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Hop Substitution Chart

The purpose of this chart is to help you find the right variety of hops for your beer, either by beer style or alpha acid %. In addition, if the hop you are looking for is not readily available then potential substitutions are listed.

Hop Name	Hop Alpha Acid %	Common Beer Styles	Hop Substitutions	Hop Characteristics
Admiral (U.K.)	13.5% to 16%	Ale	U.K. Target, U.K. Northdown, U.K. Challenger	Known for its bittering potential.
Ahtanum	4% to 6.3%	-	Cascade, Amarillo	Floral, citrus, sharp, and piney.
Amarillo	8% to 9%	Ale, IPA	Cascade, Centennial	Citrusy, flowery.
Apollo	15% to 19%	Ale, IPA	Zeus	A high alpha acid varietal known for its disease resistance.
Aramis	7.9 - 8.3%	Belgian-style Ales	Centennial, Chinook, Hallertau, Tettnang	Very fine spice and herbal notes with subtle citrus characteristics
Aurora	7.0 - 9.5%	Ale	Styrian Bobek, Styrian Savinjski Golding	Intense and pleasant displaying floral, pine and hoppy characteristics
Boadicea (U.K.)	8% to 9%			Mild floral and spicy characteristics with slightly grassy overtones
Bobek	3.5 - 7.0%	English-style Ale	-	Intense and pleasant with floral, pine and hop overtones
Bramling Cross (U.K.)	5% to 7%	ESB, bitter, pale ale	U.K. Kent Golding, U.K. Progress, Whitbread Golding Variety	Quite mild, fruity currant aroma.
Bravo	14% to 17%	American IPA, American Pale Ale, Stout	Apollo, Zeus	New Super High Alpha. The higher Co-Ho levels mean a not completely smooth bittering, but not as harsh as Chinook. (it's bittering properties are similar to Simcoe). Flavor and aroma are described as an earthy spice and herb, fruity and floral
Brewer's Gold	7% to 8.5%	English ale	Bullion	Bittering hop with neutral aroma character.
Brewer's Gold (German)	6% to 7%	Ale, heavier German-style lagers	Northdown, Northern Brewer, Galena, Bullion	Black currant, fruity, spicy.

Bullion	6.5% to 9%	IPA, ESB, stout	Columbus, Northern Brewer, German Brewer's Gold	A rich hop primarily used for bittering. Intense blackcurrant aroma.
Calypso	10% to 12%	Ales, Stouts	---	Pleasant, fruity aroma, with hints of pear and apple
Cascade	4.5% to 7%	Pale ale, IPA, porter, barleywine	Centennial, Amarillo, possibly Columbus	Pleasant, flowery, spicy, and citrusy. Can have a grapefruit flavor.
Cashmere	7.7 - 9.1%	IPA	-	Mild herbal aroma with strong melon, lemon, lime and slightly spicy notes.
Celeia	3.0 - 6.0%	English-style Ale	Saaz, Styrian Bobek, Styrian Savinjski Golding	Pleasant and hoppy, similar to traditional European varieties
Centennial	8% to 11.5%	All ale styles, has been used with wheat beer	Cascade, possibly Columbus	Medium with floral and citrus tones.
Challenger (U.K.)	6.5% to 8.5%	English-style ales, porter, stout, ESB, bitter	U.S. or German Perle, Northern Brewer	Mild to moderate, quite spicy.
Chelan	12.0 - 14.5%	American-style Ale	Galena, Nugget	Mild floral and citrus characteristics
Chinook	10% to 14%	Pale ale, IPA, stout, porter, lager	Nugget, Columbus, Northern Brewer, U.K. Target	Mild to medium-heavy, spicy, piney, and grapefruity.
Citra	11% to 13%	Pale Ale, IPA	Simcoe, C Hops	Very fruity Citrus, peach, apricot, passion fruit, grapefruit, lime, melon, gooseberry, lychee fruit, pineapple, mango, papaya and other tropical fruit flavors and aromas.
Cluster	5.5% to 8.5%	Ale and lager (good aroma for ale, good bittering for lager)	Galena	Medium and quite spicy.
Columbus	11% to 16%	IPA, pale ale, stout	Nugget, Chinook, U.K. Target, Northern Brewer	Pleasant, with pungent aroma.
Crystal	2% to 4.5%	Lager, pilsner, ESB	Mt. Hood, Hersbrucker, French Strisslespalt, Liberty, Hallertauer	Mild and pleasant, spicy and flowery.
El Dorado	14% to 16%	IPA, Pale Ale		An intense, candy-like aroma of cherry, pear and fruit. Can taste like cherry Jolly Ranchers in extra-hoppy beers.
Equinox	14.4 - 15.6%	-	-	A pronounced aroma profile with citrus, tropical fruit, floral and herbal characteristics. Specific descriptors include lemon, lime, papaya, apple, and green pepper.
Eroica	9% to 12%	Wheat	Galena, Nugget, Chinook	Strong but pleasant aroma.
Falconers Flight (US)	10.50%	IPA, Pale Ale	Cascade, Ahtanum, Sorachi Ace	Tropical, citrus, floral, lemon and grapefruit.

Falconers Seven Seas (US)	9% to 10%	IPA, Pale Ale	Simcoe	Fruity, citrus, spicy, earthy. A cross-breed of 7 "C" variety hops.
First Gold (U.K.)	6.5% to 8.5%	Ale, ESB	U.K. Kent Golding, maybe Crystal	A little like Golding family; spicy.
Fuggle (U.K.)	4% to 5.5%	All English-style ales, ESB, bitter, lager	U.S. Fuggle, Willamette, Styrian Golding	Mild, pleasant, hoppy, and robust.
Fuggle (U.S.)	4% to 5.5%	Any English-style beer or American ale	U.K. Fuggle, Willamette, Styrian Golding, U.S. Tettnanger	Mild and pleasant, earthy and fruity.
Galaxy	13% to 15%	IPA, Pale Ale	Citra, Amarillo, Centennial	Tropical passionfruit, citrus hints of peach, mango. Similar to Citra but more fruity, less dank.
Galena	10% to 14%	Ale, porter, stout, ESB, bitter	Nugget, Pride of Ringwood, Chinook	Medium but pleasant hoppiness, citrusy.
Glacier (U.S.)	5% to 9%	America Ale, ESB	Styrian Golding, U.S. Fuggle, U.S. Tettnanger, Willamette	Dual purpose hop with a citrus earthy aroma.
Golding (U.S.)	4% to 6%	Pale ale, ESB, all English-style beer	U.K. Golding, Whitbread Golding Variety, U.K. Progress, and possibly the Fuggle family	Mild, extremely pleasant, and gently hoppy.
Hallertau Blanc	Hallertau Blanc	American-style Ale	-	Floral and fruity with passion fruit, grapefruit, pineapple, grape and lemongrass overtones
Hallertau Hersbrucker (German)	3% to 5.5%	Lager, pilsner, bock, wheat	Mt. Hood, French Strisslespalt	Mild to semi-strong, pleasant, hoppy.
Hallertauer (U.S.)	3.5% to 5.5%	Lager, pilsner, bock, wheat	Liberty, Ultra, Hallertauer Tradition	Very mild, pleasant, and slightly flowery, some spicy.
Hallertauer Gold	6% to 6.5%	-	Crystal, Mt. Hood	Known for its aromatic properties similar to Hallertauer.
Hallertauer Mittelfrüh	3% to 5.5%	Lager, bock, wheat, maybe pilsner	Liberty, German Tradition, Ultra	Mild and pleasant.
Hallertauer Tradition (Ger.)	3.5% to 5.5%	Mild-flavored beers	Crystal, Liberty	Known for its aromatic properties. A replacement for Hallertauer Mittelfrüh.
Herkules	12.0 - 17.0%	German-style Ales	-	Spicy, floral and hop notes with hints of pine, black pepper and melon
Horizon	11% to 14%	Ale, lager	Magnum or a high-alpha hop	Pleasantly hoppy.
Hull Melon	6.9 - 7.5%	-	-	Distinct fruit characteristics including honeydew melon and strawberry flavors
Kent Golding (U.K.)	4% to 5.5%	All English-style ales, ESB, bitter	U.S. Golding, Whitbread Golding Variety, U.K. Progress	Gentle, fragrant, and pleasant.
Liberty	3% to 6%	Lager, pilsner, bock, wheat	Hallertauer Tradition, Hallertauer, Mt. Hood	Mild and clean aroma, slightly spicy character.

Magnum	13% to 15%	All beers, particularly lager, pilsner, stout	Northern Brewer	Known for bittering value and quality.
Mandarina Bavaria	7.0 - 10.0%	-	-	Distinct tangerine and citrus flavors
Mandarina Bavaria	12.0 - 15.0%	Lager	Magnum, German Taurus, German Traditon	Strong earthy, floral and citrus impressions
Millenium	14.5 - 16.5%	Stout	Columbus, Nugget, Summit	Mild and resinous with floral and herbal tones
Mosaic	11.5 - 13.5%	IPA	-	A complex array of tropical fruit, citrus, berry, herbal, earthy and pine characteristics
Mt. Hood	3% to 8%	Lager, pilsner, bock, wheat	Crystal, French Strisslespalt, Hersbrucker	Mild, pleasant, and clean, somewhat pungent and resiny.
Mt. Rainier	5.0 - 8.1%	Lager	Brewer's Gold, Fuggle, Hallertau	Excellent floral and noble aromas, with citrus and licorice overtones
Newport	13.5 - 17.0%	Barley Wine	Brewer's Gold, Fuggle, Galena, Magnum, Nugget	Mild
Northdown (U.K.)	7.5% to 9.5%	All ales, porter	-	Fruity with some spiciness.
Northern Brewer (German)	7% to 10%	ESB, bitter, English pale ale, porter	Chinook, U.S. Northern Brewer	Medium-strong with some wild tones.
Northern Brewer (U.S.)	6% to 10%	ESB, bitter, English pale ale, porter, California (steam) beer	Nugget, Chinook	Medium-strong with some wild tones.
Northwest Golding	4% to 5%	Ale, porter, stout, ESB, bitter	-	Known for aromatic properties.
Nugget	11% to 14.5%	Light lager	Columbus, Chinook, U.K. Target, Galena	Quite heavy and herbal.
Olympic	11% to 13%	-	Chinook	Mild to medium, citrusy aroma, spicy.
Opal	5.0 - 8.0%	Belgian-style Ales	Tettnang, UK East Kent Golding, Styrian Savinjski Golding	Even dispersal of all aroma characteristics - fruity, floral, herbal and hoppy tones all appear
Palisade	5.5 - 9.5%	English-style Ale	Willamette	Apricot, grass and clean floral characteristics
Perle (German)	6% to 8.5%	Pale ale, porter, lager	U.S. Perle, Northern Brewer	Moderately intense, good and hoppy, fruity and a little spicy.
Perle (U.S.)	6% to 9.5%	Pale ale, porter, German styles	Northern Brewer, Cluster, Galena, Chinook	Known for its aromatic and bittering properties, pleasant and slightly spicy.
Phoenix (U.K.)	4.2% to 5.5%	All ales	U.K. Northdown, U.K. Kent Golding, U.K. Challenger	Similar to U.K. Challenger.
Pioneer (U.K.)	8% to 10%	Ale, ESB	U.K. Kent Golding	A mild, typical English aroma.
Polaris	18.0 - 23.0%	-	-	Intense floral and pleasant mint tones
Polish Lublin	3% to 4.5%	Pilsner	U.S. Saaz, Czech Saaz, U.S. Tettnanger	Mild and typical of noble aroma types, spicy, herbal.
Premiant	7.0 - 11.0%	-	-	Pleasant, mild aroma

Pride of Ringwood (Australia)	7% to 10%	Australian lager	Galena, Cluster	Quite pronounced, woody, earthy, herbal.
Progress (U.K.)	5% to 7.5%	Ale, bitter, ESB, porter	U.K. Kent Golding, Fuggle	Moderately strong, good aroma.
Saaz (Czech)	3% to 4.5%	Pilsner	U.S. Saaz, Polish Lublin	Very mild with pleasant hoppy notes, earthy, spicy, and herbal.
Saaz (U.S.)	3% to 5%	Pilsner, lager, wheat	Czech Saaz, Polish Lublin	Mild and pleasant, earthy and spicy.
Santiam	5% to 7.9%	Lager, American ale, pilsner	German Tettnanger, German Spalt, German Spalt Select	Noble characteristics.
Saphir	2.0 - 4.5%	Belgian-style Ales	Hallertau	Distinct spicy, fruit and citrus (tangerine) tones
Satus	12.5% to 14%	-	Galena	Known for its bittering and aromatic properties.
Select	3.0 - 6.5%	Lager	Saaz, Tettnang, German Hersbrucker, German Spalt, German Tettnang	Floral and fruit characteristics
Simcoe	12% to 14%	IPA	Magnum, Summit	Unique passionfruit, pine, earth and citrus characteristics
Sladek	5.0 - 9.0%	Lager	-	Fruity flavor profile including hints of peach, grapefruit and passion fruit
Smaragd (Emerald)	4.0 - 6.0%	Ale	-	Predominantly fruity with strong floral and hop tones
Sorachi Ace	10.0 - 16.0%	Pale Ale	-	Unique lemon and dill characteristics
Sovereign	4.5 - 6.5%	Pale Ale	-	Pleasant but intense fruity flavors with mild floral, grassy, herbal and mint characteristics
Spalt (German)	4% to 5.5%	Lager	U.S. Saaz, U.S. Tettnanger, German Spalt Select	Mild and pleasant, slightly spicy.
Spalt Select (German)	4% to 6%	Lager, and any beer where noble aroma is wanted	U.S. Saaz, U.S. Tettnanger, German Spalt	Very fine Spalter-type aroma.
Spalt Select (U.S.)	3% to 5%	German lagers	Tettnanger, Saaz	Medium intensity and pleasant hoppy qualities. Medium-strong aroma with wild American tones.
Sterling	6% to 9%	Lager, ale, pilsner	Saaz, Polish Lublin	Herbal, spicy, pleasant aroma, hint of floral and citrus.
Strisslespalt (France)	3% to 5%	Pilsner, lager, wheat	Mt. Hood, Crystal, Hersbrucker	Medium intensity, pleasant, hoppy.
Styrian Golding (Slovenia)	4.5% to 6%	All English-style ales, ESB, bitter, lager	U.S. Fuggle, U.K. Fuggle, Willamette	Delicate, slightly spicy.
Summit	17.5% to 19.5%	IPAs, Imperial IPAs	Simcoe	Orange, tangerine, citrus notes.
Sussex	4.3 - 5.8%	Ale	-	Delicate (similar to Fuggle)
Tahoma	7.2 - 8.2%	-	-	Predominate citrus and lemon notes with cedar, pine, floral, pepper and subtle green melon notes.

Target (U.K.)	9.5% to 12.5%	All ale and lager	Fuggie, Willamette	Pleasant English hop aroma, quite intense.
Taurus	12.0 - 17.0%	German-style Ales	Citra, Magnum, German Traditon	Strong noble characteristics
Tettnanger (German)	3.5% to 5.5%	Lager, ale	German Spalt, German Spalt Select, U.S. Tettnanger, Saaz	Mild and pleasant, slightly spicy, herbal.
Tettnanger (U.S.)	3.4% to 5.2%	German ales and lagers, American lagers, wheat	German Spalt, Czech Saaz Santiam	An aromatic hop, mild and slightly spicy.
Tomahawk	15% to 17%	Ale	Columbus	Primarily a bittering hop.
Tradition (German)	5% to 7%	Lager, pilsner	Hersbrucker, Hallertauer Mittelfrüh	Very fine and similar to Hallertauer Mittelfrüh.
TriplePearl	10.25 - 11.2%	Pale Ale	Perle	Pleasant and balanced with notes of melon, orange citrus, resin, spice and pepper.
Triskel	~2.6%	Belgian-style Ales	Ahtanum, Centennial, Chinook, Simcoe	Strong floral, fruit and citrus characteristics
Ultra	2% to 4.1%	Lager, pilsner, wheat, finish hop in ales	Liberty, Hallertauer Tradition, Saaz	Very good to outstanding, some Saaz-like qualities. Aromatic properties similar to Hallertauer.
Vanguard	4% to 5.67%	-	Saaz, Hallertauer Mittelfrüh	Aroma similar to continental European types.
Warrior	15% to 17%	Ale, stout	Nugget	A bittering and aromatic hop.
WGV (Whitbread Golding Variety) (U.K.)	5% to 7%	Ale	U.K. Kent Golding, U.K. Progress	Quite pleasant and hoppy, moderately intense.
Willamette	3.5% to 6%	Pale ale, ESB, bitter, English-style ale, porter, stout	U.S. Fuggie, U.S. Tettnanger, Styrian Golding	Mild and pleasant, slightly spicy, fruity, floral, a little earthy.
Yakima Cluster	6% to 8.5%	-	-	Used as a kettle hop for bittering.
Zeus	13% to 17%	-	Columbus	Aromatic and pleasant.