Hop Growing in the US: Where We’ve Been, Where We Are Now, and What Growers are Doing to Stand Out

UW Extension
7th Annual Hop Seminar
Background & History of HGA

Photo courtesy of John I Haas
“Yakima Golding Hop Farms Book,”
circa 1953
Established in 1957 to represent the interests of US hop growers

Current areas of focus include:
- statistics
- public relations
- trade education
- foreign market development
- community of knowledge and best practices
- research
- self-certification programs – coming soon
Overview

✓ Background & History of HGA
  • History of Hop Growing in America
  • Demand for US Hops today (and how you can stand out)
  • Benefits of Unified Association
  • Before planting hops
On all new yard installations, water is supplied through buried pipe lines.

Photo courtesy of John I Haas “Yakima Golding Hop Farms Book,” circa 1953
Traditional Growing Regions
Traditional Growing Regions

Source: Wisconsin Historical Society
Initially, settlers of the New World imported hops from England.

Mid 1600’s - thirst for:
- fresh beer
- hops
- independence from England

East Coast – epicenter of US hop production
Mid 1600’s: Massachusetts Bay Colony Region

1800s: production expanded to other New England states

1850s: NY state now commanded largest US hop acreage, reaching its pinnacle in next few decades
History of Hop Growing in America

• Early 1900s: powdery mildew nearly wiped out crops in NY
• Pacific Coast boasts largest acreage

1920-1933: Prohibition
History of Hop Growing in America

- **1900**: Pacific coast now boasts largest acreage and is new US hop growing hub – continues to this day with WA, OR, ID producing over 95% of country’s crop.
- Late **1920s**: downy mildew, combined with prohibition, final blow to East coast, wiping out their industry.
- **1932**: Oregon largest hop producing region in the world with 34,594 acres
The hop market is historically unstable with wide ranges in price and acreage. Many factors are in play:

- Historically: relatively stable demand by the brewing industry
- **Very efficient producers**, able to rapidly expand acreage
- **Perennial plant**, costly to establish; growers hesitant to remove production
- **Small acreage worldwide** compared to many other crops; annual yield variations have greater impact
- **Long shelf life** – surpluses can take years to utilize
- **Super alpha varieties** increased production of alpha without increasing acreage
US and Germany: 2 biggest hop producers globally

On average, each produce about 1/3 of the world’s supply of hops

- Two biggest production regions in the world: Yakima Valley and Hallertau

All other countries produce remaining 1/3

US annually exports over 50% of the crop to 60+ markets
Factors causing “peaks” and “valleys”

<table>
<thead>
<tr>
<th>Growers:</th>
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<tbody>
<tr>
<td>– Yield variability</td>
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<tr>
<td>• Varietal differences</td>
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<td>• Growing practices, pests and diseases</td>
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<td>• Mother Nature</td>
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<tr>
<td>– Producing “spot” (uncontracted) hops</td>
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<td>– Growing timeline (perennial plants)</td>
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<table>
<thead>
<tr>
<th>Brewers:</th>
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<tbody>
<tr>
<td>– Recipe changes (substituting alpha hops for aromas, changing hopping rates, use of “downstream” products that increase efficiency)</td>
</tr>
<tr>
<td>– Shifting purchases based on currency values</td>
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<tr>
<td>– Global economics impact on beer volume growth</td>
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<tr>
<td>– Impulsive consumers</td>
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<td>– Not contracting – buying spot only</td>
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</tbody>
</table>
Forward Contracting

- 100% of currently producing hops in PNW are contracted
- Primary mechanism to manage market risk for growers and brewers
- Industry standard 3-5 year forward contract, locking in price for average yield
- As most farms don’t have available cash for expansion, contracts provide security to financial partners.
Spot Market

- Unpredictability for all parties
- Growers: substantial investment without guarantee of return
- Brewers: gambling on availability for a full year’s brewing schedule
- Unsteady pricing (basic supply and demand)
The Bright Spot

• Due to 2007 shortage and thanks to BA Education efforts, craft contracts have increased to 95% of BA members responding to annual survey
Continued worldwide consolidation for the large breweries since the 1990s:
- As of 2014 top 3 brewing groups controlled 40% of market share (ABI, Heineken, SABMiller)
- Pending AB InBev/SABMiller merger would result in one brewing group supplying just under 1/3 of the world’s beer

Prior to mid-2000s, Micro and Craft sectors were growing, yet able to survive on limited contracts and spot purchasing
• A perfect storm created from:
  – A previous sizeable hop surplus, now diminished
  – Lack of contracting
  – Beer volume growth of 3-5%
  – Global acreage not equipped to handle all uncontracted requirements
  – Brewer hesitation to sign contracts at higher pricing
U.S. Total Hop Acreage 98-07

The graph shows the total hop acreage in the United States from 1988 to 2007. The x-axis represents the years from 1988 to 2007, and the y-axis represents the number of acres in increments of 5,000, ranging from 0 to 50,000 acres.
2009 yield was 20% higher than previous year due to climatic differences.
2007 - 2009

- 2007 shortage devastating to some breweries
- “Panic” over-buying drove up prices
- Growers scrambled to add 10,000 more acres in 2008 (39% increase in 2 years)
- Value of an entire year’s crop invested in grower and processor infrastructure repairs, upgrades
- 2009 crop: record yields in USA & Germany, world’s two biggest producers
- Excess flowed into spot market, drove down prices
2007 - 2009

- Worldwide recession hits - beer is not recession-proof!
- Beer volume dropped 1.5% in 2009
- The “panic buying” resulted in excess inventory for brewers resulting in cancelled contracts across the board
- *All acreage established in 2008 was removed by 2011*
Key Stats

- **1964**: 375 growers in Washington
  55 acres each, avg.
- **1987**: 75 growers
  268 acres each, avg.
- **Now**: 43 growers
  795 acres, avg.

- Overall hop acreage has increased 52.4% in last 3 years
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Where we are today

• Demand for US aroma hops unprecedented
• Historically, US farmers focused on alpha, and the Germans focused on aroma

<table>
<thead>
<tr>
<th>US Varieties</th>
<th>German Varieties</th>
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<tr>
<td>30% Alpha</td>
<td>60% Alpha</td>
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<tr>
<td>70% Aroma</td>
<td>40% Aroma</td>
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• Now – these are reversed
Aroma Hop Acreage as % TTL US Acres

U.S. BEER SALES VOLUME GROWTH 2014

**Overall Beer**
- 0.5%
- 197,124,407 bbls

**Craft Beer**
- 17.6%
- 21,775,905 bbls

**Import Beer**
- 6.9%
- 29,430,185 bbls

**Export Craft Beer**
- 36%
- 383,422 bbls

**Overall Beer Market**
- $101.5 BILLION

**Craft Beer Market**
- $19.6 BILLION
  - 22% DOLLAR SALES GROWTH

**Craft**
- 11% Share in 2014
  - 21,775,905 bbls

**Import**
- (29,430,185 bbl)

**Domestic**
- (145,918,317 bbl)

Source: Brewers Association, Boulder, CO
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<th>Year</th>
<th>2010</th>
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<th>2012</th>
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<td>Hall Mitt (Ger)</td>
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Craft Demand for US Hops

• More Breweries than ever
  – December 2015: BA Announces 4,144
  – 1800+ more “in planning” stages

• Hopping Rates Considerably higher - (traditional US pilsner average 0.25 lb/bbl; craft 1.4 lb/bbl)

• In 2014, Brewer Association members’ total hop usage was 88% US hops (New Brewer Nov/Dec 2015)
What’s the Next IPA?

- **August 2015 article** - Bart Watson, BA
  
  *Spoiler Alert* – it’s IPA

- Category that nothing else can keep up with, exponential growth

- Excitement for vibrant hoppiness in beer
  - particular (usually proprietary) varieties have fans now ([article on variety excitement](#))
  - Approx. 50% of acreage is proprietary
IPA Share within Craft and IPA Volume, 2008-Current
Source: IRI Group and Brewers Association

Source: “What’s the Next IPA?” Bart Watson, BA August 2015
US Response: Increased Acreage

2015: +5,990 acres
15.4%

2014: +3,000 acres

Overall acreage has increased 52.4% in three years
New Regions See Opportunity

• Niche opportunities for New Regions:
  ✓ Large Demand Overall
    – Locavore
    – Green Hops
    – Terroir
    – Quality, quality, quality
• 30 States growing commercially, currently
• University of Florida receives $158,000 grant for hops (source)
• Michigan will be added to USDA’s National Agriculture Statistics Survey (currently only WA, ID & OR) as fourth largest hop-producing state (hopefully in 2016)
• See full US report here
Locavore – increasing demand

**WISCONSIN**

- **97** Craft Breweries
  - (RANKS 13th)
- **2.3** Breweries per Capita*
  - (RANKS 13th)
  - *per 100,000 21+ Adults
- **1,748** Million Economic Impact
  - (RANKS 11th)
- **420.2** Impact per Capita
  - (RANKS 8th)
- **850,874** Barrels of Craft beer produced per year
  - (RANKS 9th)
- **6.3** Gallons per 21+ Adult
  - (RANKS 9th)

*Source: BA – Stats – State by State*
Wet Hop Beer

• Increasing popularity w/ Brewers
• Logistically – very difficult & expensive, especially when far from the source
• Cuts down on drying costs/equipment investment
• Requirements: Farm to Kettle w/in 24 hours
More information...

• Two Brewers Association presentations from 2016 American Hop Convention:
  www.usahops.org
  News Tab
  2016 Hop Convention page
  Presentations provided from Chris Swersey and Dr. Bart Watson
Terroir

Source: Study Blue, AP Human Geography;
Find your Niche

- Opportunities recap:
  - Large Demand Overall
  - Locavore
  - Green Hops
  - Terroir

- Will will keep your customers paying a premium for your hops when the market goes the other way?
Consistent Quality

• Consistent quality is your #1 branding tool
  – Needs to be equivalent to what brewers get elsewhere, otherwise the appeal is a one-off/gimmick-y

• Dependable supply is crucial for flagship brands
  – Think of their customers – if they can’t get their favorite beer because they don’t have the hop supply, they’re gone
Certification Programs

- Easily identifiable programs – like a good housekeeping seal of approval
  - Most brewers already familiar
- Creates consistency and strengthens your brand & allows comparability
- Adds value
- Examples:
  - Salmon Safe
  - Green Chief
  - Global Gap & USDA Gap
  - USA Hops (coming soon)
USA Hops Best Practices Program

• Module 1 – Harvest practices and food safety – launch in mid-2016
• Module 2 – Hop drying, post harvest handling and storage to retain quality – deploy in 2017
• Module 3 – Production practices (plant protection, nutrient management, etc.) in 2018.
Grower Numbers

• Allows traceability
• Applied to all bales or containers
• Assignments coming soon
  – Voluntary
  – Free Service
Labeling example

15-NC501-001
CAS

Crop Year 2015 – NC Grower #501 – Lot 1
Variety: Cascade
IPM Field Guide

• Updated in 2015
• Funding provided by USDA Western IPM program and Brewers Association
• Hard copies
• Electronic version at usahops.org
IPM Field Guide

• Includes several new pests
• Regional identification
• Latest scientific information and IPM recommendations
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Benefits of Unified Organization

• Creating a State Association/Other identifiable Central Point
  – Creates an easy, singular point of contract for customers
    • Sales
    • Customer service
    • Site visits (poss.)
    • Ensured quality & quantity
Benefits of Unified Organization

- Allows larger variety diversity
- If synched up, shared equipment possible
- Singular voice & representation
- Pooled resources
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Before Planting Hops...

part deaux...
Before planting hops...

- Education and “due diligence” important
- First, identify your market. Your customer will dictate varieties to be grown.
- Second, how will you harvest, store and process your crop? Determine necessary infrastructure necessary to deliver crop in the form required by customers.
- Is this infrastructure available for your use, or must you include this in your start-up plan?
• Third, research varieties demanded.
  – Availability? (Public vs. Proprietary, clean planting stock)
  – Disease susceptibility and other production consideration?
  – Is your climate/site appropriate?
  – What plant protection tools are approved and available for use? Will this be adequate to address pest and disease issues? This includes organic and conventional production.
Before planting hops...

- Things to consider...
  - Market and variety selection
  - Economics/true cost of growing hops
  - Site & variety selection
  - Production resources
  - Labor & mechanization needs
  - Harvesting & storage to preserve quality
  - Post-harvest processing
Considerations for Selling & Contracting

- Are breweries in your area willing to contract?
- If not, can you command a price that will cover your investment?
- Do you know the key components of a hop contract?
- Do you have dedicated time or staff to properly market your hops?
- Do you know your true expenses to ensure your business is properly capitalized and breakeven costs are identified?
Before planting hops...

• Your customer may dictate varieties to be grown.
  – Availability? (Public vs. Proprietary, clean planting stock)
  – Disease susceptibility and other production considerations?
  – Is your microclimate/site appropriate?
Before planting hops...

- What varieties are best suited to your environment?
  - Humid climate vs. downy mildew susceptibility
  - Hot and arid climate vs. delicate aromas
  - Consider test plots evaluating several varieties over at least 3 seasons and compare experience with neighboring growers or university & extension testing
  - Support breeding programs for future options
Before planting hops...

• True cost of producing hops
  – What assets do you already have or are you starting from scratch?
  – Your time is not free!
  – Adequate capitalization (land, infrastructure, production and harvesting equipment)
  – Lag time to get into production and develop income stream
  – Don’t sell at below your true cost of production! Tempting, but jeopardizes the long-term development of your region’s industry.
Before planting hops...

• Develop a realistic 5-year budget
• 2015 USDA-NASS National Hop Report:
  – Average PNW yield 1,807 pounds/acre
  – Season Average Price $4.38
  – Average PNW 2015 Gross Income/Acre = $7,915
  – How will your prices and yields compare?
New 2015 WSU Cost of Production Study:
- Based on 600 acre PNW commercial hop farm
- Assumes 80% aroma + 20% alpha varieties
- Standard trellis, 1st year yield 80% of mature
- Mature aroma yield 1,800 lb/ac.
- Mature alpha yield 2,800 lb/ac.
Cost of Production

- Mature production variable costs $5,637
- Mature fixed costs $4,169
- Total costs per acre (mature) $9,806

- Workbook allows grower to calculate using your own figures
- Updated study to be posted soon on usahops. 2010 study currently up, not reflective of current market
Before planting hops...

Harvesting & Post-Harvest Quality Considerations

• Quality most crucial component
• Quality degradation during harvest and post-harvest processing (pelletizing) can ruin brewing value
• Proper equipment investment required or contract with an existing merchant/processor for pelletizing
• Cold storage and shipping to maintain quality
Site and Variety Selection

• What varieties are best suited to your environment?
  – Humid climate vs. downy mildew susceptibility
  – Hot and arid climate vs. delicate aromas
  – Consider test plots evaluating several varieties over at least 3 seasons or seek experience of neighbors

• What varieties can you sell?
  – What’s the local demand?
Before planting hops...

Labor & Mechanization Needs

• What can you reasonably expect to accomplish by hand?
• Be realistic about initial and future mechanization needs.
• Harvest equipment investment most critical due to time constraints associated with maintaining peak quality.
Before planting hops...

Harvesting and Quality

- Learn how to determine peak maturity
- Wet or Dry?
- If you plan to dry your hops, know best temperature and drying parameters for your varieties
- Packaging system
- Cold storage availability
Before planting hops...

Post-Harvest Processing

• Availability of experienced pelletizing resources
• Check with customers regarding quality of output
• Include costs in production budget
Harvest vs. Processing

- **Harvest** = removal of cones from bines, recleaning, drying, and baling or other packaging to create a farm-gate product.
- **Processing** = Pelletizing, Extraction or other post-harvest downstream product creation.
- These definitions are extremely important from a regulatory standpoint!
Small Grower Support

- HGA Small Grower Council established Spring 2015
- Current Initiatives:
  - Database Development (Statistics and Grower Numbers)
  - Website-based educational materials
  - Small Grower Track (education) at American Hop Convention
Small Grower Support

• Database Development
  – Statistics
  – Grower Number Assignment for Traceability (Food Safety programs)
  – Independent of HGA membership
Small Grower Support

• Statistics
  – Currently estimating acreage and production based on input from extension specialists, cooperatives, grower associations, etc.
  – Will improve with actual reporting via website (membership application)
  – As reliable grower lists are constructed for each state, will request addition to USDA NASS reporting
Small Grower Support

• Grower Numbers
  – Assigned nationwide by HGA
  – Three digits preceded by postal code
  – “Legacy” states retain 100 through 400 series
  – All other states start at 501
  – Example: OH501 (Ohio grower #501)
  – Application form available at usahops.org
Small Grower Support

- HGA education materials geared towards small/new growers
  - Housed on Public and Member sections of new website anticipated to debut mid-2016: www.usahops.org
  - Includes best practice self-certification modules to address quality, food safety and sustainability issues
  - “Hub” for links to other information sources
Small Grower Support

• American Hop Convention Small Grower Track
• Launched in 2016
• Educational speakers and panels on a range of topics, from trellis construction to risk management to harvesting equipment
• Available presentations posted on website (News tab)
US Hop Industry Plant Protection Committee

• Formed in 1988 to coordinate and direct registrations and international harmonization for US hop plant protection materials
• Aggressive program to seek harmonized international regulatory standards, facilitating exports of hops and beer
• Collaboration with European hop producers
USHIPPC

• Domestic collaboration between researchers to insure consistent efficacy testing and well-designed residue studies

• Continual work with hop merchant companies on MRL discrepancies worldwide that impact the shipping of US hops
International Harmonization

- Very important for hop growers worldwide
- International markets for hops and beer; exports must comply with regulatory standards of importing countries
- Increasing awareness among brewers with growth of beer exports
- Merchants regularly test hops for compliance with pesticide residue standards
Overview

- Background & History of HGA
- History of Hop Growing in America
- Historical statistics and market situation
- Where we are today
- Where we are heading
- Before planting hops
- Small Grower Council establishment and initiatives
- Plant protection and the new IPM Field Guide
  - Other HGA programs
Other HGA Programs

- Statistics collaboration with USDA-NASS
  - June Hop Acreage Report
  - December National Hop Report

- Working with new production regions to capture acreage outside of PNW

- Annual Stat Pack available at usahops.org
Other HGA Programs

- Represent US growers at International Hop Growers Convention
- Provide US statistical estimates and bring information from other countries back to US growers
- International collaboration on production, plant protection and regulatory issues impacting hop producers
Other HGA Programs

- Trade Education and Communications
  - Foreign Market Development
  - Brewing School seminars
  - Trade Shows: Craft Brewers Conference, Brau Beviale, Drinktec
Questions?

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