brewers Association
bart@brewersassociation.org
@BrewersStats
Agenda

• National Craft Picture
• Shifts within Craft
• Challenges
  – Total demand
  – Varieties
  – Fractured market
National Statistics

2014 Small & Independent

U.S. CRAFT BREWERS’

Growth in the Beer Category

Volume Share for Craft Brewers

<table>
<thead>
<tr>
<th>Year</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>2010</td>
<td>5.0%</td>
</tr>
<tr>
<td>2011</td>
<td>5.7%</td>
</tr>
<tr>
<td>2012</td>
<td>5.5%</td>
</tr>
<tr>
<td>2013</td>
<td>7.8%</td>
</tr>
<tr>
<td>2014</td>
<td>11.0%</td>
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</tbody>
</table>

U.S. Operating Breweries

- Total Breweries: 3,464
- Craft Breweries: 3,418
- Other Breweries: 46

Craft Retail Dollar Value Growth

$19.6 BILLION
22% GROWTH OVER 2013

Craft Dollar Share = 19.3%
Total U.S. beer market retail dollar value $101.5 billion

Brewers Association
www.BrewersAssociation.org
Current Brewery opening rate = 1 every 16 hours

Source: Brewers Association
22,159,327 barrels of craft beer were produced in 2013.
2015 Early Trends

- Continued Growth
  - 17% YTD in scan data
    - Micros becoming a volume force
    - “All other” is now 18th largest vendor
    - Growing at 198% YTD

- Moving into mainstream

- Lots of capacity coming online to match production
  - Ratio not statistically different from last year
Craft – Volume Share Change, 2014

Source: IRI (2015)
Craft Volume Change vs YA, YTD by Style
IRI MULO+C Scan Data, through 12/28/14

IPA

Everything Else
Drives Per Barrel Hoping Rate

YOY Change in PPB

Production Year


YOY Change in PPB

2.2% 17.9% 5.8% 8.0% 1.3% 5.1% 5.0% (est) 2.0% (est)
US Craft Beer Hopping Rates (TTL Pounds / TTL BBL)

Production Year

Hops/Barrel

- 2007: 0.93
- 2008: 0.95
- 2009: 1.12
- 2010: 1.185
- 2011: 1.28
- 2012: 1.296
- 2013: 1.362
- 2014: 1.43 (est)
- 2015: 1.46 (est)
IPA Styles Supermarket Dollar Sales
Source: IRI Group

Dollar Sales (000s)

<table>
<thead>
<tr>
<th>IPA Style</th>
<th>Dollar Sales</th>
<th>% Chg vs YA</th>
</tr>
</thead>
<tbody>
<tr>
<td>American IPAs</td>
<td>$217,147</td>
<td>42.3%</td>
</tr>
<tr>
<td>Imperial IPAs</td>
<td>$85,845</td>
<td>20.9%</td>
</tr>
<tr>
<td>Session IPAs</td>
<td>$11,440</td>
<td>338.8%</td>
</tr>
<tr>
<td>English IPAs</td>
<td>$7,185</td>
<td>22.5%</td>
</tr>
<tr>
<td>Belgian/White IPAs</td>
<td>$2,145</td>
<td>-21.5%</td>
</tr>
<tr>
<td>Other IPAs</td>
<td>$1,758</td>
<td>-12.2%</td>
</tr>
<tr>
<td>Black IPAs</td>
<td>$1,402</td>
<td>6.3%</td>
</tr>
</tbody>
</table>
Imperial IPA Hopping Rates

- Surveyed producers of top 10 craft Imperial IPAs
- 6 responses
  - Represent about 2/3 of imperial sales in scans
  - Market weighted average usage 2.3 lbs/barrel
  - Half using more than 3 lbs/barrel
Future Hop Usage
Future Craft Segment Growth

• Demographics
  – Good and bad news, mostly good

• Market Trends
  – Blue oceans (Southeast)
  – Current Growth
  – Premiumization

• Brewery Trends
  – When does the exponential curve stop?
The Millennials

Sources: U.S. Census Bureau, Census 2000 Summary File 1 and 2010 Census Summary File 1.
Population by Race and Hispanic Origin: 2012 and 2060
(Percent of total population)

<table>
<thead>
<tr>
<th>Category</th>
<th>2012</th>
<th>2060</th>
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</thead>
<tbody>
<tr>
<td>White alone</td>
<td>78</td>
<td>69</td>
</tr>
<tr>
<td>Black alone</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>AIAN alone</td>
<td>1.2</td>
<td>1.5</td>
</tr>
<tr>
<td>Asian alone</td>
<td>5.1</td>
<td>8.2</td>
</tr>
<tr>
<td>NHPI alone</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>Two or More Races</td>
<td>2.4</td>
<td>6.4</td>
</tr>
<tr>
<td>Non-Hispanic White Alone</td>
<td>63</td>
<td>43</td>
</tr>
<tr>
<td>Hispanic (of any race)</td>
<td>17</td>
<td>31</td>
</tr>
</tbody>
</table>

AIAN=American Indian and Alaska Native; NHPI=Native Hawaiian and Other Pacific Islander
Figure 1. Historical Craft Production Growth Rate vs. 11% Growth and 2005-2014 Average

Source: Brewers Association
Figure 2. Paths to Craft 20 Share by Share Growth Rate; Year 20 Share achieved in Parentheses

- Historical
- 5% (2027)
- 8% (2023)
- 11% (2020)
- 14% (2019)
- 17% (2018)

Source: Brewers Association

*Craft brewer definition changed between 2013 and 2014
Source: Brewers Association Market Development Committee
Source: Brewers Association
Concerns on the Horizon?

• Hop Usage
  – At 20% share, craft hop usage is 2/3 of current national production – even without increase in usage/bbl

• Hop Varieties
  – Larger scale only part of the challenge
  – Issues like growing windows necessitate further investment
Total Domestic Hop Lbs
Craft Hop Lbs
Craft Usage (%)

Source: Brewers Association
Approaching 110 million lbs?

Source: Brewers Association
Getting to 20/20 - Hops

• 25% increase in hop volume
• Greater increase in acreage/resources
  – 30% increase in acres
  – Acreage needed greater than hop increase
    • Aroma vs Alpha
    • Starting to run out of acres to switch
    • More resource intensive
  – $10K an acre + processing ($5K)
    • Capacity is fine – but harvest windows tightening
    • “New” acres cost more
Getting to 20/20 - Hops

• 12,000 new acres? + Export growth?
• $180 million *minimum* in acreage investments?
• Growers get it, but more work
• 25 million more pounds of hops
  – Pelletizing infrastructure
  – Storage (even 25 cents a pound adds up)
  – New technologies/products
• Hop Hunter anyone?
Getting to 20/20 - Hops

• Other investments may double cost
  – Collective half a billion $’s not out of the picture
• Will new areas help?
• Yes, but right now at the margins
  – Lack of scale
  – Higher cost
  – Uncertain demand
  – More fragmented
Craft Brewer Hop Usage
Top Ten Varieties

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<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
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<tbody>
<tr>
<td>Cascade</td>
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<tr>
<td>Centennial</td>
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<tr>
<td>Chinook</td>
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<tr>
<td>Amarillo</td>
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<tr>
<td>Willamette</td>
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<td>CTZ</td>
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<tr>
<td>Crystal</td>
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<td>Simcoe</td>
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<td>US Golding</td>
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<td>Ahtanum</td>
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</tbody>
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- **Cascade**
- **Centennial**
- **Chinook**
- **Amarillo**
- **Willamette**
- **CTZ**
- **Crystal**
- **Simcoe**
- **US Golding**
- **Ahtanum**
Varieties Drive Volume Growth

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

- 2008: 90
- 2009: 88
- 2010: 92
- 2011: 97
- 2012: 105
- 2013: 114
- 2014: 132
Varieties Create Challenges

2014 Crop Approximate Harvest Window

- Approx. 38,000 acres grown in 2014, closer to 40/60 mix of high alpha to aroma hops
- Fewer early and late maturing varieties, many of the aroma/flavor varieties clustering into mid-Sep
Malt Imports as a % of Domestic Malt Usage, 1990-2012
Figure 2: Domestic craft beer volume production and malt imports

Sources: U.S. Census Trade Data and Brewers Association.
Questions?

Bart Watson
bart@brewersassociation.org
Contract Or Die

Craft Brewer Contracting Behavior

78.6% 84.1% 83.0% 89.0% 92.8% 92.0% 96.6%

2008 2009 2010 2011 2012 2013 2014
% of Respondents Reporting Shortfall in Variety 2013

- Amarillo: 18.9%
- Citra: 18.9%
- Cascade: 9.4%
- Simcoe: 9.4%
- Centennial: 8.2%
- Galaxy (AU): 3.8%
- Mosaic: 3.8%
- Nelson Sauvin (NZ): 3.1%
- Chinook: 2.5%
- CTZ: 2.5%
Shortfall

Shortfall Pounds as % of Total Pounds Consumed in 2013

- Rakau (NZ): 59.8%
- WGV (UK): 17.8%
- Wakatu (NZ): 16.4%
- Motueka (NZ): 15.1%
- Pacific Gem (NZ): 14.6%
- Azacca: 9.4%
- Nelson Sauvin (NZ): 9.2%
- Galaxy (AU): 9.2%
- Citra: 6.8%
- Amarillo: 6.6%