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

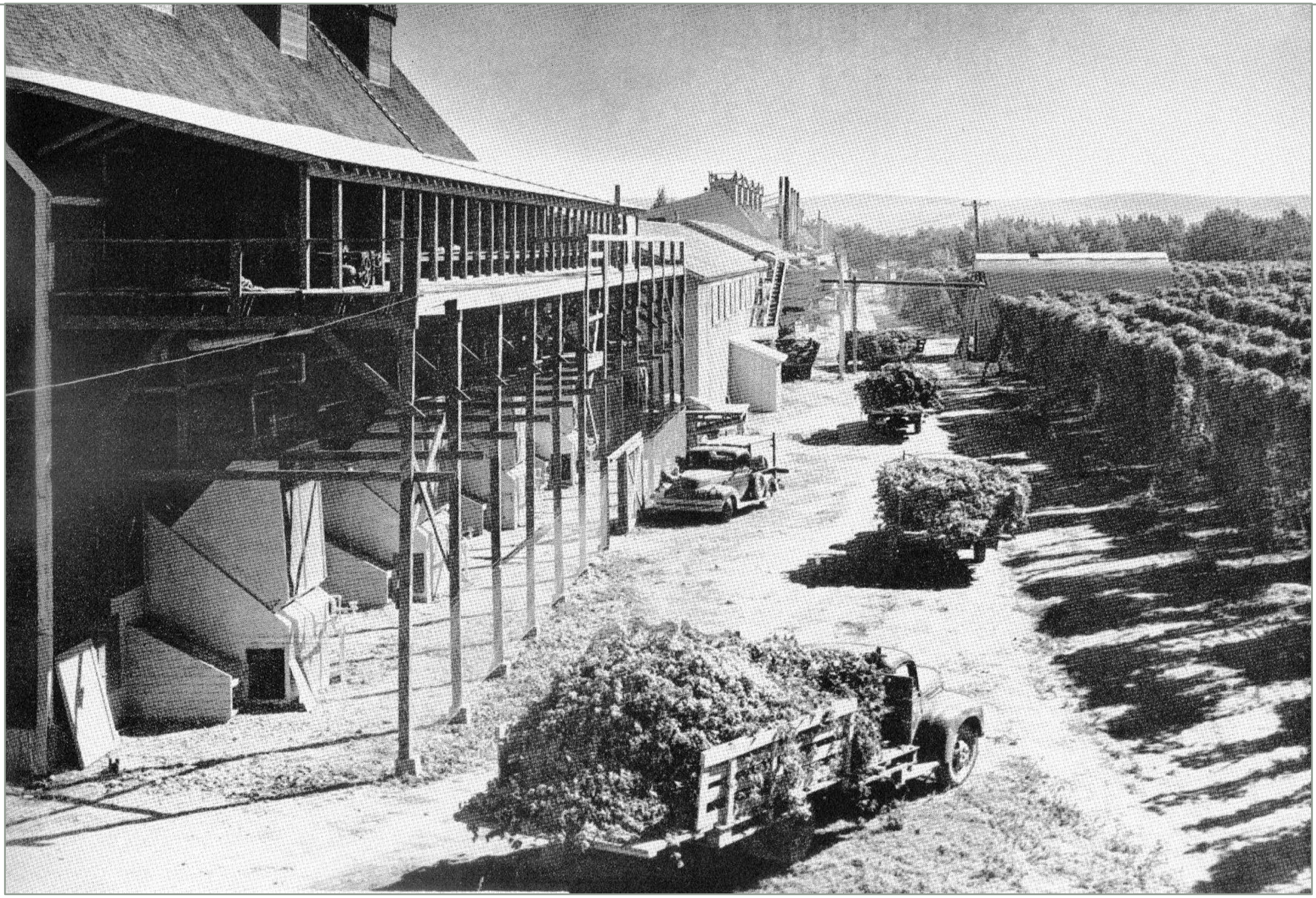

Photo courtesy of John I Haas "Yakima Golding Hop Farms Book," circa 1953

Background & History of HGA

- 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

History of Hop Growing in America

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

Traditional Growing Regions

- 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

Traditional Growing Regions

- **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

History - Hop Economics

- 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

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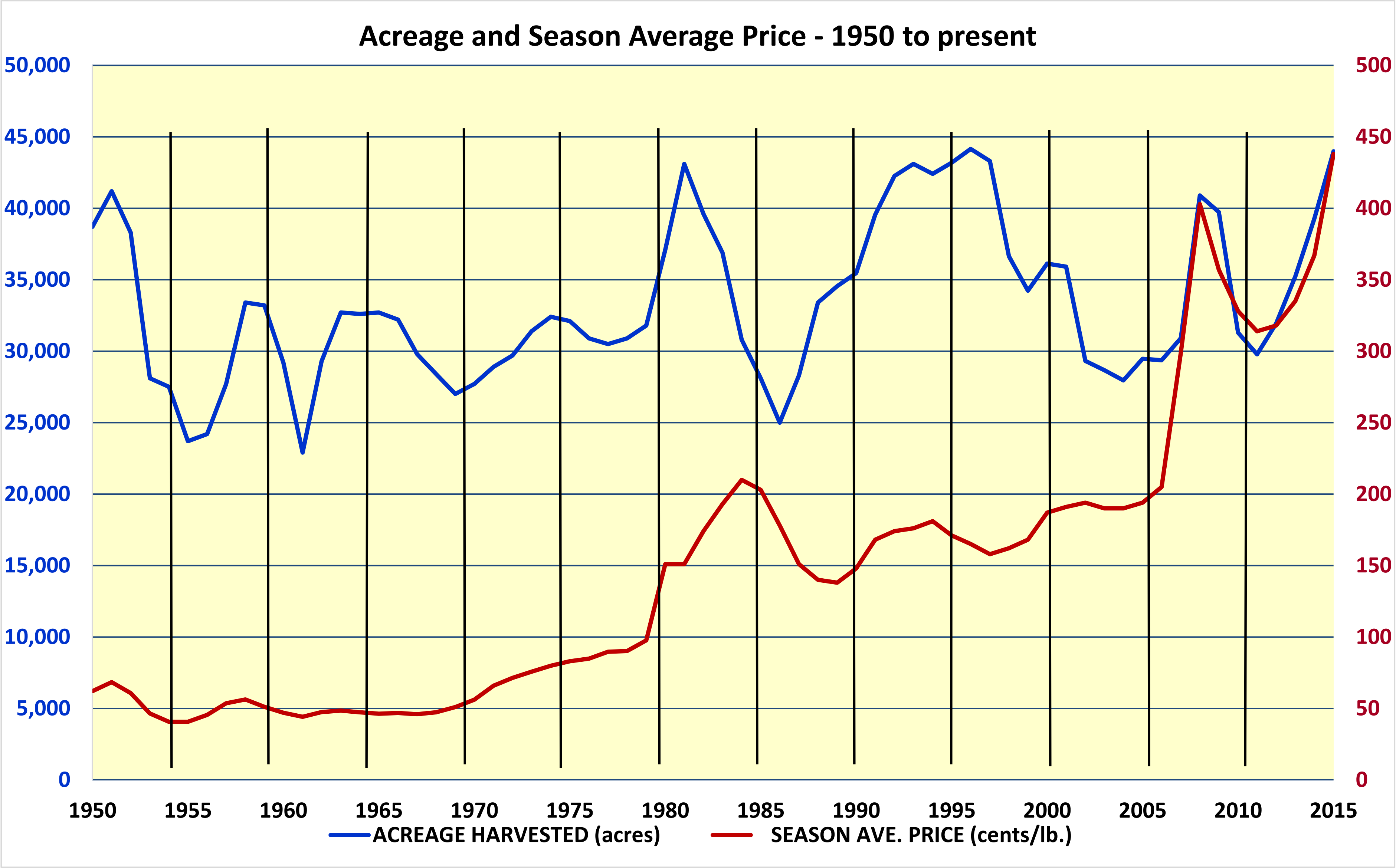
US Standing in World Market

- 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



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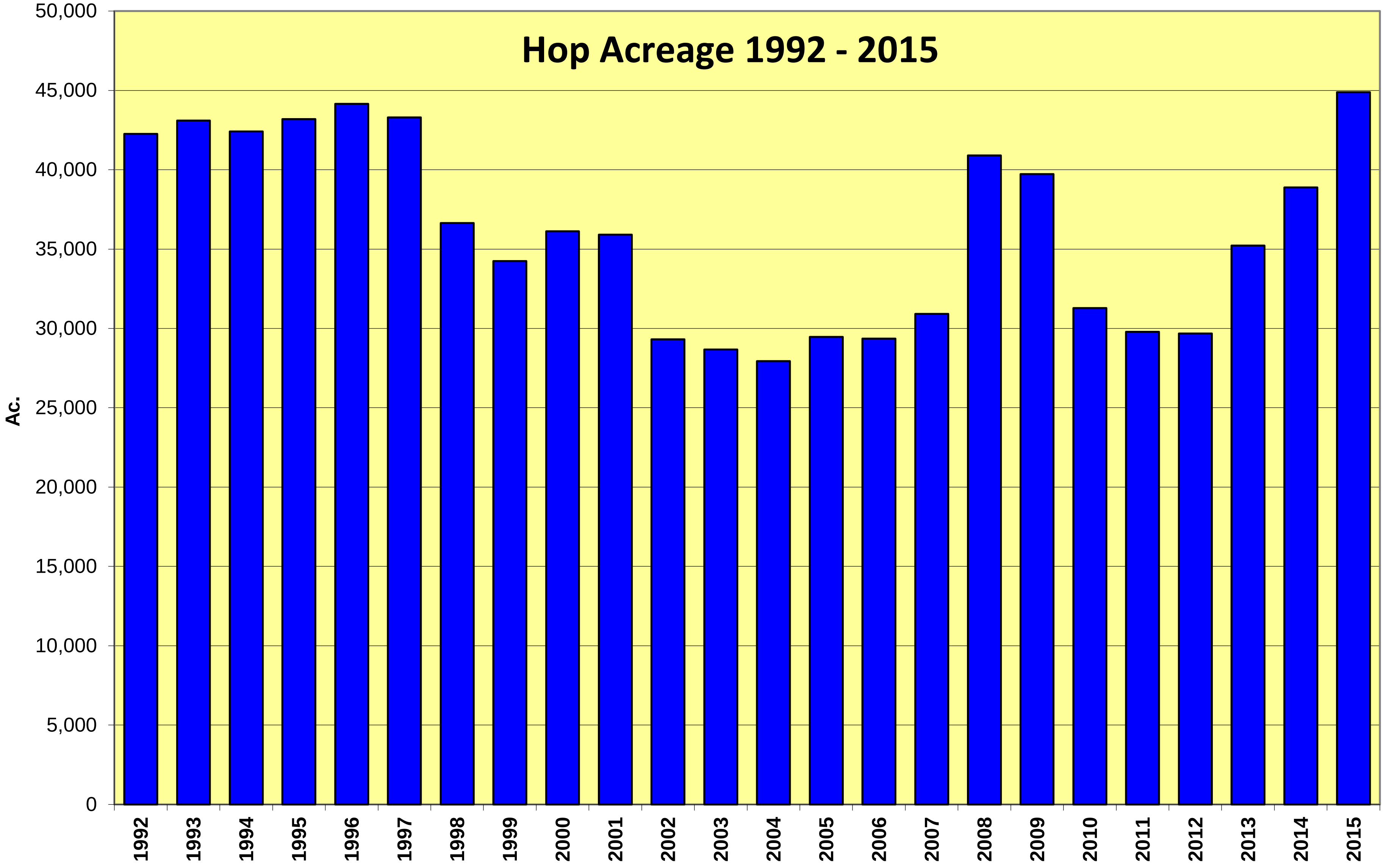

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Factors causing “peaks” and “valleys”

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

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

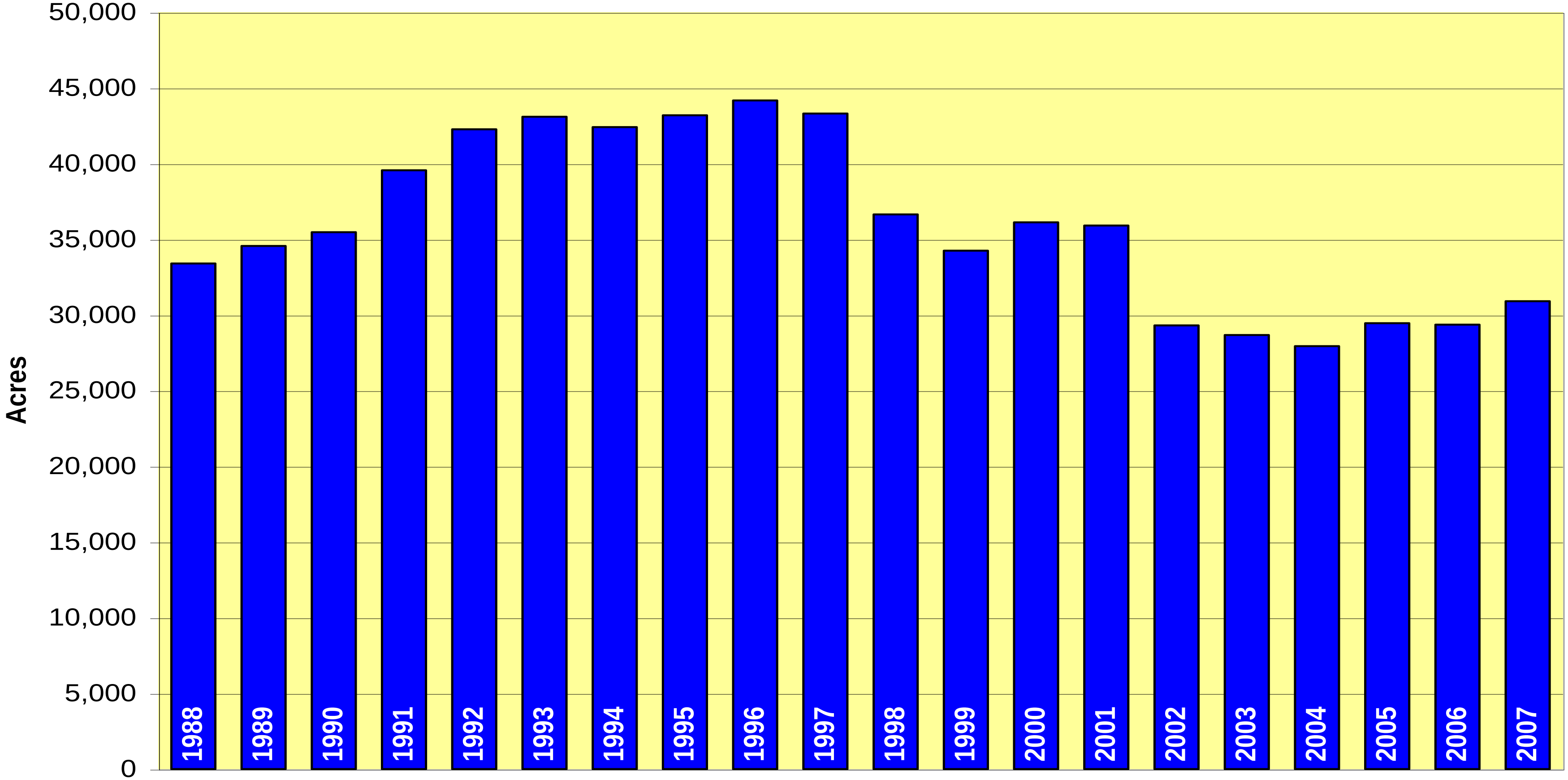
Brewing Industry Changes

- 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

2007 “Hop Shortage”

- 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



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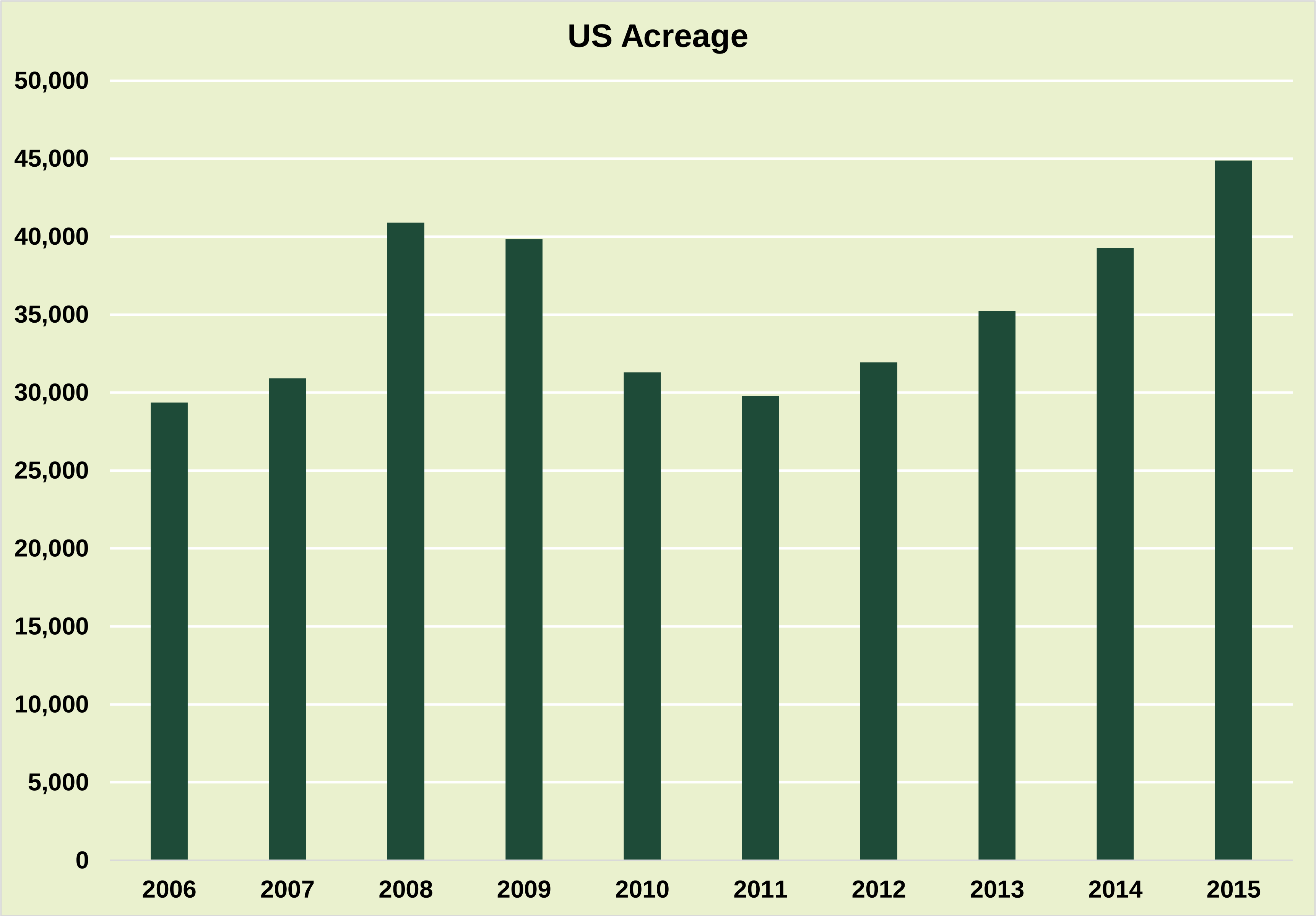
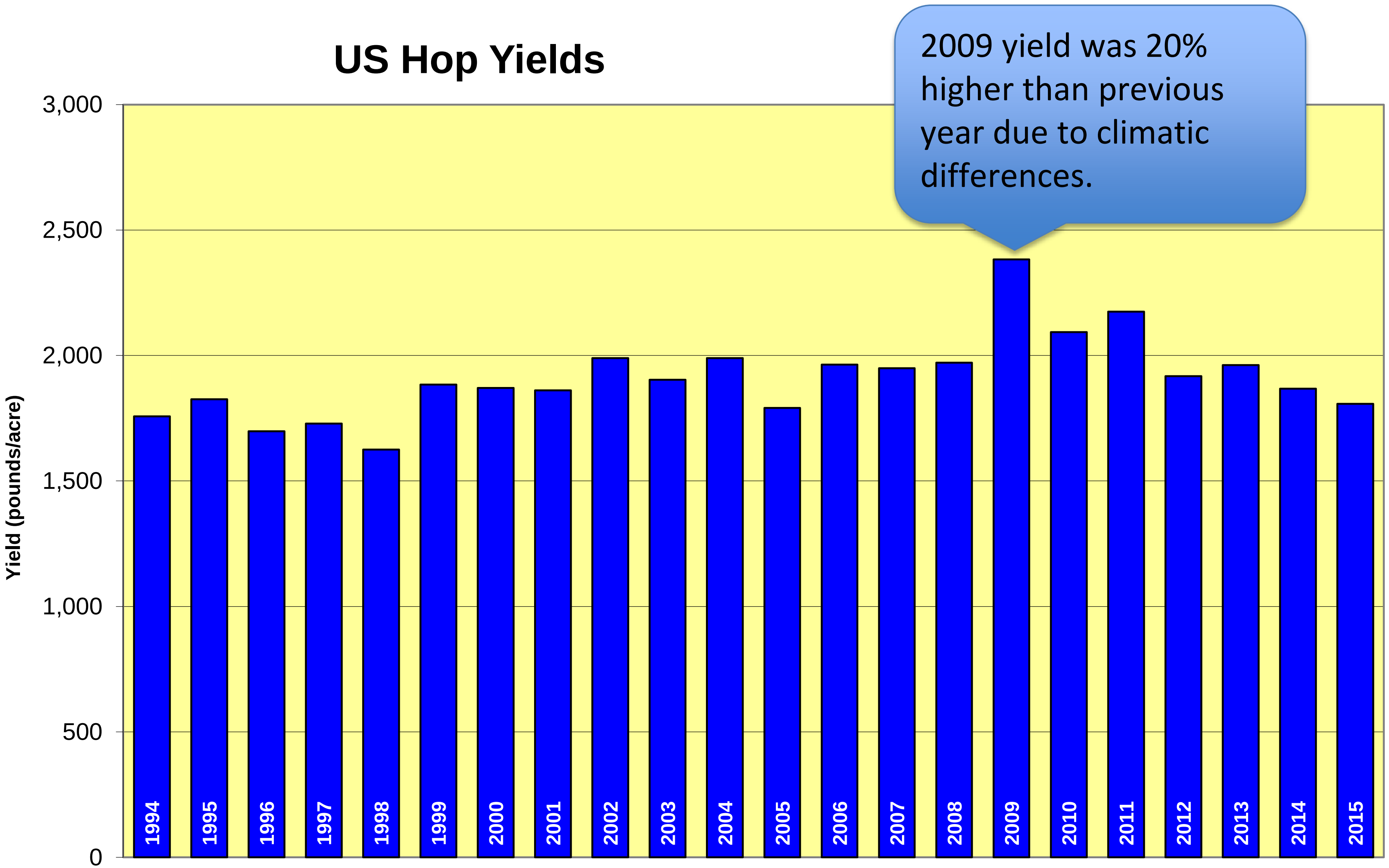

US Acreage
50,000
45,000
40,000
35,000
30,000
25,000
20,000
15,000
10,000
5,000
0
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015

US Hop Yields



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
- *<u>All acreage</u> 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.

- <u>Overall hop acreage has increased 52.4% in last 3 years</u>

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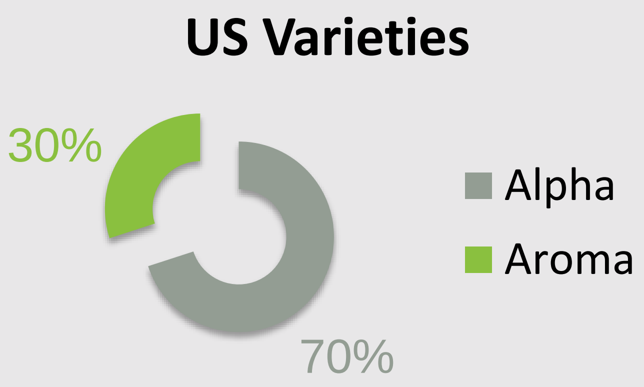
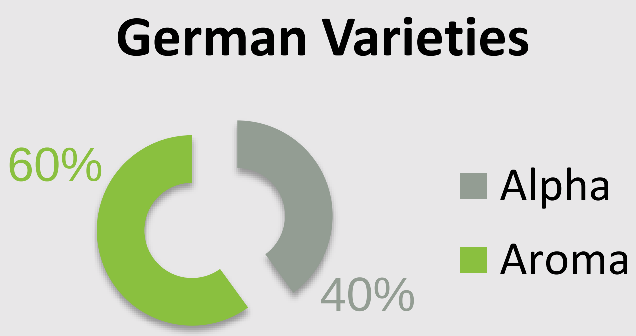
Where we are today

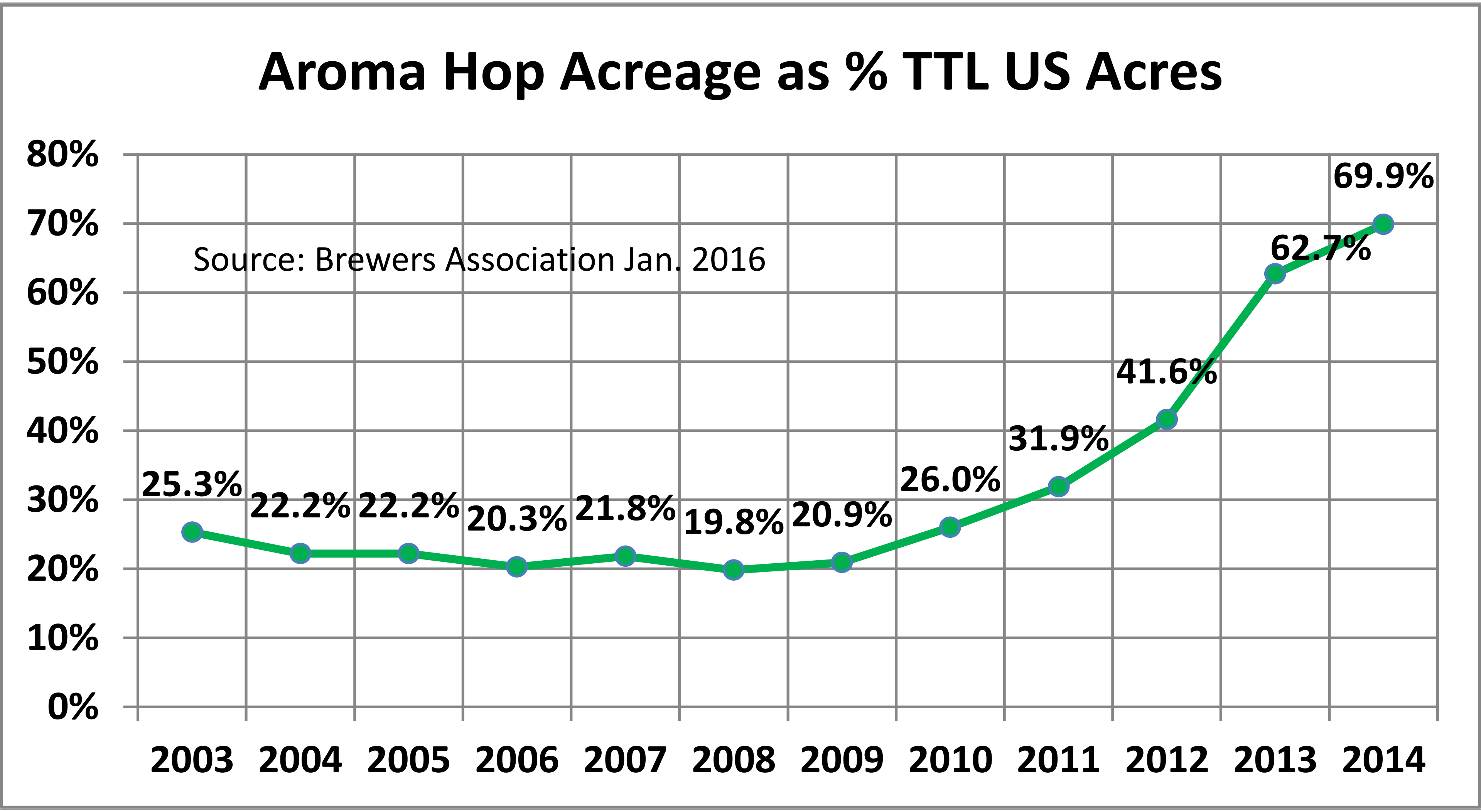
- Demand for US aroma hops unprecedented
- Historically, US farmers focused on alpha, and the Germans focused on aroma





- Now – these are reversed

Aroma Hop Acreage



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U.S. BEER SALES VOLUME GROWTH 2014

OVERALL BEER
0.5%
197,124,407 bbls

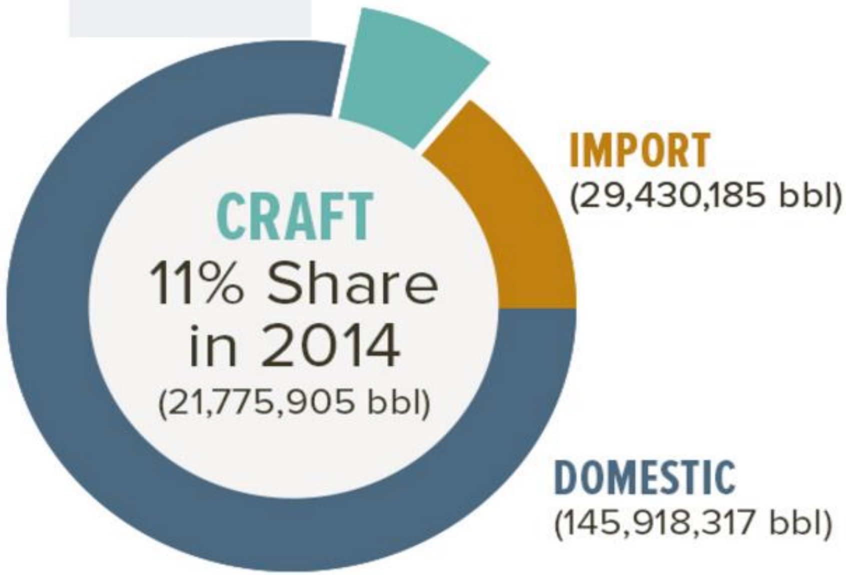
17.6%
CRAFT
21,775,905 bbls

IMPORT BEER
6.9%
29,430,185 bbls

36%
EXPORT CRAFT BEER
383,422 bbls

OVERALL BEER MARKET
$101.5 BILLION

CRAFT BEER MARKET
$19.6 BILLION
22% DOLLAR SALES GROWTH



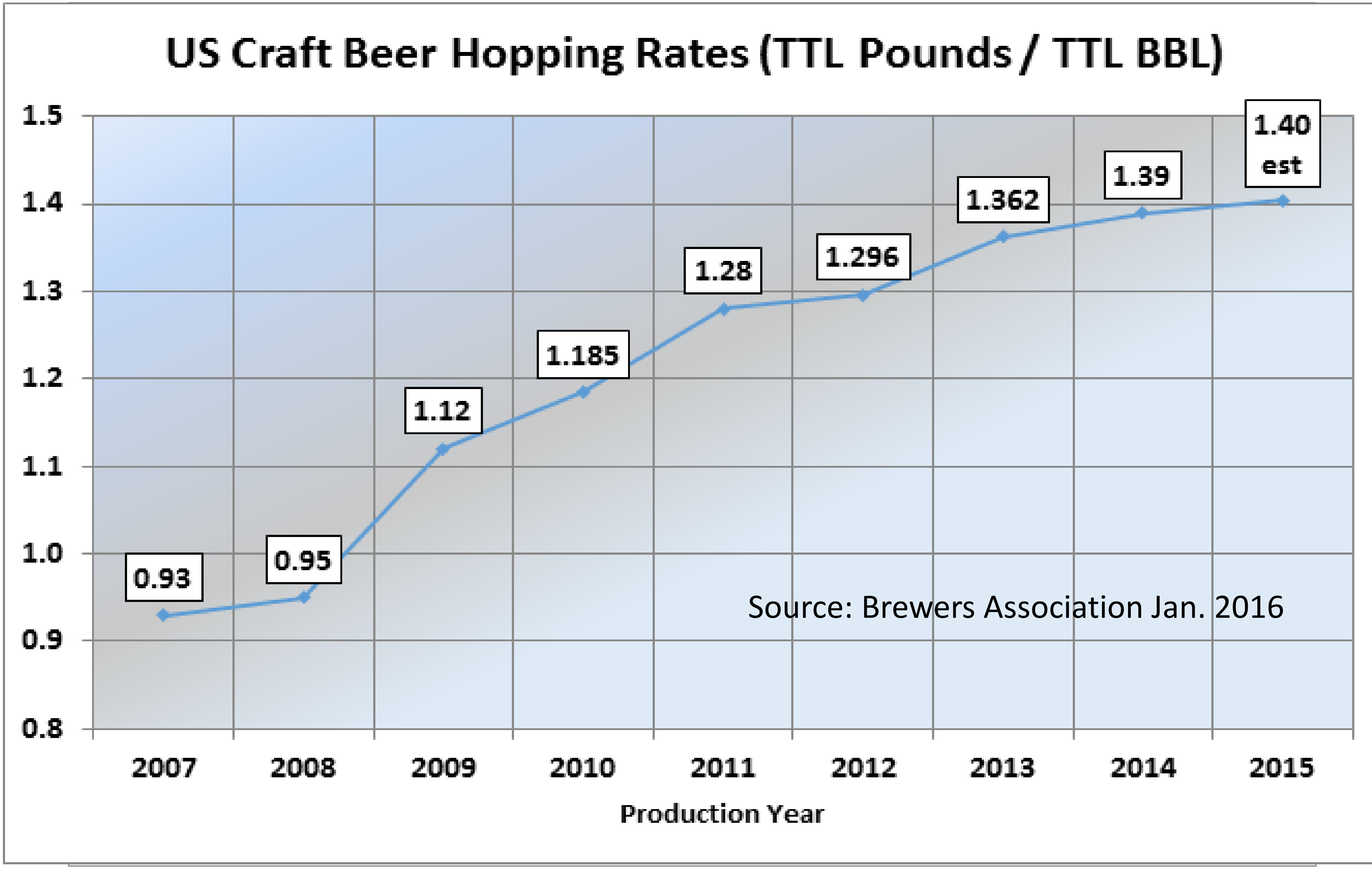
Source: Brewers Association, Boulder, CO

Craft Brewer Hop Usage – Top 10 Varieties

2010 2011	2011 2012	2012 2013	2013 2014	2014 2015
Cascade	Cascade	Cascade	Cascade	Cascade
Centennial	Centennial	Centennial	Centennial	Centennial
Chinook	Chinook	Chinook	Simcoe	Chinook
Amarillo	Willamette	CTZ	Chinook	Simcoe
Willamette	Simcoe	Simcoe	CTZ	Citra
CTZ	CTZ	Amarillo	Amarillo	Hall Mitt (Ger)
Crystal	US Golding	Crystal	Crystal	Amarillo
Simcoe	Crystal	Willamette	Willamette	Crystal
US Golding	Amarillo	Saaz (CZ)	Citra	Magnum (Ger)
Ahtanum	Ahtanum	US Golding	Saaz (CZ)	CTZ

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)



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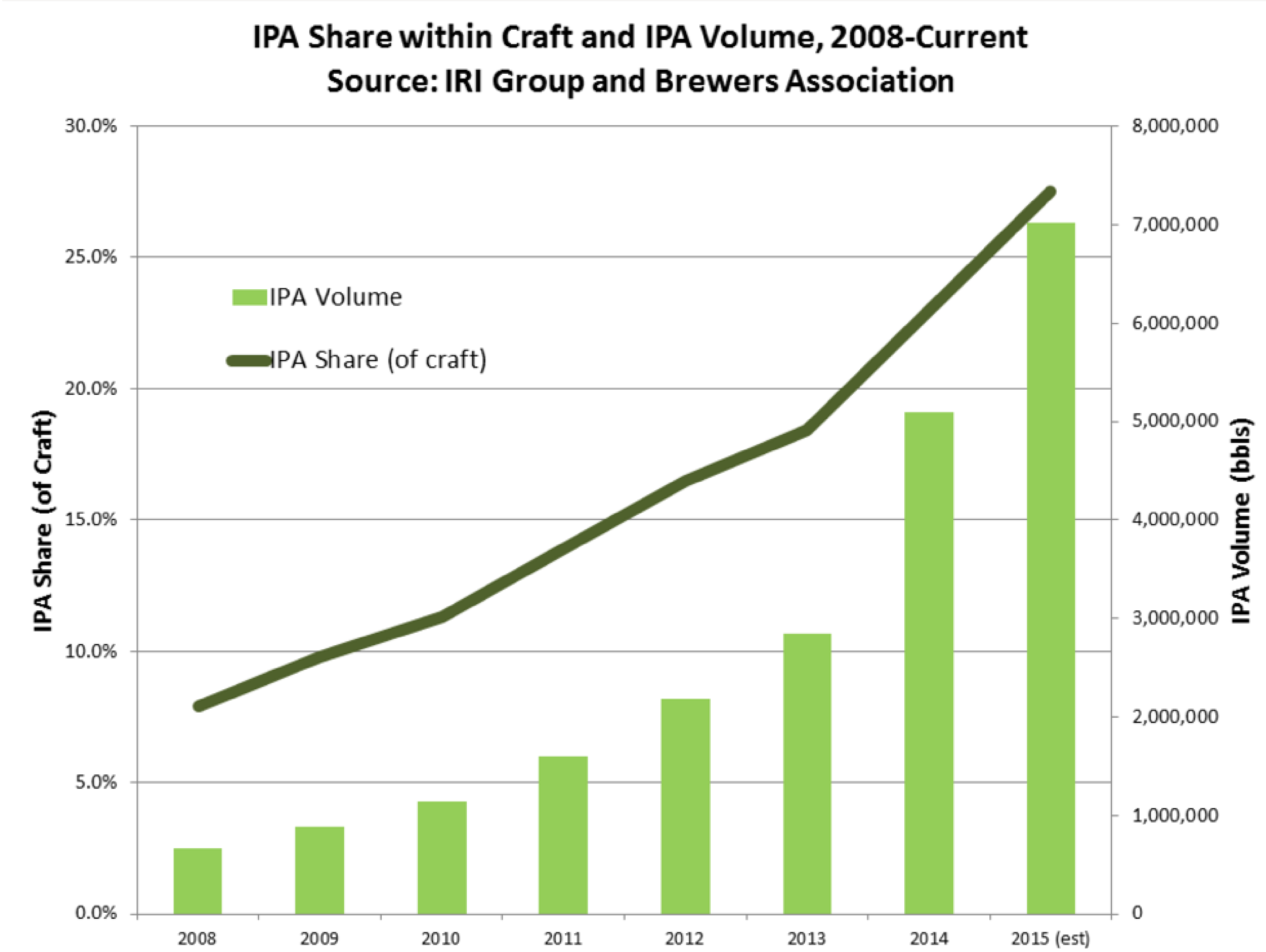
What's the Next IPA?

- 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



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

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Locavore

- **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

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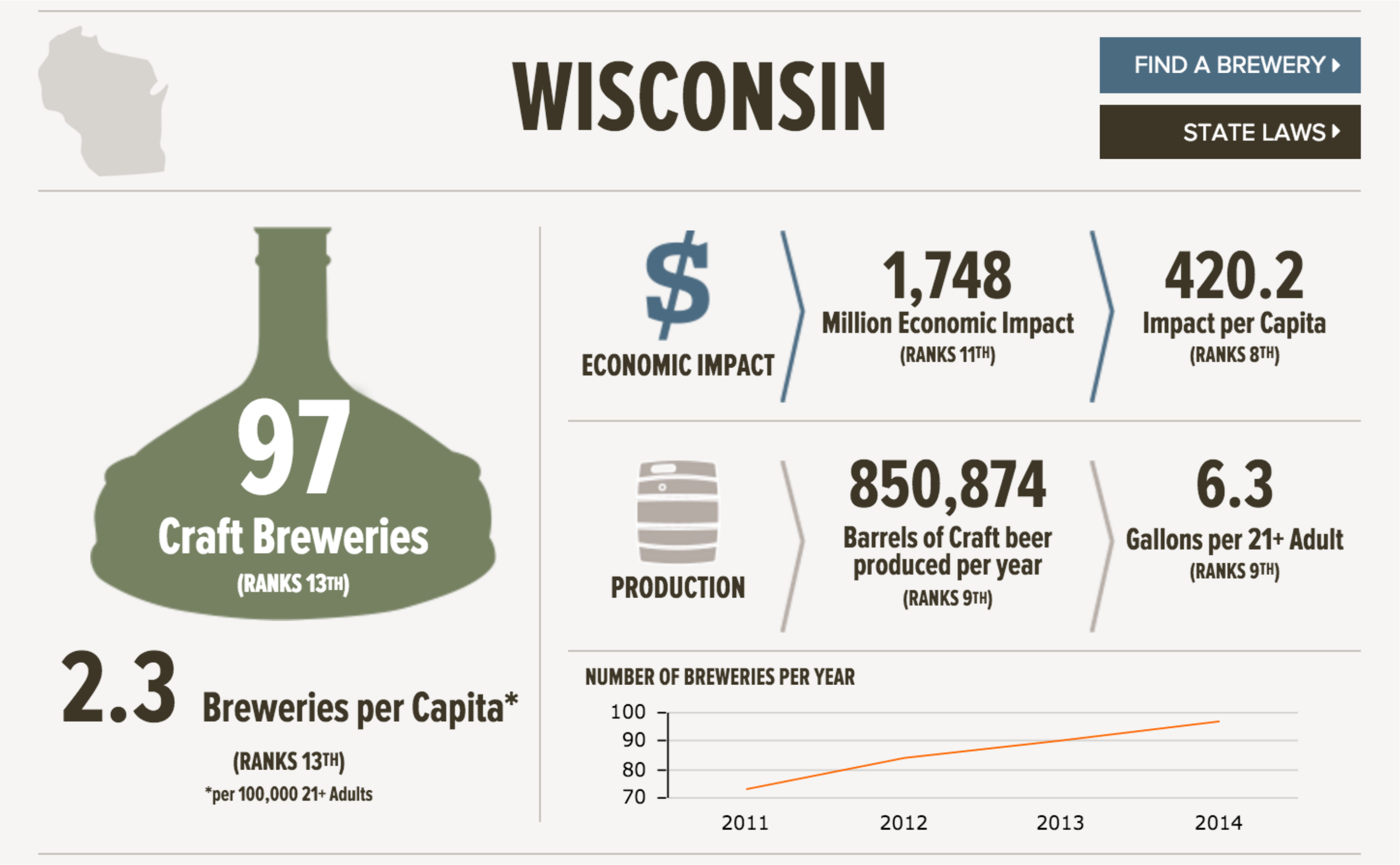
Locavore – increasing demand



Source: BA – Stats – State by State

Article

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:

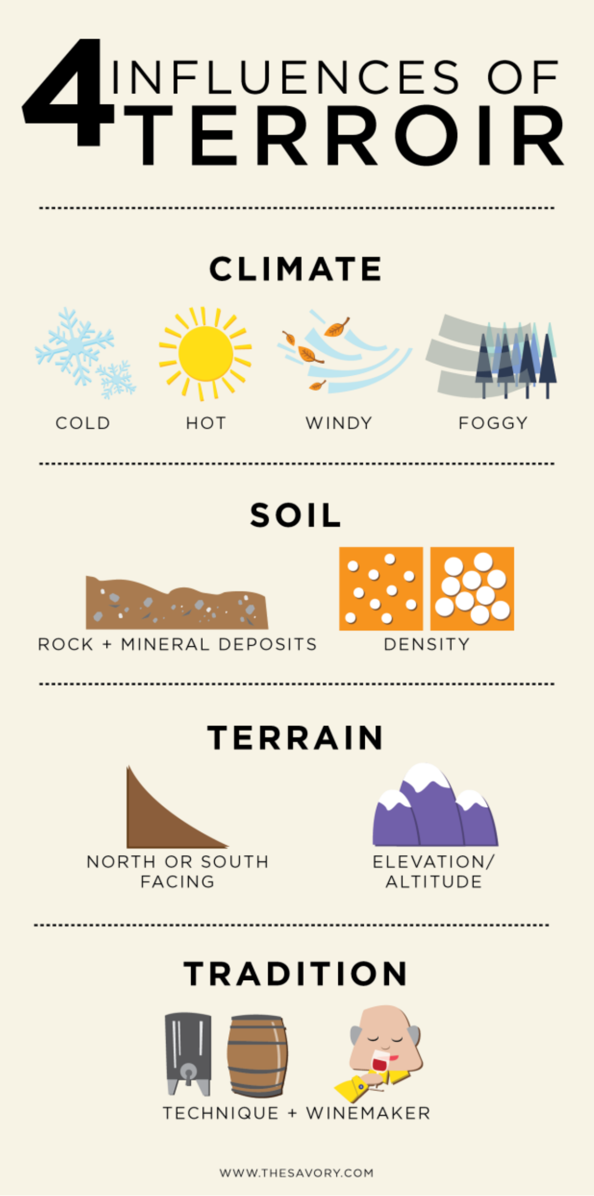
www.usahops.org

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?

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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

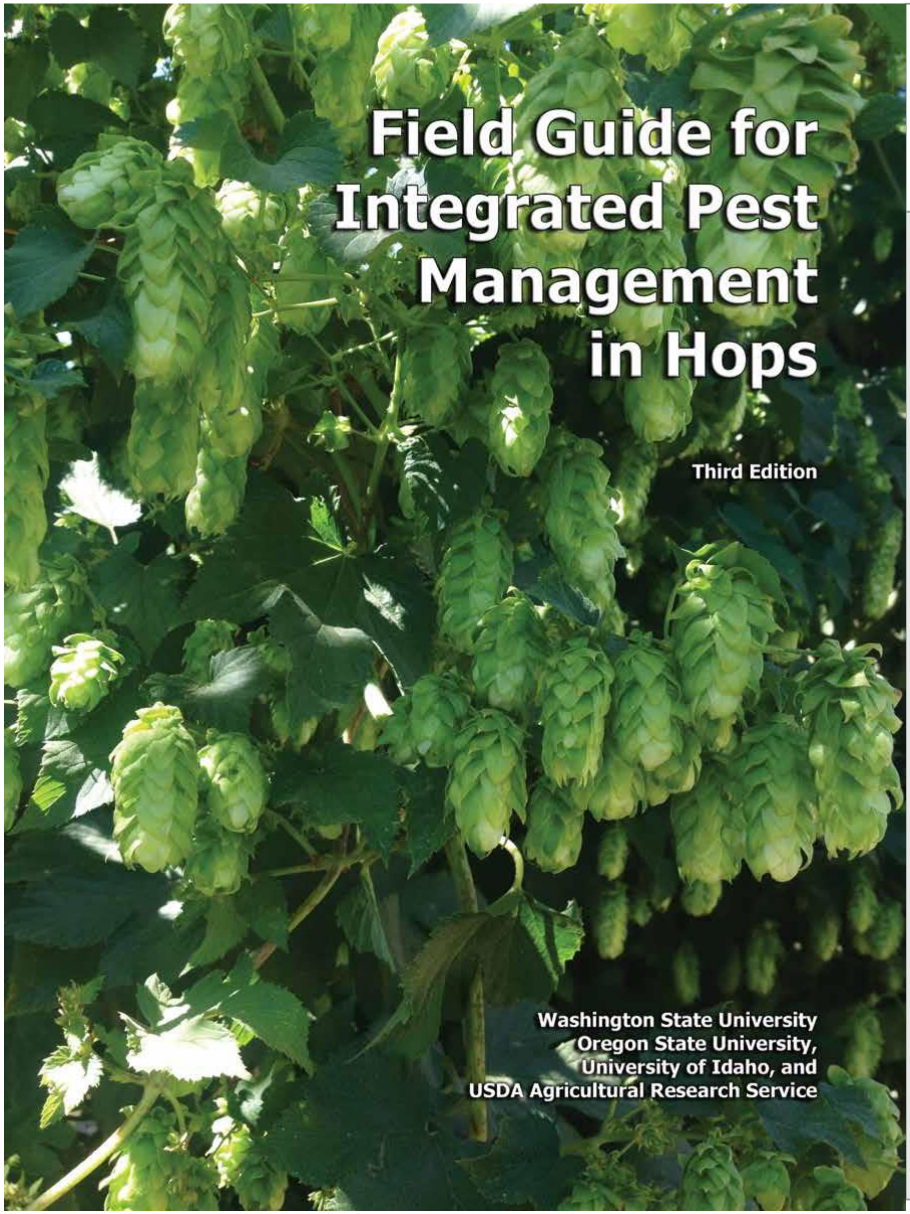
Labeling example

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**

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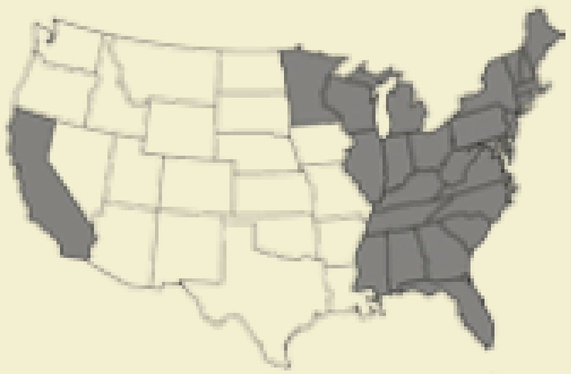
IPM Field Guide

- Includes several new pests
- Regional identification
- Latest scientific information and IPM recommendations



Japanese beetle has been reported in all states east of the Mississippi River and in California.

Overview

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- Benefits of Unified Association
- Before planting hops

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?

Before planting hops…

- 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.

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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

Before planting hops…

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?

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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?

Cost of Production

- 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

Before planting hops…

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

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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

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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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