

CRAFTING EXCELLENCE

AMERICAN HOPS GUIDE

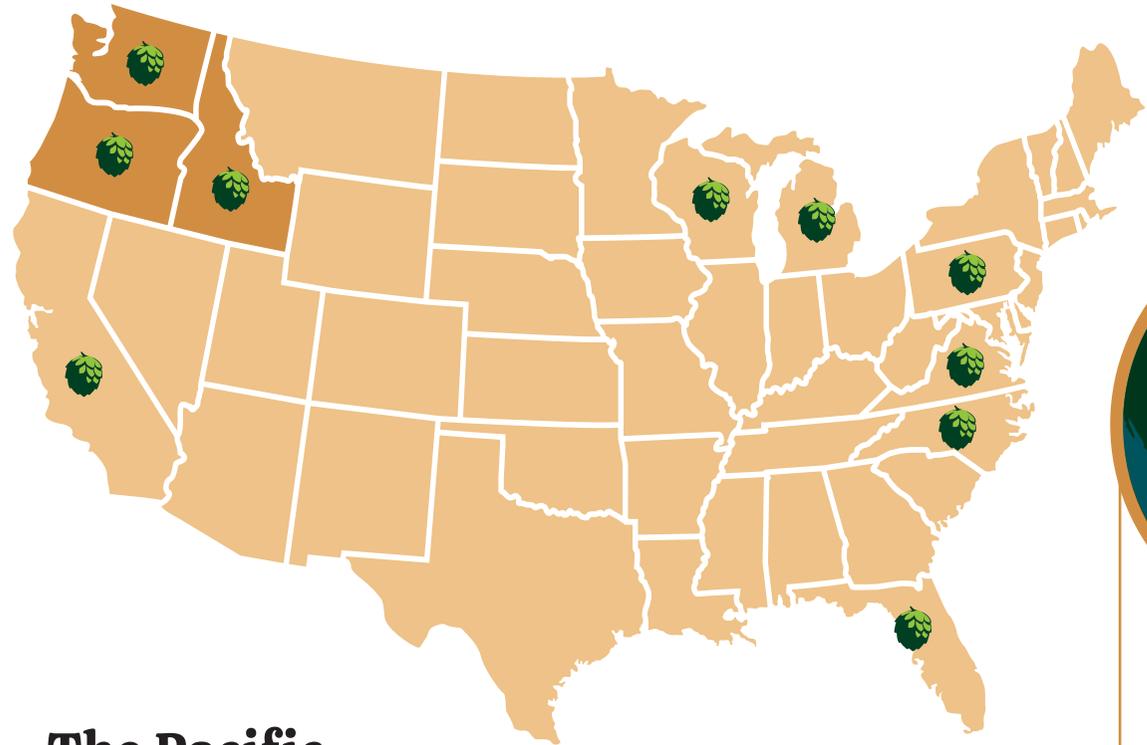


WHO WE ARE

The United States is the foremost hop-producing country in the world, cultivating over 38% of the world’s hop supply. Hop Growers of America (HGA) represents United States hop producers and provides a link between growers and brewers around the globe. We provide research, education, best practices, legislative advocacy, and market development for our grower members and USA Hops.

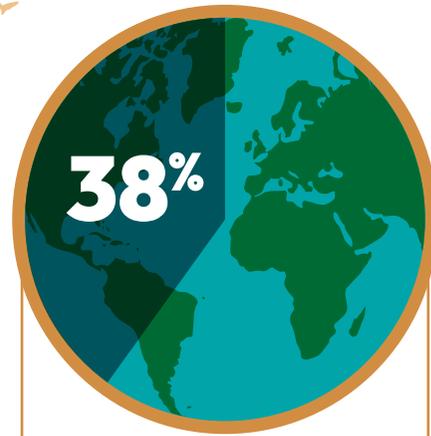
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INTRO INTO AMERICAN HOPS



The Pacific Northwest and coastal states have a long history in U.S. hop crop production.

From the end of prohibition to today, acreage has grown as the commercial hop industry spreads across the nation. Today, Washington, Idaho, and Oregon produce over 95% of the U.S. hop crop and approximately 38% of the global hop crop, illustrating the magic of the PNW's unique mix of geology, climate, infrastructure, and people.

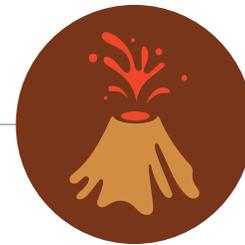


The United States currently produces approximately 38% of the world's hop supply with...

**OVER 95%
COMING FROM
THE PACIFIC
NORTHWEST.**

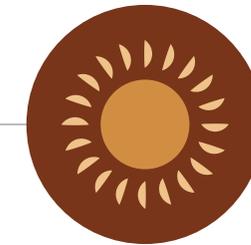
In the U.S., new farms are helping breweries satisfy customer desire for local ingredients, raw materials, and support for local businesses.

New farms are bringing access locally to handpick lots and find more flexible and affordable options for un-kilned hops, as well as helping brewers see the challenges of delivering raw materials. The expansion of hop farming has diversified growing conditions and allows growers and scientists alike to learn about new hop varieties, their genetics, and the strategic breeding necessary to adapt to changing conditions.



Geology

The unique combination of prolific volcanic activity and the Columbia River Basalt Group—one of Earth's best-preserved continental flood basalt provinces—gives the region a mineral-rich sand, silt, and clay soil.



Climate

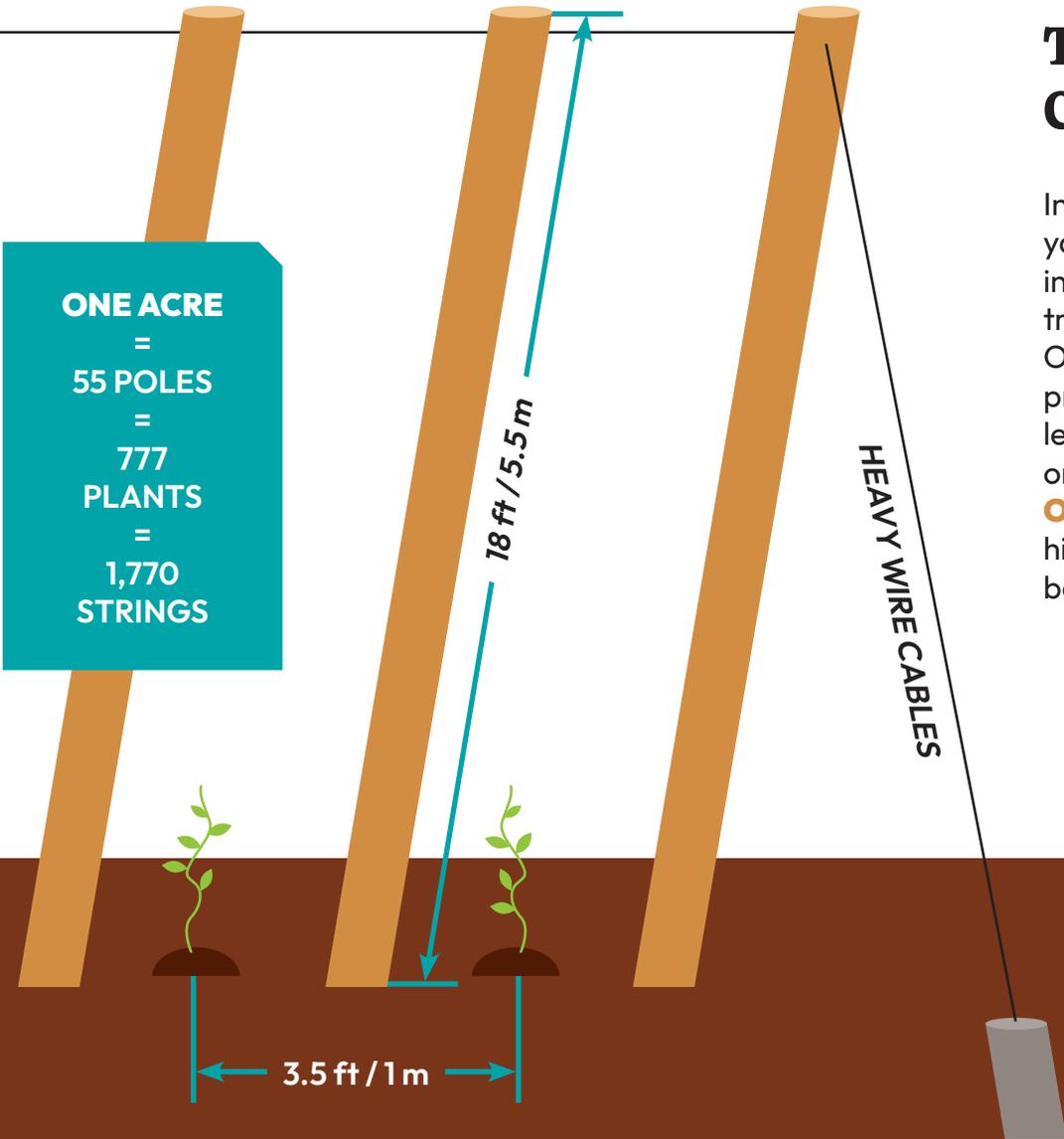
From the hot, dry climates of Yakima and Idaho to the wet, moderate climate of Oregon, the range of PNW climate types allows the U.S. to produce a wide variety of hop cultivars, aromas, and qualities. The high desert of Yakima, served by the snowpack of the nearby Cascade mountain range is home to over 70% of the U.S. hop acreage and its low rainfall helps reduce disease in the plants.



Infrastructure & People

The hard work of generations of hop farming has served our region well since the turn of the 19th century. Inspired by a desire for continuous improvement, local families combine knowledge of the past with burgeoning technologies to improve the industry. The PNW's innovative hop drying, tantalizing new hop aromas, exciting genetic advancements, and high-efficiency water delivery systems pair brilliantly with its unmatched infrastructure to help provide high-quality hops at affordable prices.

HOP FARMING AMERICAN STYLE



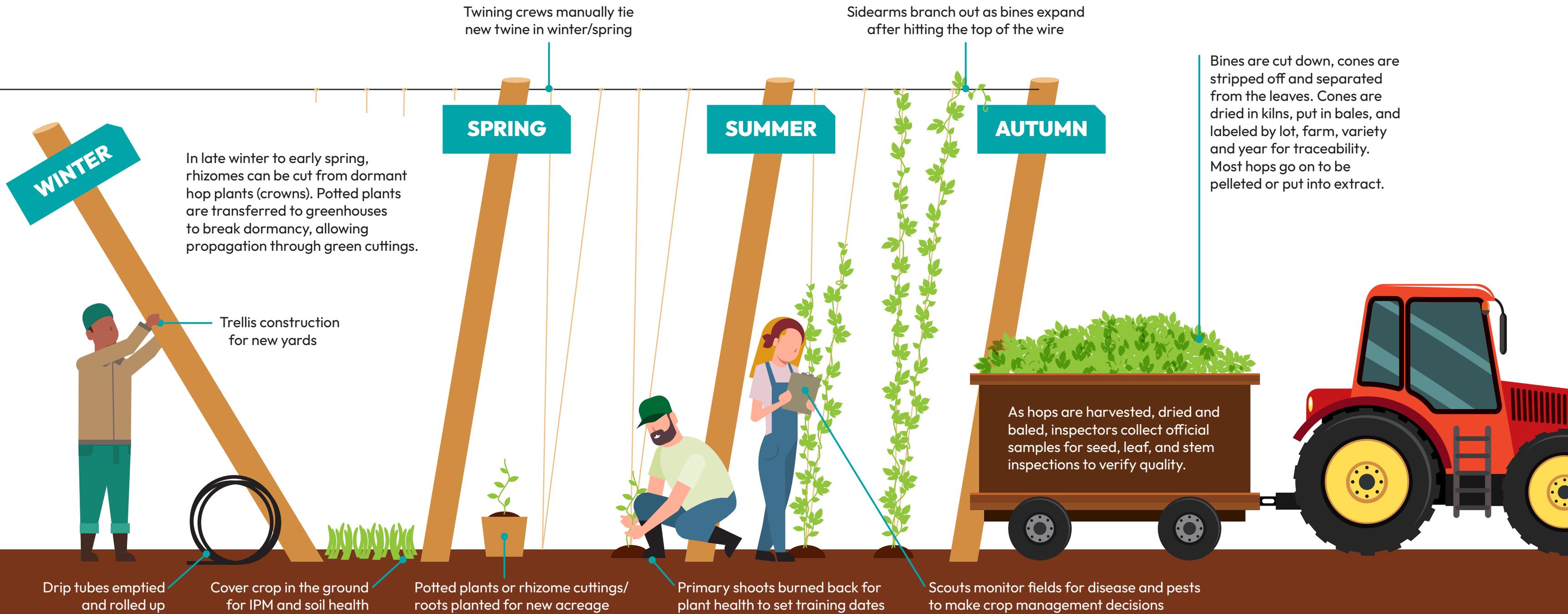
Typical Farm Configuration

Initial establishment of a hop yard requires a substantial capital investment for planting material, trellis and irrigation system. Once established, the hops will produce until virus and disease levels cause yields to decline, or until customers contract for **OVER 90 VARIETES** of aroma, high alpha, and dual-purpose, based on demand.

Concrete anchors buried five feet deep surround the yard and hold the trellis upright under the heavy weight of the crop that develops late in the season.



GROWING SEASON OVERVIEW





HARVEST

The annual hop harvest begins in late August and progresses through early October.

Each variety has its own peak maturity time and must be monitored closely. After hop cones are stripped from bines, specialized equipment removes leaves and stems which are diverted for compost. Cones are then immediately transported by conveyor belts to kilns, where warm air dries the hops for several hours to approximately 9% moisture content.

After cooling for at least 24 hours, dried hops are compressed into 200-pound bales, wrapped and sewn into bale cloth, and labeled and inspected for traceability and quality standards. Bales are quickly transported to cold storage warehouses to maintain quality until processing or shipment occurs. During all of this, brewers visit farms and merchants during the entirety of harvest to select their hops in person for the upcoming brewing year in a process called selection. Depending on the size of the brewery and the goal of the visit, some brewers may visit a site multiple times.

SUSTAINABILITY



Good Bines focuses on educational resources and modules in the following categories:

- Food Safety & Quality
- Water & Irrigation
- Business Management
- Soil Fertility
- Integrated Pest Management
- Sustainability

A best practices education tool

Recognizing a desire among U.S. hop growers to follow common best practices, Hop Growers of America has developed an educational tool to share information and training about sustainable hop growth. The answer to this desire was Good Bines, a farm-focused educational framework built on the collaborative development and sharing of economic, social and environmental best practices.

Created and administered by Hop Growers of America, Good Bines is a communication and education platform where HGA members can access trusted resources, ensuring the overall resiliency of the U.S. hop industry.

Good Bines was founded on three core principles:

- Communication
- Education
- Collaboration



Look for these badges in our Best Practices Directory to see growers that have completed these modules and other certifications, including third-party certifications:



INTEGRATED PEST MANAGEMENT



To ensure the hop supply, farms must be vigilant against the ever-evolving pests that threaten hop production.

Integrated Pest Management (IPM) helps growers protect the long-term viability of their hops using combined management practices focused on balancing economic, human safety, and environmental considerations.

IPM works with nature by encouraging beneficial insects that prey on pests destructive to hop plants in addition to utilizing other farm management practices to manage pests and disease. This type of farming approach offers several benefits:

- Avoids the overuse of chemical pesticides
- Helps prevent the development of pesticide-resistant insects
- Reduces the abundance of pests and diseases and reduces severity of outbreaks
- Contributes to the overall health of hop crops
- Improves environmental and economic sustainability

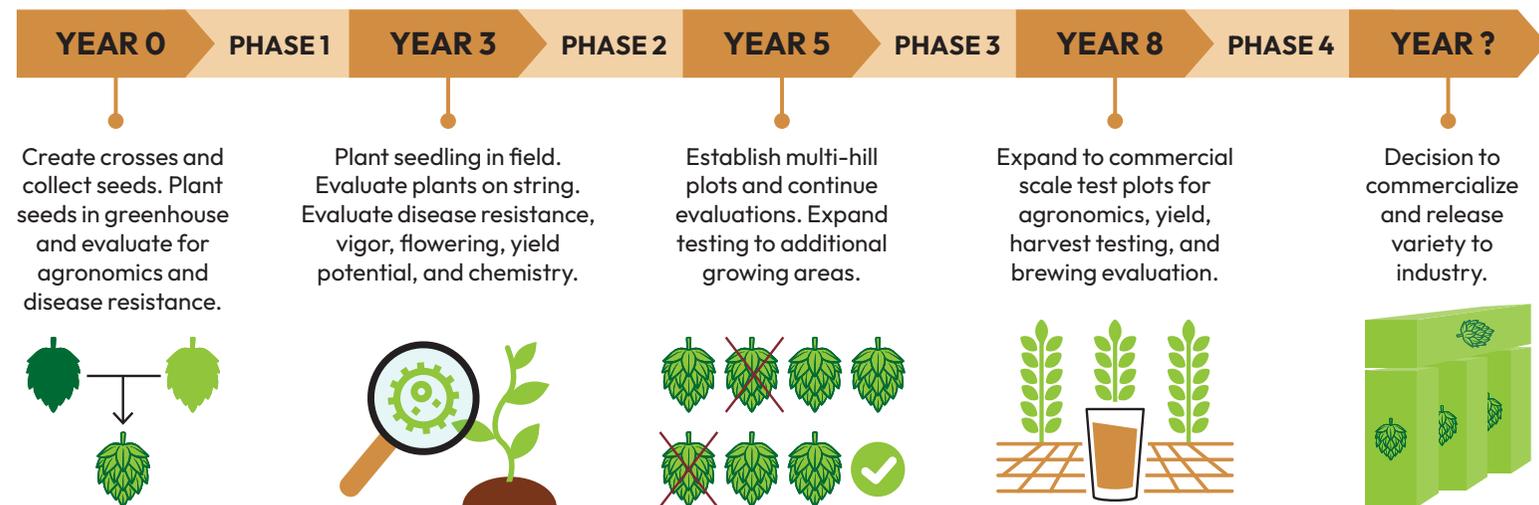
THE ART & SCIENCE OF HOP BREEDING

U.S. growers and merchants invest heavily in a number of proprietary breeding programs as well as providing support to public hop breeding efforts carried out by USDA-ARS. Using conventional breeding techniques and seed collection, these programs produce tens of thousands of seedlings annually, launching a continual flow of new experimental material into the evaluation process. Rigid selection standards ensure only the best varieties are carried forward to the next level of testing. **Hop breeds are evaluated for the following characteristics:**

- 
DISEASE SUSCEPTIBILITY
- 
AGRONOMIC CHARACTERISTICS
- 
YIELD
- 
HARVESTING & DRYING FACTORS
- 
BREWING QUALITY

Skilled plant breeders combine hops with strong genetic profiles, hoping some of the seedlings will exhibit desirable traits from each parent. One cross may yield hundreds of seeds, each containing a slightly different genetic combination. Only a small percentage may exhibit the desired traits and potential for commercial production.

Developing a new hop variety...



ALPHA vs AROMA

The U.S. hop industry has long been synonymous with high alpha production.

Certain varieties of hops are champs in the production of high levels of alpha acid, and the resulting hop extract provides brewers worldwide with this important bittering component. However, during the past decade, U.S. growers have rapidly transitioned to producing an array of fine aroma hops that allow brewers to customize the profile of each unique beer. Many of these hops also contain respectable amounts of alpha acid and may serve as dual-purpose superstars in the brewing process.



Hop plants are either male or female, producing annual climbing vines from a perennial "crown" of rhizomes. Hop cones are fruiting body of the female plant, containing lupulin glands filled with the alpha and beta acids, resins, and oils prized by brewers.

HOPPING FOR CRAFT BREWERS

Navigating Bitterness and Balance When “Ramping Up the Hops”— Practical Tips for Brewing Your Next Hoppy Brew

- Knowing how to maneuver hops throughout the entire brewing process is a must for the modern-day craft brewer, and there are many paths to arrive at a delicious destination (there is no “one size fits all” approach)
- Hops play two major roles in the brewing process – imparting bitterness to balance the beer and providing aroma and flavor development
- Depending on the style and goals of the brewer, there are many factors to consider for the overall sensory experience of the drinker: hop variety, total oil content, process, temperature, volume of beer, contact time, grist makeup, etc.
- Consider trying simple, affordable techniques that fit your brewery and budget – if something works, don’t overthink it



Scan for formulas and the full article by award-winning author and brewmaster Jennifer Talley



HOP STORAGE

Provided the right conditions, pelletized hops can last for years.

But every time they are opened and exposed to oxygen their quality and lifespan are reduced. Whole cone hops stored in bales have a shorter shelf life due to the bale's permeable barrier.

Longevity of hop quality per product:

-  Best quality within 3 years of harvest, 4-5 years acceptable
-  Fresh for one year
-  10+ years

Like beer, hops can degrade in quality much more rapidly when they are exposed to:



How low can you go?

Keep hops in cold storage
Ideal temps:*
F: 26° to 28°
C: -3.3° to -2.2°

Re-seal hops not used right away.
Flush out oxygen with nitrogen and seal the package.

If you buy from a reseller, ask for storing conditions and if hops have been repackaged.

*Best temperature range to preserve product life and optimal quality. Some brewers go as high as between 30° to 40° F if the cost of ideal cold storage is too high for them. Keep in mind, quality and life of product degrade faster in these higher temperatures.

CONTRACTING & BUYING HOPS

Hops are an agricultural product.

Farmers do their best to meet customer needs, but sometimes Mother Nature has different plans. Typically, contracted customers have their needs met first and the remainder goes to the spot market.

Do you need it? Contract for it. Don't want to commit? See if the spot market can fulfill your needs.



Your contract translates to farms undertaking real costs to deliver you a product. This risk is carried by them and the merchant. If you are unsure of your needs, it may be better to pursue other channels, such as the spot market. Remember, contracts are legally binding commitments.



There is no one way to contract hops, but essentially, there will be a multi-year commitment with a merchant to guarantee supply and lock in a price.



Discuss brewing volumes and projections with merchants to see what is recommended and makes you feel comfortable. Typically, you'll work out what is needed in the coming year, and projections for the next few years—locking in a de-escalating percentage to be scaled back up and locked in each year.

PRO TIPS

Really love a particular hop? Look for more of the same harvest lot from your merchant. With oxygen-free storage and pellets packaged in mylar, using those lots lends more consistency than seeking out the newest year's harvest.

Schedule strategically. If you have hops that you don't want to re-seal or lose any pungency, consider brewing two different recipes back-to-back that utilize the hop you are trying to get the most out of.



Check out our list of suppliers!



509-453-4749

info@usahops.org

usahops.org



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