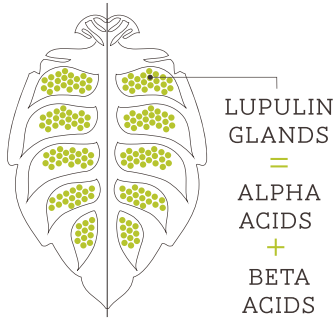


HOMEGROWN HOPS

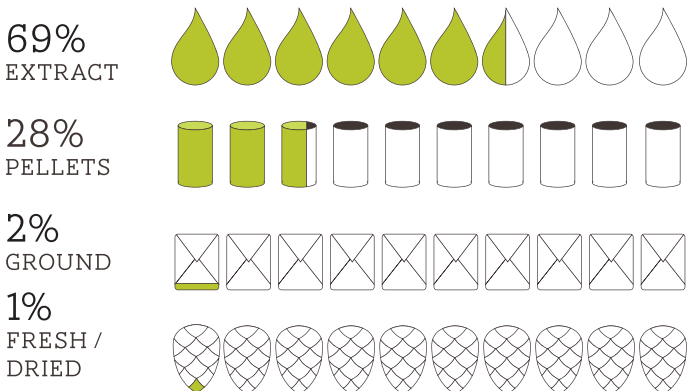
Hops and the economy of Washington state

WHAT ARE HOPS?

Hops are female flowers that grow on a vine. Lupulin glands inside the base of the bud cone hold Essential Oils, Alpha Acids, and beta acids, which combine to create the unique scents and bitter tastes in beer.



WHERE THE HOPS GO



HOPS IN BEER

ALPHA HOPS

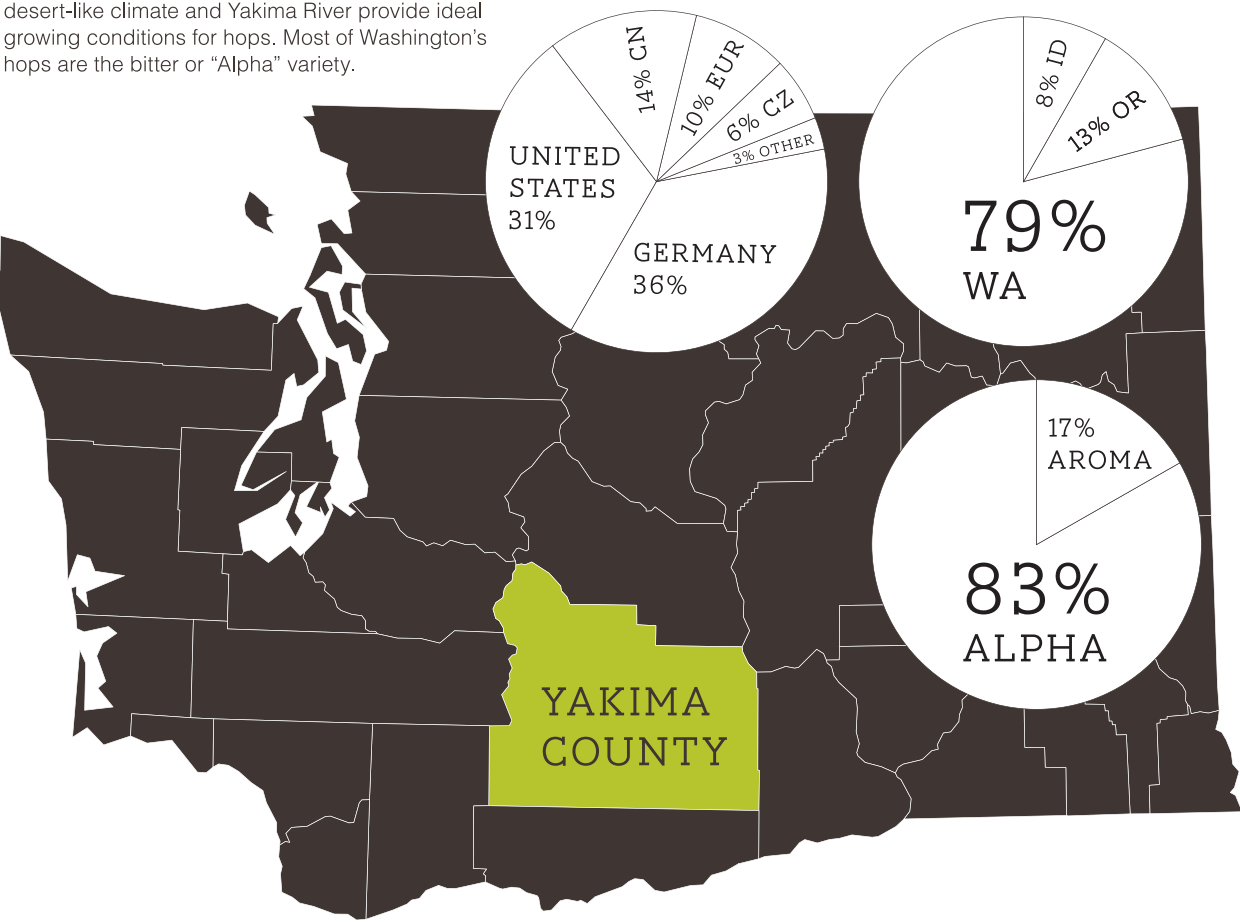
Alpha hops contain high Alpha Acids from resins in the Lupulin glands which provide the harsh, sharp, or heavy bitter flavors and scents in beer.

AROMA HOPS

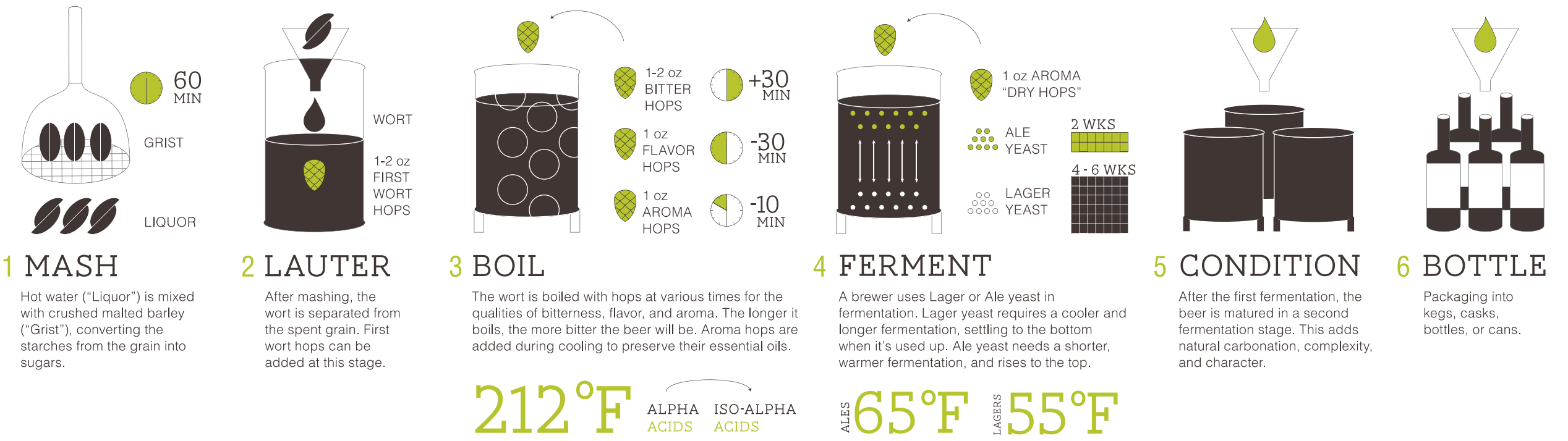
Aroma hops contain volatile essential oils, high Beta Acids, and lower Alpha Acids. Although present in only 0.5–3.0% of the whole cone, these oils provide the fragrances such as citrus, floral, and spice in beer.

WHERE THE HOPS GROW

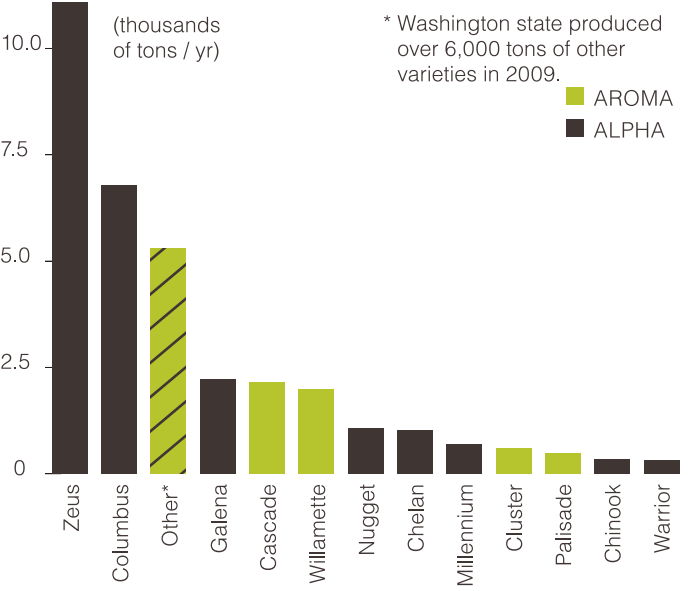
Washington state produces over 3/4 of the hops in the U.S., mostly out of the Yakima Valley region, where a desert-like climate and Yakima River provide ideal growing conditions for hops. Most of Washington's hops are the bitter or "Alpha" variety.



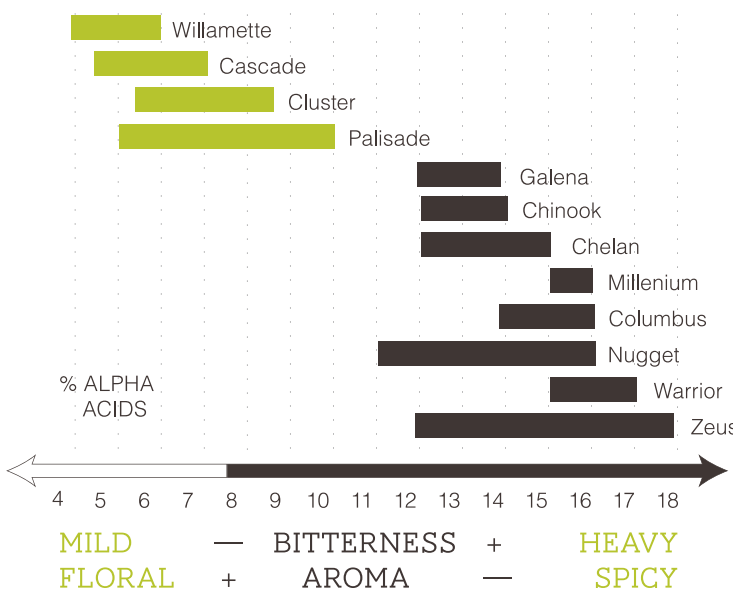
HOPS IN THE BEER: THE BREWING PROCESS



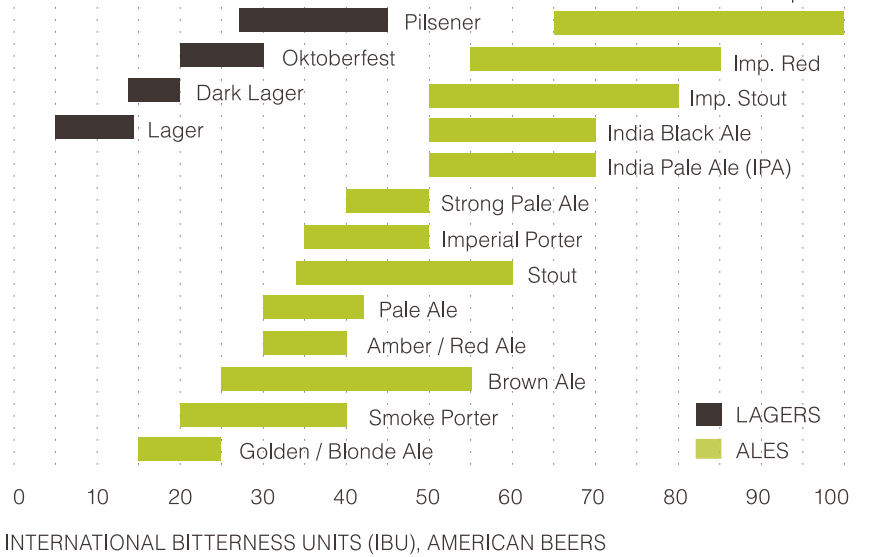
TOP HOPS VARIETIES (WA)



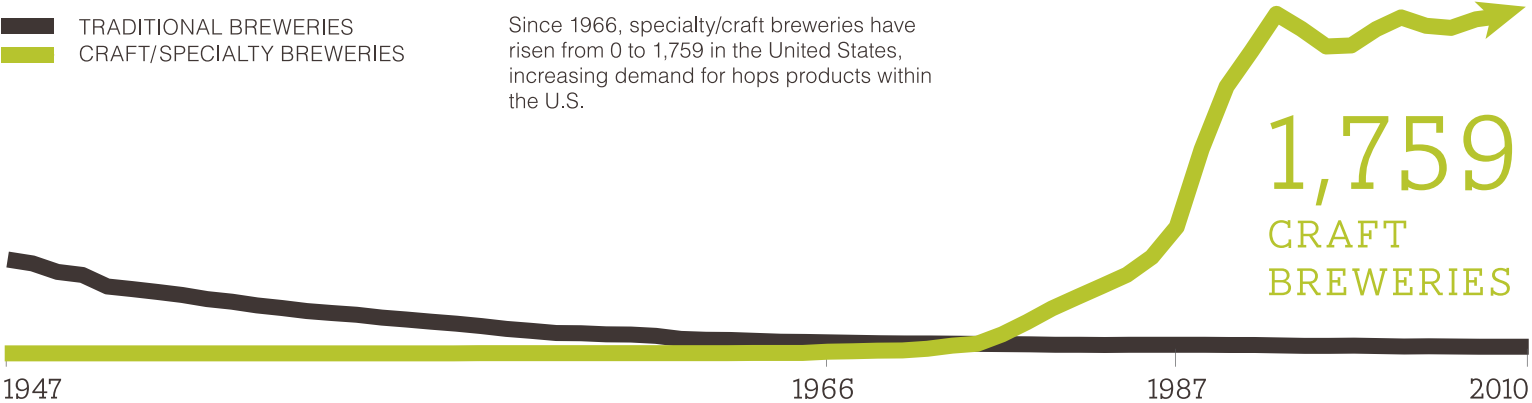
HOPS VARIETIES & BITTERNESS



HOW BITTER IS THAT BEER?



CRAFT BREWING HOPS UP



HOPPING BREWERIES IN THE NATION

STATE	TOTAL BREWERIES	POPULATION PER BREWERY	PER CAPITA RANK (2008)
VERMONT	19	32,700	1
MONTANA	27	35,800	2
OREGON	93	40,800	3
MAINE	31	42,500	4
COLORADO	103	48,000	5
ALASKA	14	49,000	6
WYOMING	10	53,000	7
WASHINGTON	100	65,500	8

SOURCES

USA Hops; National Agricultural Statistics Service; Washington State University; Barth Report, 2009-2010; Brewer's Association; Brewer's Almanac; Brewing Industry Research Program, 2009.

DATA COLLECTION AND DESIGN

Amy J. Keeling, 2010