


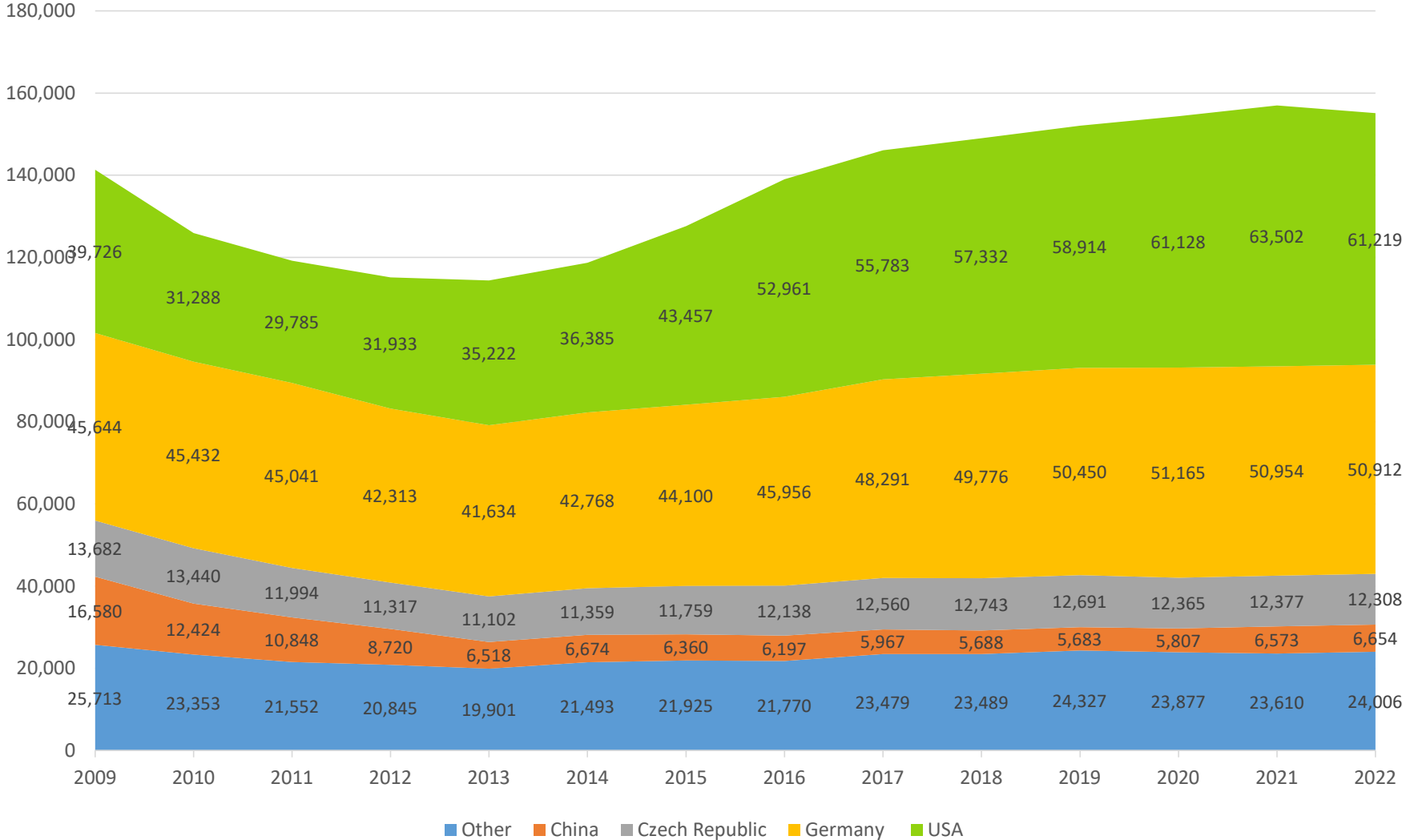
A photograph of a hop field with a black banner overlaid containing the title 'The Hop Merchant Panel'. The background shows rows of hop plants in a field, with a path leading towards a building in the distance. The text is white on a black background.

The Hop Merchant Panel

A photograph of three people standing in a hop field, with a black banner overlaid containing the date 'January 27, 2023'. The background shows rows of hop plants in a field, with a path leading towards a building in the distance. The text is white on a black background.

January 27, 2023

World Overview – Acreage Development (2009 – 2022)



2022 World Overview – Production & Yields

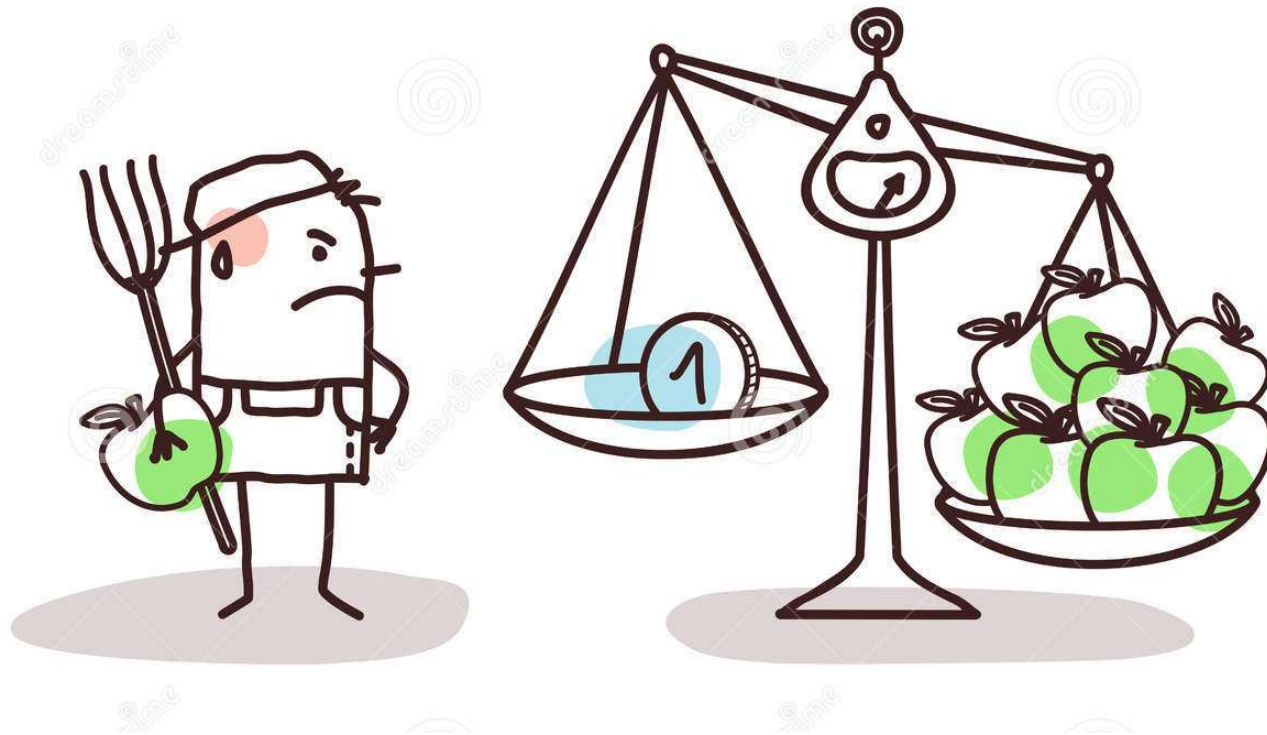
	Crop Quantities in 1,000's of Lbs.				+/- %			Ø 'Yields in lbs / acre			
	2019	2020	2021	2022	19/20	20/21	21/22	2019	2020	2021	2022
Czech Republic	15,752	13,062	18,698	9,461	-17.1	+43.1	-49.4	1,274	1,064	1,522	775
England	3,153	2,037	2,021	1,213	-35.4	-0.8	-40.0	1,332	951	1,221	753
France	1,812	1,691	2,066	1,773	-6.7	+22.2	-14.2	1,473	1,369	1,501	1,309
Poland	8,301	8,018	7,469	6,393	-3.4	-6.8	-14.4	1,907	1,846	1,719	1,499
Slovenia	5,732	6,003	4,819	4,630	+4.7	-19.7	-3.9	1,453	1,641	1,271	1,152
Spain	1,852	2,002	2,110	1,955	+8.1	+5.4	-7.3	1,409	1,457	1,503	1,366
Germany	106,863	103,349	105,518	74,957	-3.3	+2.1	-29.0	2,118	2,020	2,071	1,472
USA	113,838	104,810	115,836	101,961	-7.9	+10.5	-12.0	1,932	1,715	1,826	1,666
Australia	3,627	3,779	3,757	4,021	+4.2	-0.6	+7.0	2,097	2,058	1,932	1,771
P.R. China	12,084	12,147	13,448	13,349	+0.5	+10.7	-0.7	2,126	2,092	2,046	2,006
South Africa	1,603	1,556	1,629	1,656	-2.9	+4.7	1.7	1,519	1,476	1,632	1,671
Rest	10,131	10,496	10,007	9,527	+3.6	-4.7	-4.8	1,170	1,260	1,211	1,168
World Total	284,748	268,950	287,378	230,896	-5.5	+6.9	-19.7	1,873	1,743	1,830	1,489

2022 World Overview – Alpha Balance

	Production		Beer Production	Alpha Dosage		Alpha Usage	Alpha Balance
	(1,000's lb. Alpha)		(Mio. Barrels)	(gr. Alpha/brrl)		(1,000's lb. Alpha)	(1,000's lb. Alpha)
2015	15,075	2016	1,676	5.3		19,455	-4,379
2016	20,664	2017	1,662	5.4		19,725	939
2017	21,828	2018	1,627	5.5		19,729	2,099
2018	22,317	2019	1,634	5.7		20,655	1,662
2019	24,947	2020	1,510	5.6		18,700	6,248
2020	25,186	2021	1,586	5.7		20,049	5,137
2021	27,705	2022*	1,606	5.6		19,883	7,822
2022*	20,697	2023*	1,626	5.6		20,128	569

*Estimate

From Alpha Balance to Productions Costs



Growing costs for German hop growing

- 2012 - 2022

		2012	2016	2020	2021	2022
Variable Costs	€/Acre	2.878	2.937	3.236	3.317	4.397
Fixed Costs	€/Acre	1.577	2.377	2.529	2.671	3.072
Other Costs	€/Acre	1.344	1.723	2.266	2.266	2.428
minus VAT 10,7 % 2012-2021 9,5 % from 2022	€/Acre	-560	-680	-776	-798	-859
minus Subsidy	€/Acre	-135	-135	-121	-121	-121
Total	€/Acre	5.103	6.221	7.133	7.335	8.917
Change	€/Acre		+1.119	+912	+202	+1.582
Change	%		+21,9	+14,7	+2,8	+21,6

Other Costs=

- *Compensation for own work*
- *Interest or rent land*
- *Equity capital formation*

Inflation rate:

2012-2016: Ø 5,1 % / Year
 2012-2020: Ø 4,3 % / Year
 2012-2021: Ø 4,1 % / Year
 2012-2022: Ø 5,7 % / Year

Inflation rate for hop growing in Germany

- 2012 - 2022

— Inflation rate hop cultivation — Inflation rate Germany — Inflation rate USA

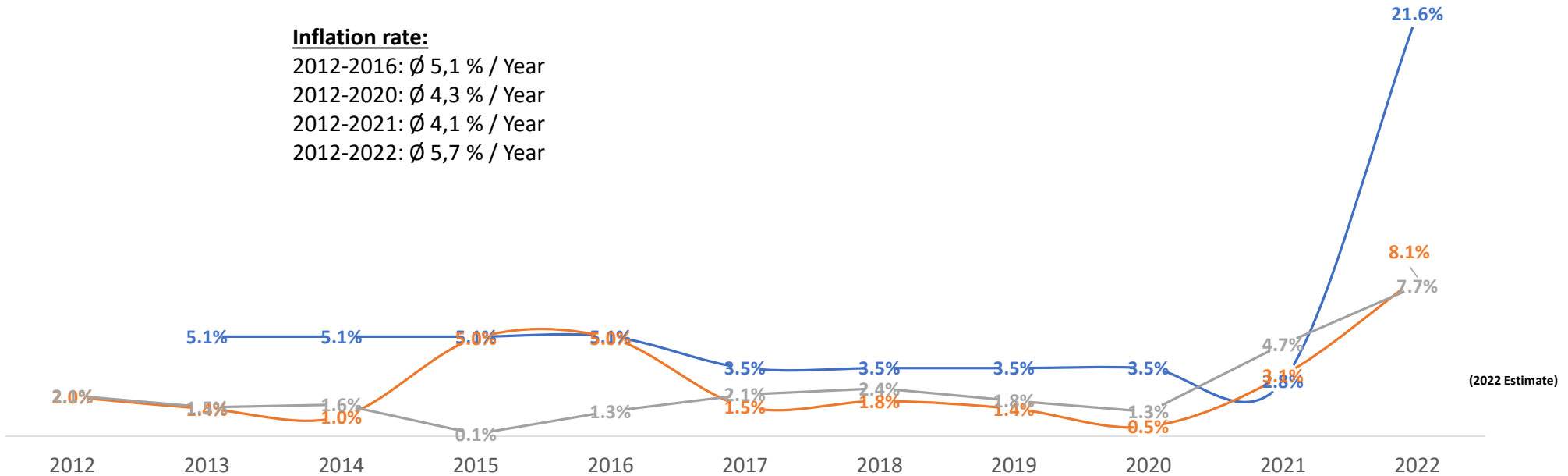
Inflation rate:

2012-2016: Ø 5,1 % / Year

2012-2020: Ø 4,3 % / Year

2012-2021: Ø 4,1 % / Year

2012-2022: Ø 5,7 % / Year



Inflation Pressures on US Hops



The Cost of the Hop



HOP ENTHUSIAST

HOP FINDER

NEWS & MEDIA

GROWER TOOLS

BREWER TOOLS

RESEARCH &
TECHNICAL

Cost of Production

Small Grower Council

Educational

Clean Plants

Industry Standards

Food Safety

Plant Protection

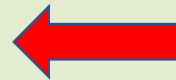
Supplier Directory

The "2020 Estimated Cost of Establishing and Producing Hops in the Pacific Northwest" published by Washington State University, is available below. We appreciate the efforts of the HGA Board of Directors who served as the committee to develop these figures. The user is able to enter their own anticipated costs and yields in the workbooks in order to determine breakeven prices.

[2020 WSU Hop Enterprise Budget Narrative](#)

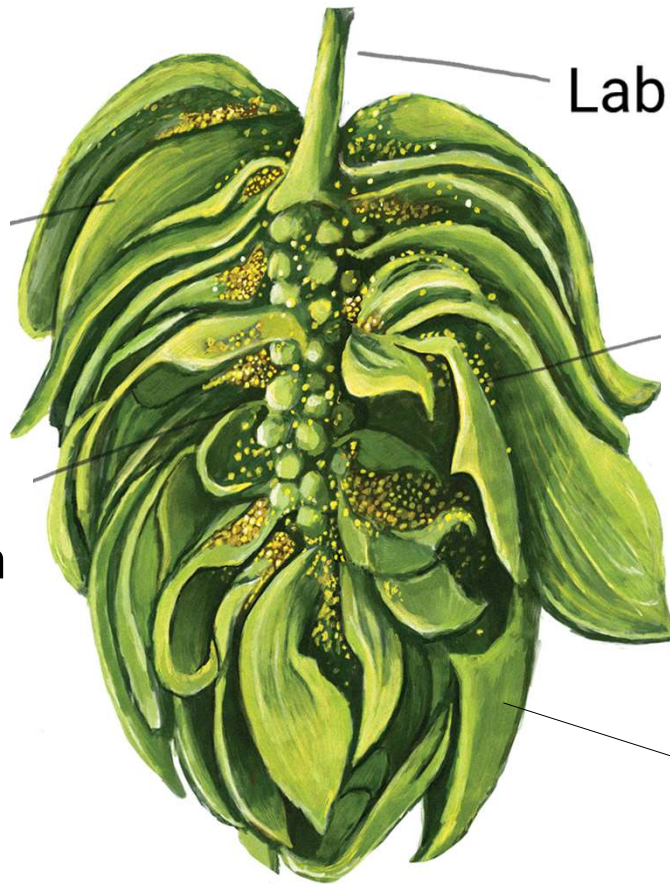
[Conventional Hop Enterprise Budget Workbook](#)

[Organic Hop Enterprise Budget Workbook](#)



<https://www.usahops.org/growers/cost-of-production.html>

Cost of the Hop



Labor

Fertilizer
& Chemicals

Fuel

Interest Cost
of Capital

Land &
Depreciation

	Year 1	Mature Production ^a
Variable Costs (\$/acre):		
Fertilizer and Leaf Feed	\$750.00	\$700.00
Chemicals	\$650.00	\$900.00
Consulting	\$25.00	\$25.00
Custom Hire	\$80.00	\$80.00
Licenses, Fees, and Dues	\$100.00	\$150.00
Parts and Repairs	\$600.00	\$600.00
Fuel and Oil	\$150.00	\$150.00
Drying Fuel	\$187.50	\$250.00
Irrigation Water	\$120.00	\$120.00
Seasonal Labor	\$4,000.00	\$4,000.00
Supplies	\$300.00	\$380.00
Interest on Operating Capital	\$174.06	\$183.88
Total Variable Costs	\$7,136.56	\$7,538.88
Fixed Costs (\$/acre):		
● Depreciation Cost of Fixed Capital	\$988.27	\$988.27
● Interest Cost of Fixed Capital	\$670.08	\$670.08
Insurance Cost	\$230.00	\$230.00
● Land and Property Taxes	\$77.00	\$77.00
Land Cost	\$675.00	\$675.00
Management	\$250.00	\$250.00
Administration	\$240.00	\$240.00
Utilities	\$170.00	\$170.00
Overhead	\$60.00	\$60.00
Amortized Establishment Cost ^b		\$2,689.43
Total Fixed Costs	\$3,360.35	\$6,049.79
TOTAL COSTS (\$/acre)	\$10,496.92	\$13,588.66

Washington State University, Pacific Northwest Hop Cost of Production Study

<https://www.usahops.org/growers/cost-of-production.html>

Methodology & Citations

- **2021 & 2022:** Apply 6.5% cost increase for 2021 and 6.2% for 2022 (HGA Stat Pack) to the WSU Hop Enterprise Budget.
- **2023:** Variable Cost increase assumptions based on the following sources:
 - 1). **Labor:** [Publication | Farm Labor | ID: x920fw89s | USDA Economics, Statistics and Market Information System \(cornell.edu\)](#)
 - 2). **Fertilizer & Chemicals:** [Rabobank Fertilizer Outlook](#)
G.S. Long Co. Fertilizer & Chemical Market Update, Washington Hop Grower Meeting- Jan 5, 2023.
 - 3). **Fuel:** [Will Gas Prices Fall in 2023? Here's What Experts Predict | Money](#)
[Washington gas prices jump about 10 cents as CO2 tax takes effect » Publications » Washington Policy Center](#)
- **General Inflation:** [Producer Prices Forecast 2023/2024 \(tradingeconomics.com\)](#)

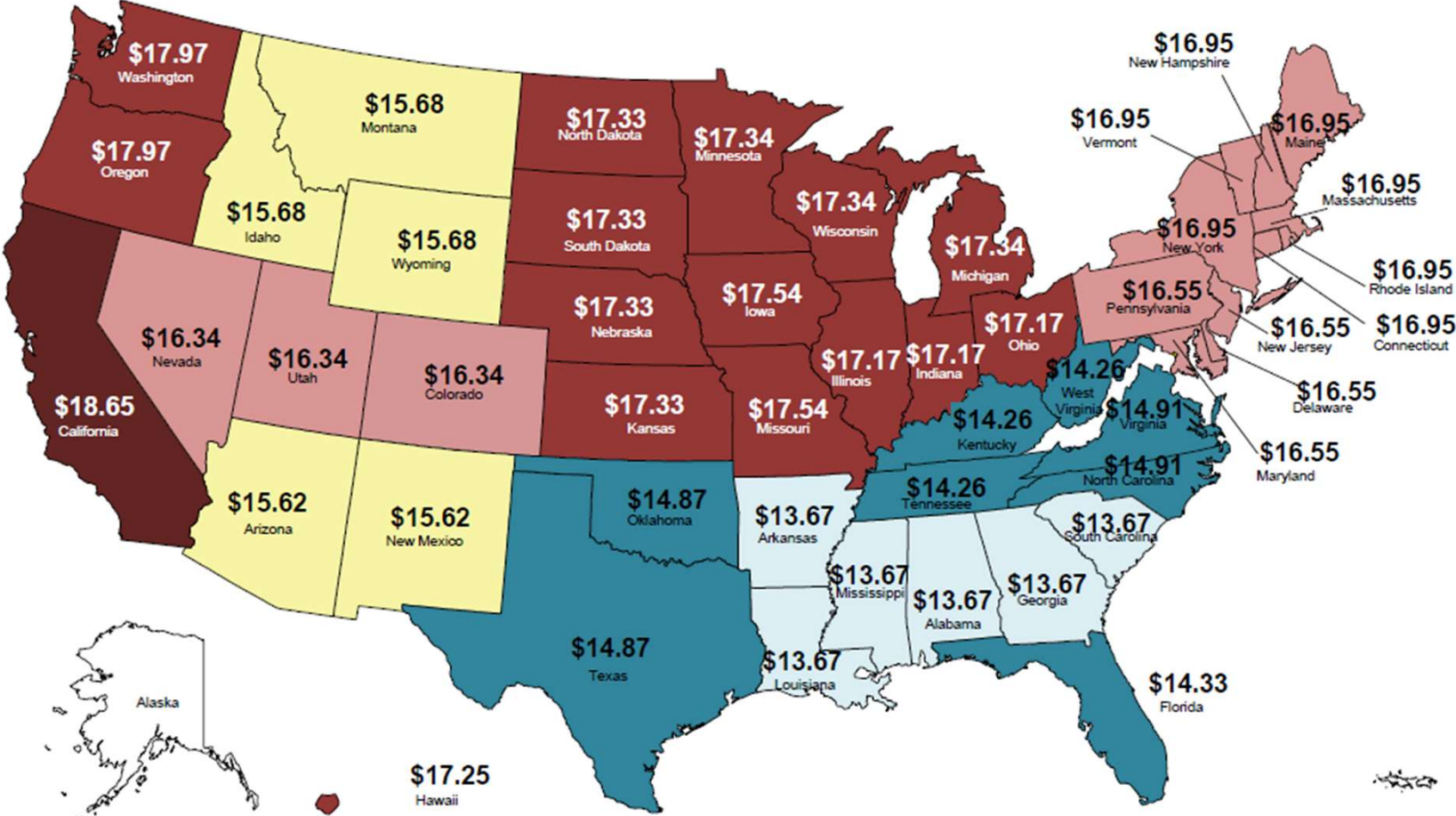
Labor

- Overtime Threshold down to 48 hours / week
([ESSB 5172](#))
- Minimum Wage Increase
\$15.74 / hour
- Adverse Effect Wage Rates (AEWR)**
\$17.97 / hour

*Does not include housing, food, and transportation costs.

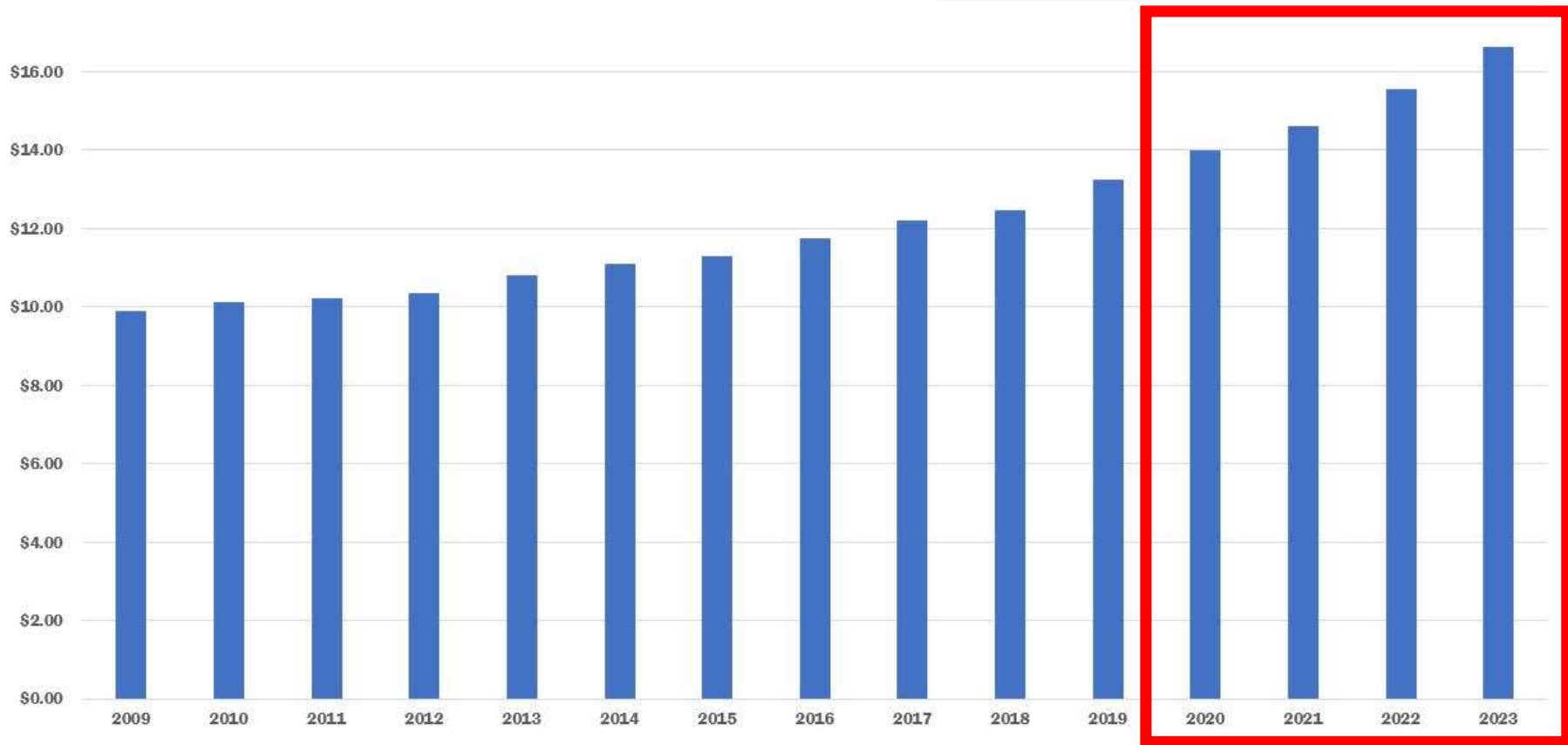
** Does not include new (2023) H2A certificate fees.

FY 2023 Adverse Effect Wage Rates (AEWR)



[AEWR-Map-2023.pdf \(dol.gov\)](#)

National AEW R Rates 2009 - 2023



AMERICAN FARM BUREAU FEDERATION®

www.fb.org

Source: DOL, USDA NASS

[Examining the 2023 AEW R \(fb.org\)](http://fb.org)

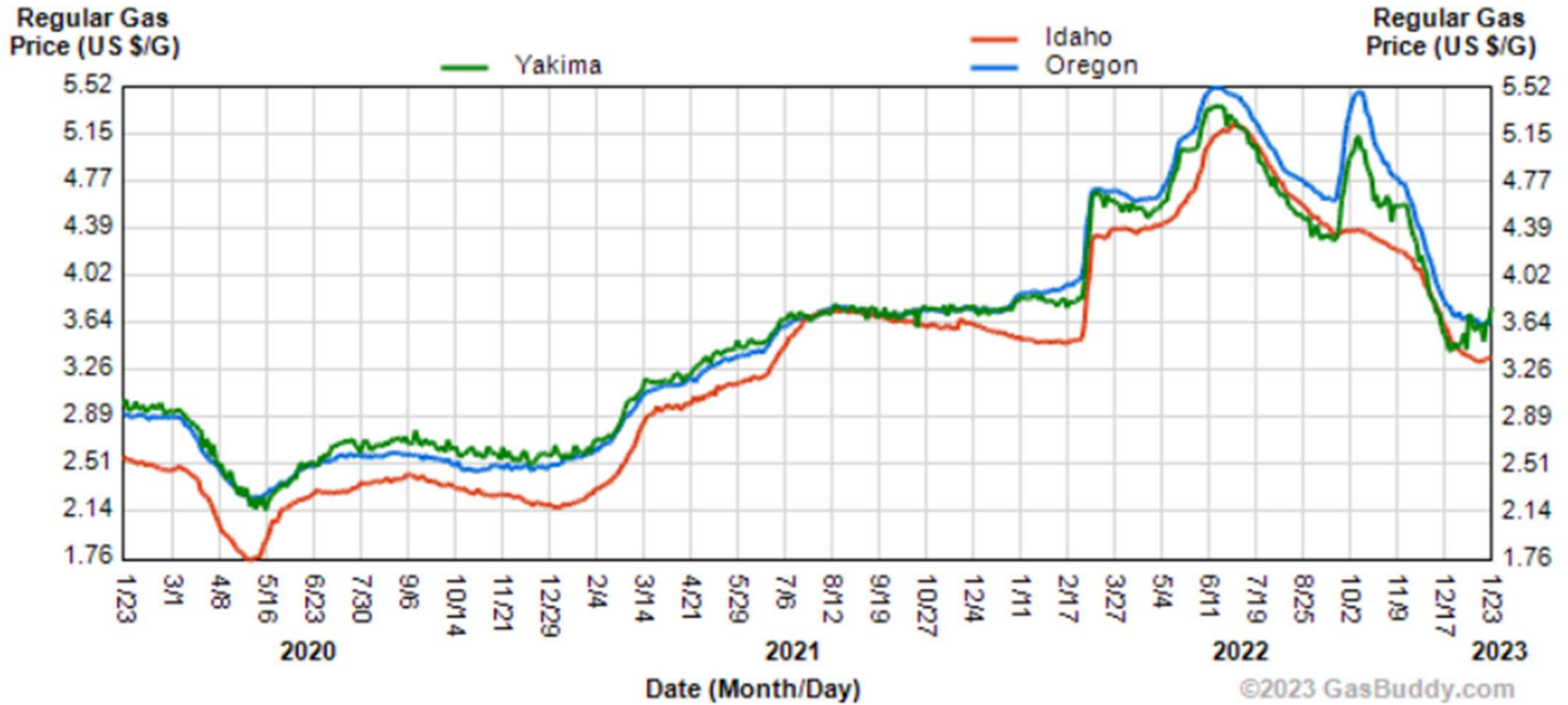
Fuel

WTF?

Where's The Fuel?

- 2023 Expected to remain stable????.
- WA CO₂ Emissions Tax expected to increase costs.

36 Month Average Retail Fuel Price Chart



Fertilizer & Chemicals

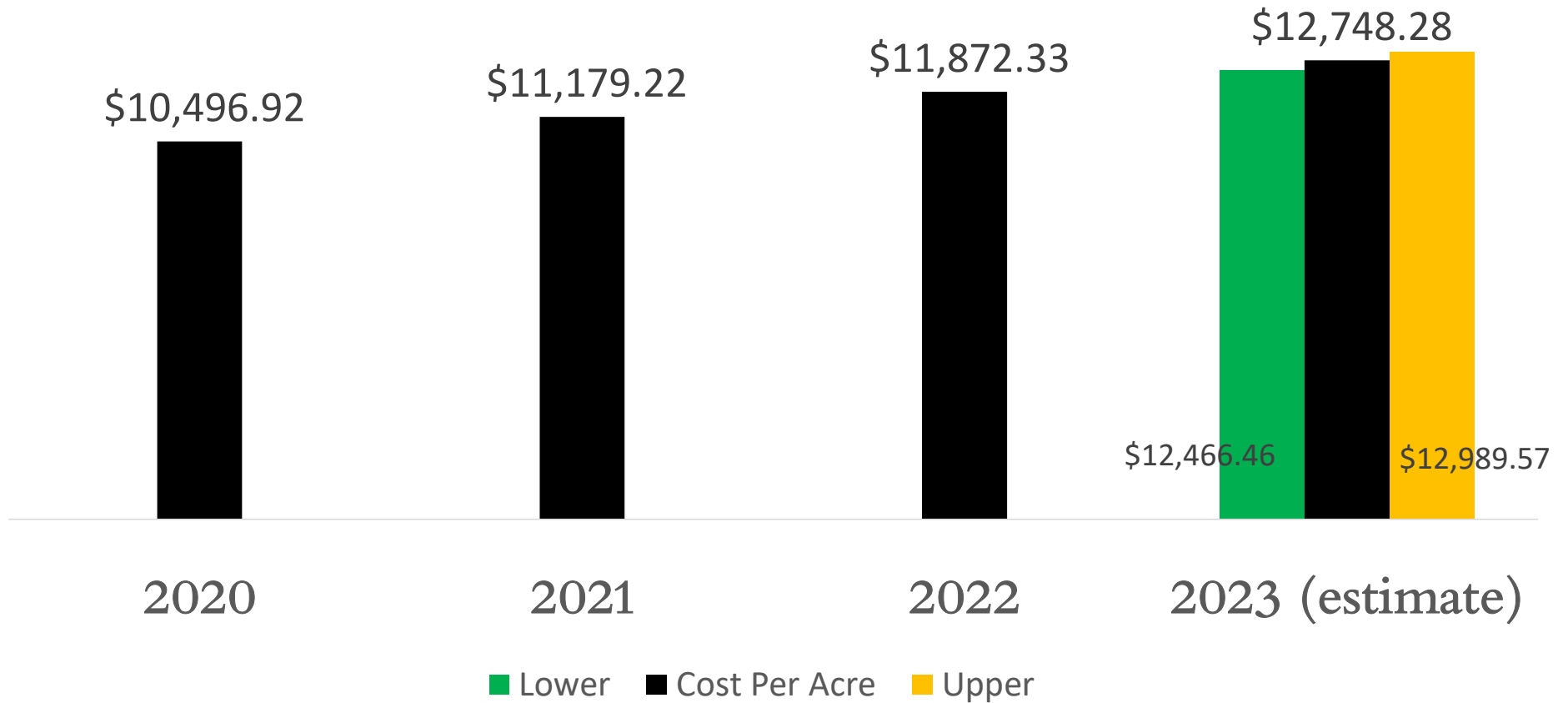
- Fertilizer Cost increased substantially in 2022.
- Expected to **drop** in 2023??
- Growers will be buying supplies before prices drop.

Sources:

Fertilizer: [Rabobank Fertilizer Outlook](#)

Chemicals: [G.S. Long Co. Fertilizer & Chemical Market Update, Washington Hop Grower Meeting- Jan 5, 2023.](#)

Cost per acre of hops Hop- 2023 projection



The cost per acre of hops is estimated to have increased by 21.4% since 2020.

Brewery Challenges

- **Staff: availability and wage increases**
- **Inflation having large impacts on raw ingredients**
- **Aluminum can shortages and increase minimum orders**
- **CO2 shortages**
- **Barley quality poor from last year and price up... 30%**
- **Hop OVER contracts and managing getting back into “normal”**

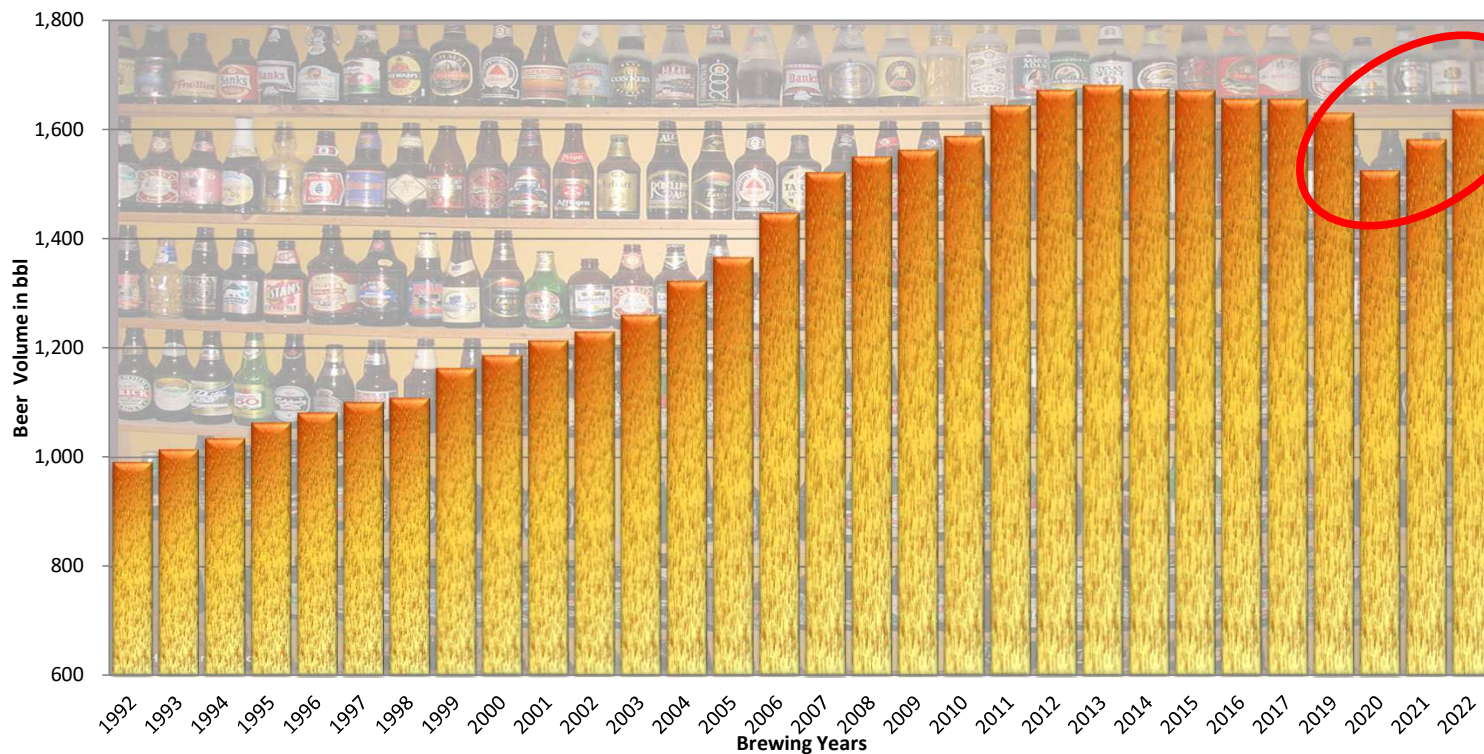




Market Outlook

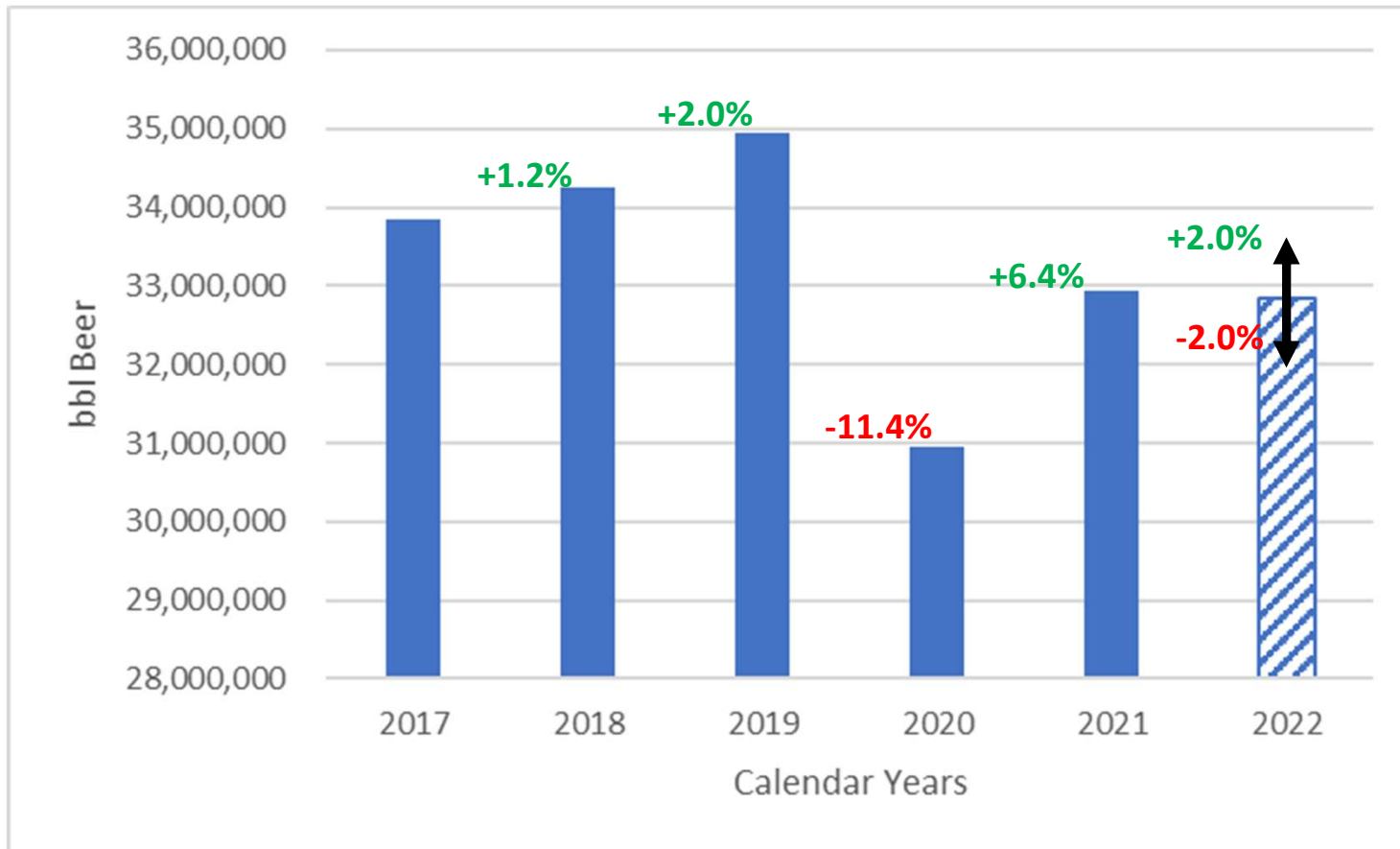
January 2023

World Beer Volumes (30 years with 2022 est.)



- ▶ World beer volumes nearing pre-pandemic levels by end 2022
- ▶ Europe – return of on-premise (up to 50% of beer consumed this way)
- ▶ World's biggest brewers benefitting most – offer affordable lagers

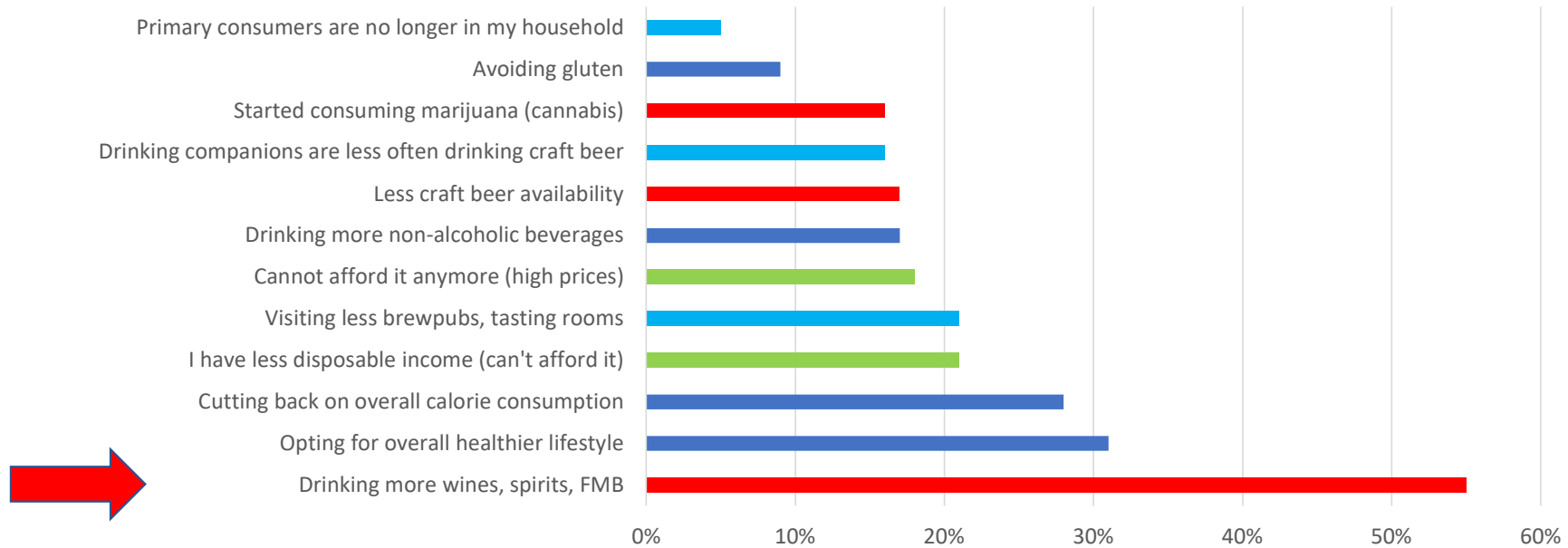
US Total Craft Volumes (2017 to 2022 est.)



- ▶ Includes BA Craft & “Crafties”
- ▶ Pre-pandemic: steady but muted growth
- ▶ Pandemic Year 2020: strong decline, 30% on premise nearly vanished
- ▶ 2021 - 2022: recovery falters

Demand Decline: Reasons For Drinking Less Craft Beer

Source: Harris Poll 2022 of U.S. craft consumers



Primary reasons given for less craft beer consumption:
Choosing alternative/competing beverages, healthier lifestyle and affordability

Strong Competition from the 4th Category



An aerial photograph of a hop field, showing rows of green hop plants stretching across the landscape. The plants are densely packed and appear to be in the middle of their growth cycle. The perspective is from a high angle, looking down on the rows.

Market Impact on US Hop Production Outlook & Inventory

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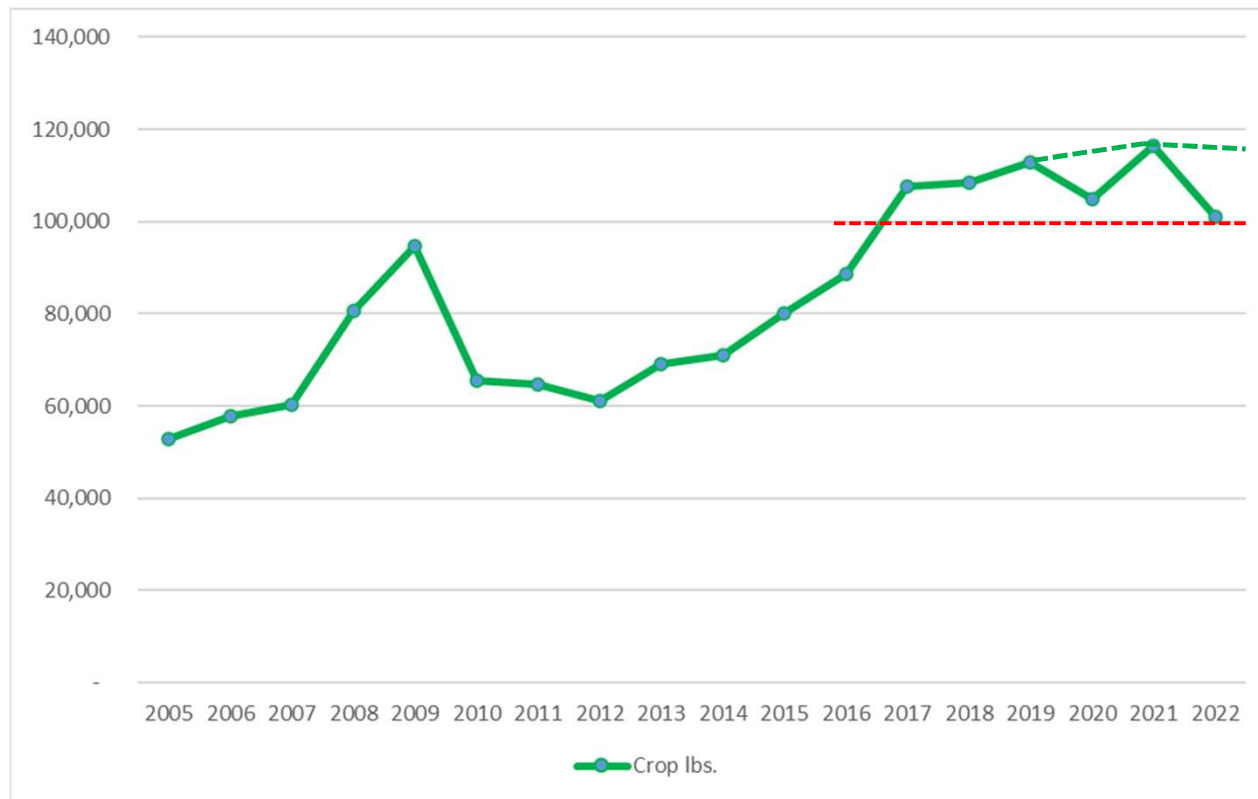
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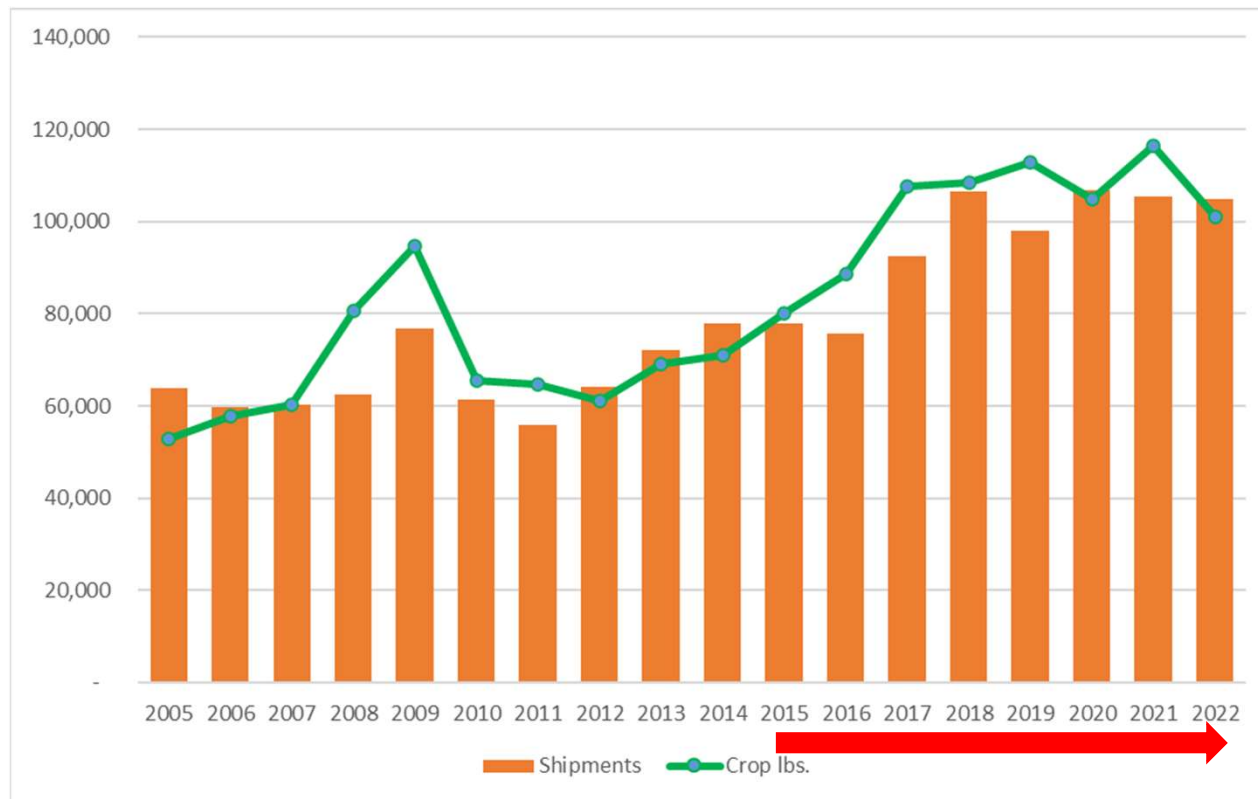
Analyzing the Data

US Hop Production Crops 2005 - 2022



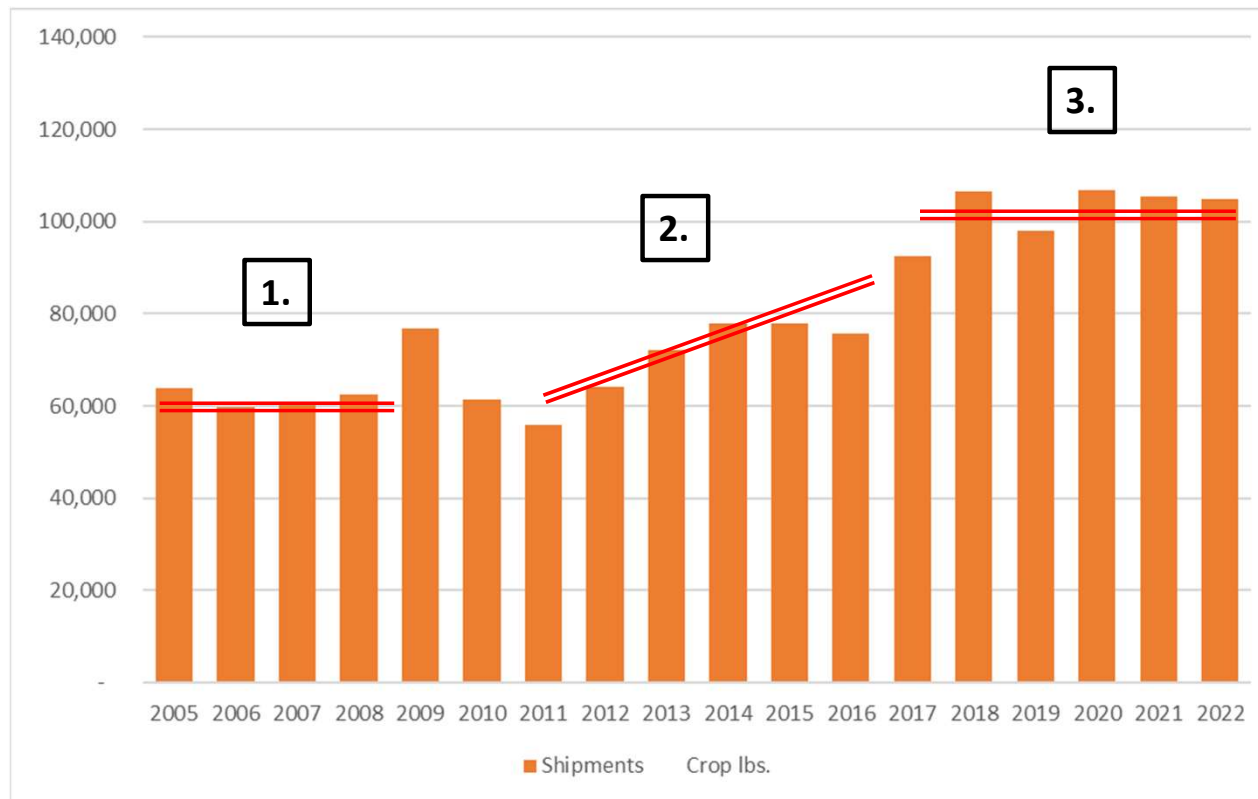
- US hop production nearly doubled since 2015
- Crossed 100 million lbs. in 2017
- Structural capacity to produce 115 – 120 million lbs.
- **Question: Was and Is this production really needed?**

US Hop Production & Shipments



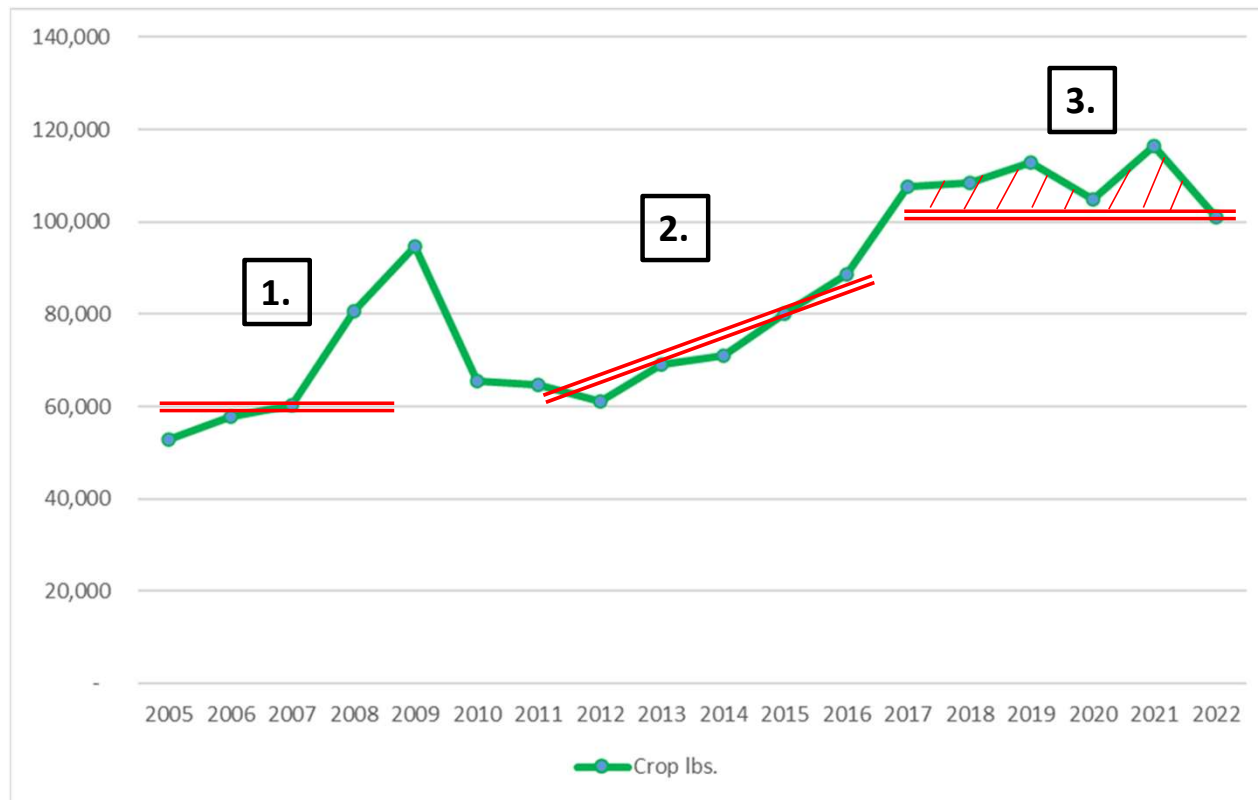
- Orange bars represent quantity of hops shipped in the 12 months after the crop
- If production (green line) above orange bars, more hops produced than shipped
- Since 2015, in 6 out of 8 years hop industry produced more hops than shipped

US Hop Shipment Pattern



- Three distinct shipment periods:
 1. Pre-Alpha Boom, shipments flat
 2. Craft Growth Period, 2012 – 2017
 3. Craft Maturation Period, 2018+
- Last period – shipments around 100 – 105 million lbs. per year

Inventory Accumulation

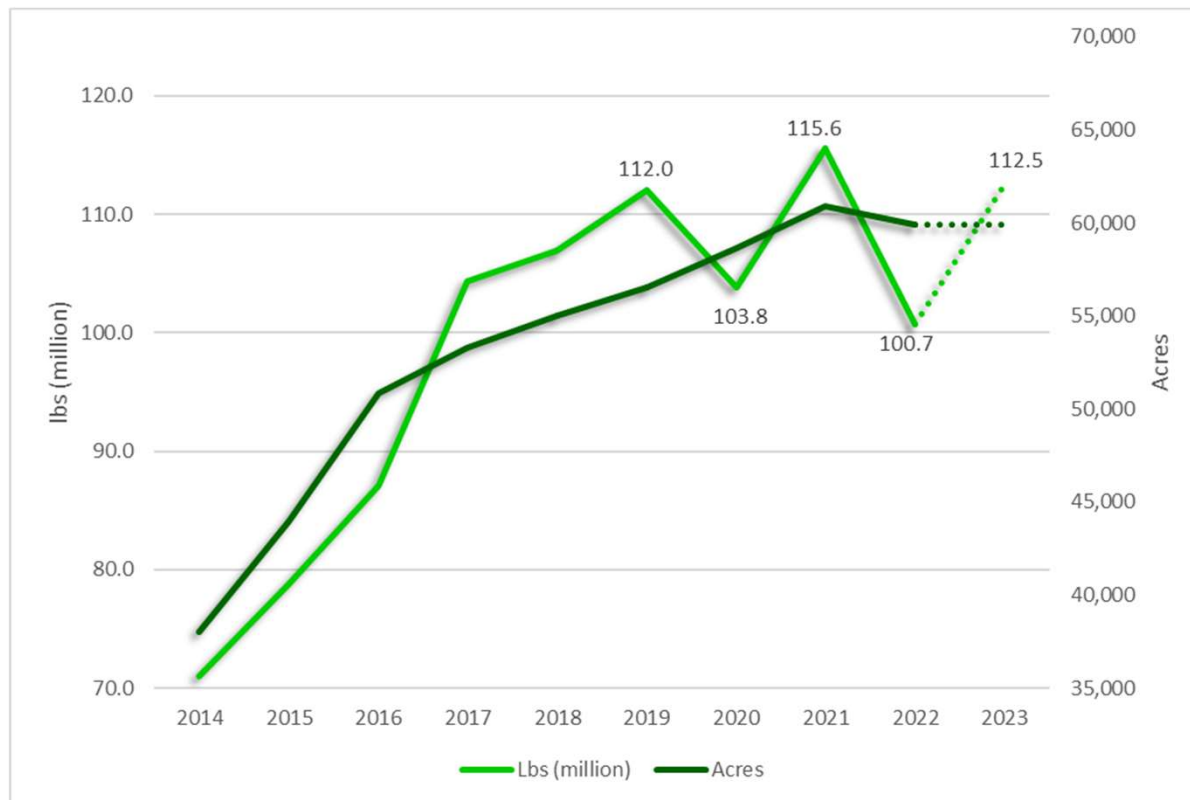


- In Period “3.”, US industry accumulated an estimated **35-40 million lbs.** extra hops
- Initially, most of these hops were “sold”
- **But...”sold” does not necessarily equal “shipped”**
- **Our warehouses are full with “sold” hops, (a lot not yet paid for)**

Necessary Consequence – Acreage Reduction

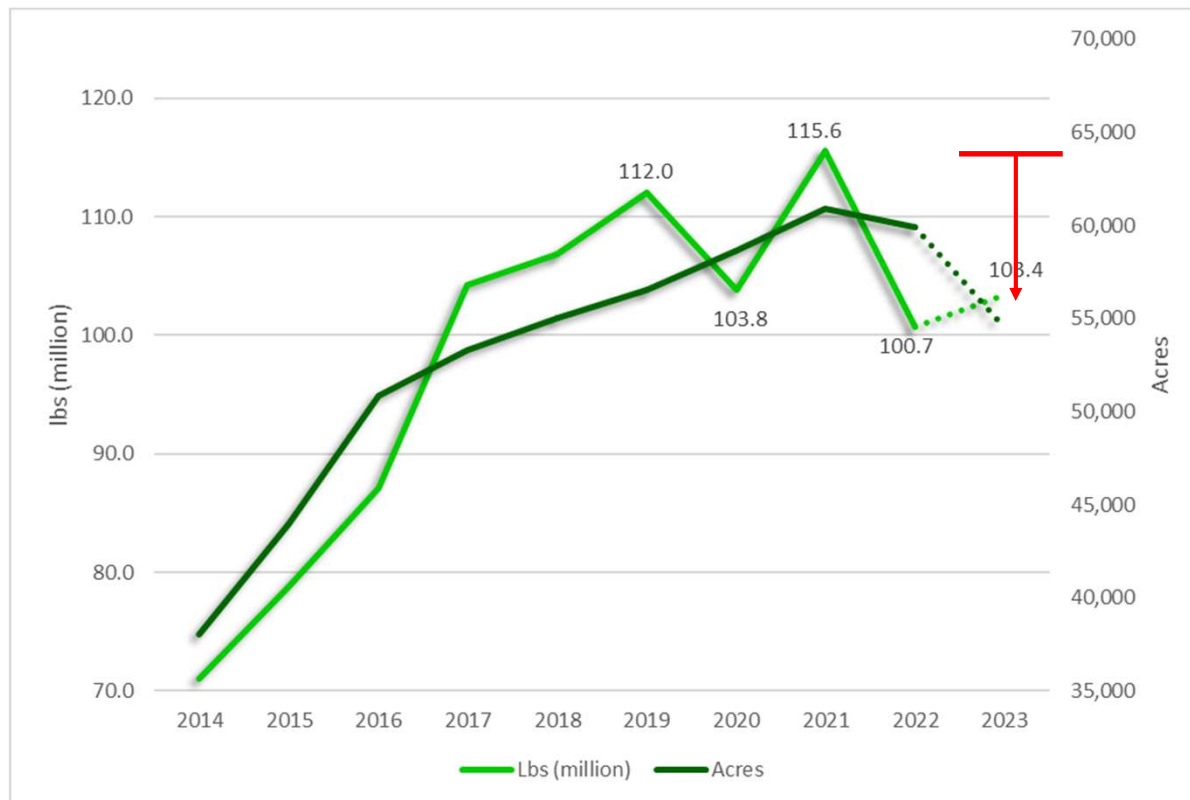


Adjustments for Crop 2023 – No change



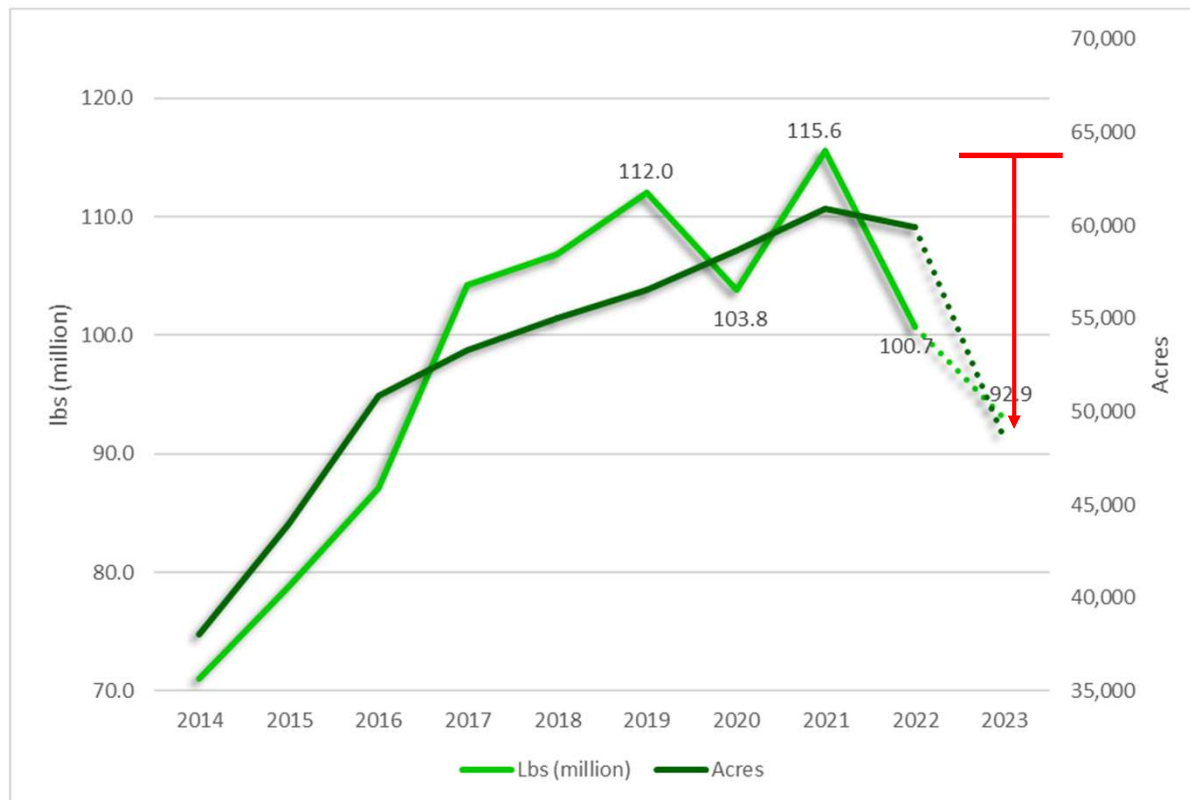
- If no changes in acres and yields return to normal, production = 112 - 115 million lbs.
- Most or all increase in production would go into inventory
- Not tenable!

Adjustments for Crop 2023 – Moderate Effort



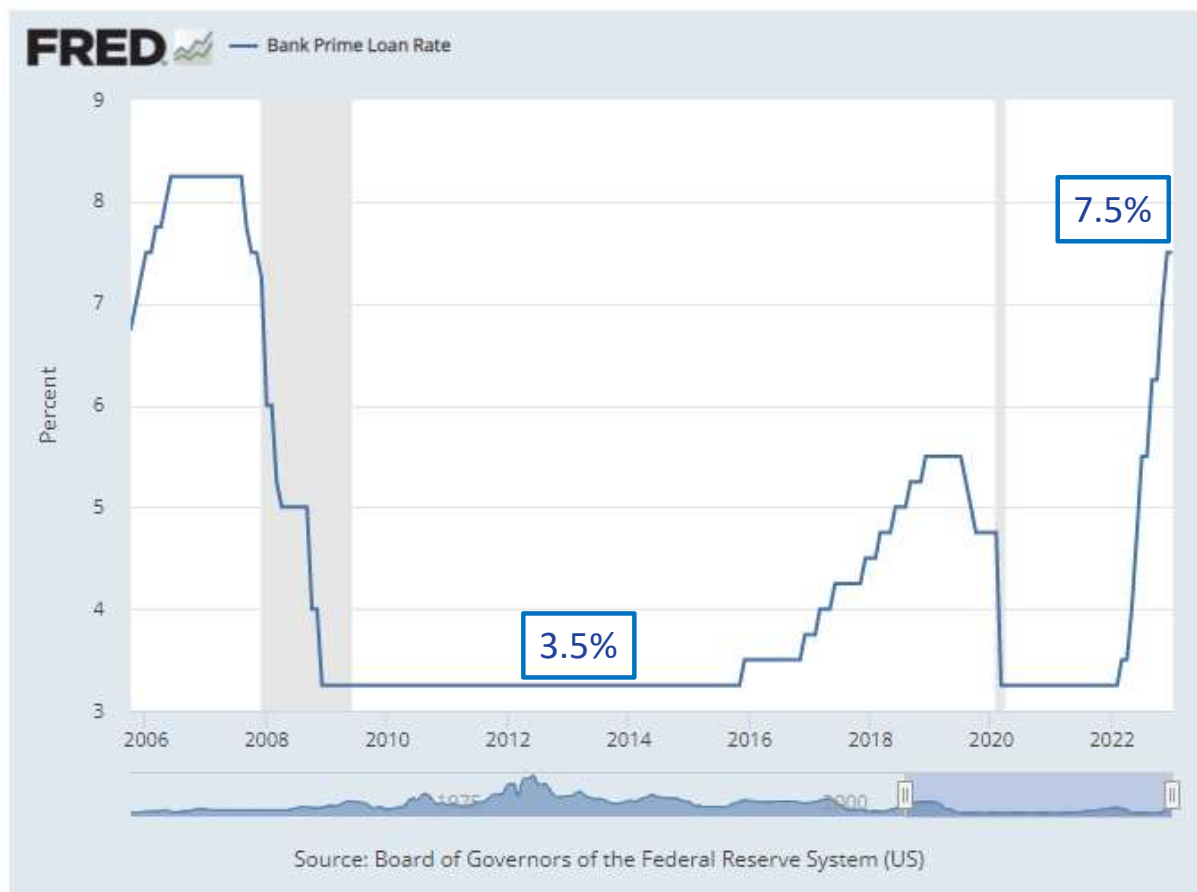
- Acreage adjustment:
 - Aroma by $-6,000$ ac
 - Alpha up by $\sim +500$ ac
- Assuming normal yields
- Produces 100+ million lbs. with normal yields
- A significant effort without impact - does not reduce inventory
- Already accumulated inventories continue to burden future crop years

Adjustments for Crop 2023 – Necessary

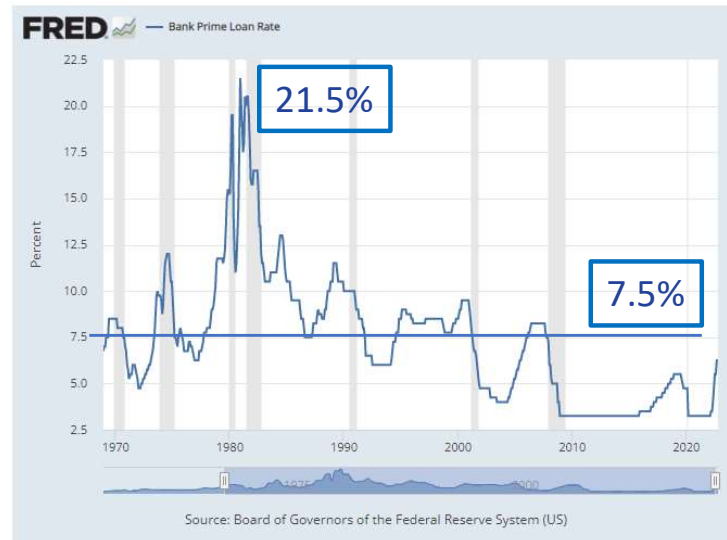


- Necessary adjustment:
 - Aroma by $\sim -10,000$ ac
 - Alpha up by $\sim +500$ ac
- Brings production well below 100 million lbs.
- Allows inventory reduction of up to 10+ million lbs.
- Acreage cut of such magnitude ($\sim 10,000$ acres) only made only once in history: 2009-2010

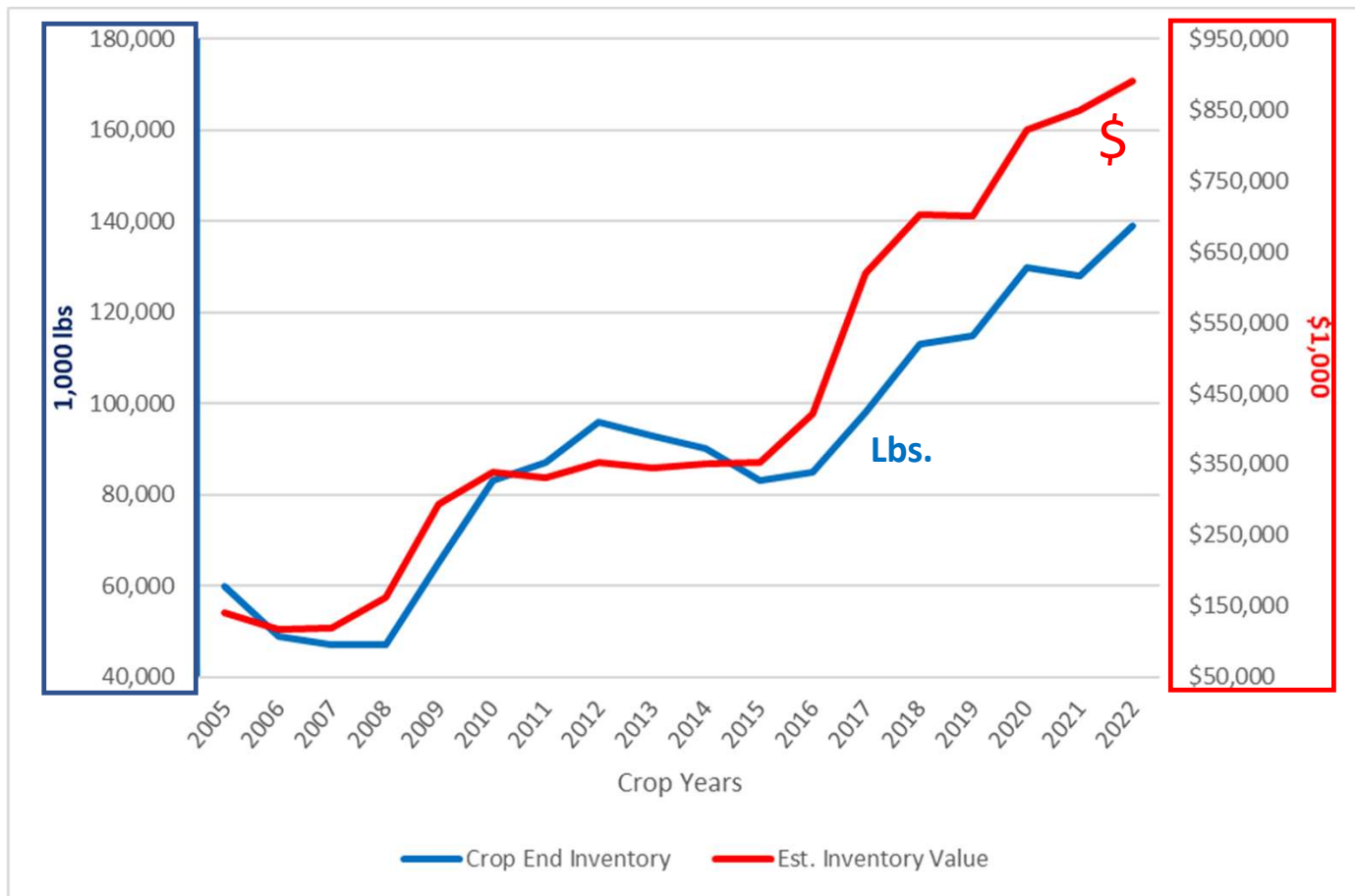
The Cost of Financing – Interest Rates



- Prime Rate increase from 3.25% to 7.50%, tendency up
- Still historically “low”, 1990’s rate ranged 7.5% to 10%
- **Financing cost has doubled on biggest inventory in US hop history**



The Burden of Inventory Cost



- The estimated accumulated US inventory value has ballooned to nearly **\$900 million**
- At “just” prime rate, financing cost is approx. **\$65 million**
- The US crop 2022 farm gate value was about \$600 million -> financing costs represent 10+% of crop value
- Financing burden born by **growers, trade and brewers** -> excess inventories serve no one

* *Inventory cost include farm gate value plus take-in, storage, some processing*

Summary

- World acreage slight dip in 2022, but -20% volume harvested than 2021
- Growing costs Germany and US experiencing strong inflationary pressures driven by labor, fuel, chemicals
- World beer volume inching toward pre-pandemic levels, US craft is not
- Demand for (shipments of) US hops (particularly US aroma/flavor) at level running below structural supply for several years (~100 MM vs. 115-120 MM lbs. production).
- Crop 2023 production needs to drop well below 100 MM lbs. to start reducing accumulated excess inventories of 35-40 MM lbs.
- Accumulated inventory financing cost equal to ~10% of farm gate value



Questions