



## Siciliano's Hop Reference Chart

Hop Variety	Alpha Acid %	Typical Beer Styles	Substitute	Flavor Description
<b>Admiral</b>	13.5 -16%	Ale	UK Target, UK Northdown, UK Challenger	Known for bittering potential.
<b>Ahtanum</b>	4 -6.3%	Lager, American Ales	Cascade, Amarillo	Floral, citrus, sharp and piney.
<b>Amarillo</b>	8 -9%	Ale, IPA	Cascade, Centennial	Citrusy, flowery.
<b>Bramling Cross (UK)</b>	5 -7%	ESB, Bitter, Pale Ale	UK Kent Golding, UK Progress Whitebread, Goldings Variety	Quite mild, fruity currant aroma.
<b>Brewers Gold</b>	7 - 8.5%	English Ale	Bullion	Bittering hop with neutral aroma.
<b>Brewers Gold (German)</b>	6 - 7%	English Ale	Northdown, Northern Brewer, Galena, Bullion	Black currant, fruity, spicy.
<b>Bullion</b>	6.5 - 9%	IPA, ESB, Stout	Columbus, Northern Brewer, German Brewers Gold	A rich hop primarily used for bittering. Intense black currant aroma.
<b>Cascade</b>	4.5 - 7%	Pale Ale, IPA, Porter	Centennial, Amarillo, and possibly Columbus	Flowery, citrusy, Can have a grapefruit flavor.
<b>Centennial</b>	8 - 11.5%	All Ale styles	Cascade, Columbus, Chinook	Medium with floral and citrus tones.
<b>Challenger (UK)</b>	6.5 - 8.5%	English Style Ales, Porter, Stout, ESB, Bitter	U.S. or German Perle, Northern Brewer	Mild to moderate, quite spicy.
<b>Chinook</b>	10 - 14%	Pale Ale, IPA, Porter, Stout, Lager	Nugget, Columbus, Northern Brewer, UK Target	Mild to medium-heavy, spicy, piney, and grapefruity.
<b>Cluster</b>	5.5 - 8.5%	Ale and Lager (good aroma for ale, good bittering for lager)	Galena	Medium and quite spicy.
<b>Columbus</b>	11 - 16%	IPA, Pale Ale, Stout	Tomahawk, Zeus	Pungent
<b>Crystal</b>	2 - 4.5%	Lager, Pilsner, ESB	Mt. Hood, Hersbrucker, French Strisslespalt, Liberty, Hallertauer	Mild, spicy, flowery

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<b>First Gold (UK)</b>	6.5 - 8.5%	Ale, ESB	UK Kent Golding	A little like Golcing family, spicy
<b>Fuggle (US)</b>	4 - 5.5%	Any English style beer or American Ale	UK Fuggle, Wilamette, Stryian Golding, US Tettnanger	Mild, woody and fruity.
<b>Fuggle (UK)</b>	4 - 5.5%	All English style ales, ESB, Bitter, Lager	UK Fuggle, Wilamette, Stryian Golding	Mild, pleasant and hoppy.
<b>Gelana</b>	10 - 14%	Ale, Porter, Stout, ESB, Bitter	Nugget, Pride of Ringwood, Chinook	Citrusy
<b>Glacier</b>	3.3 - 9.7%	English Ales, Stout, Porter	Willamette, US Fuggles	Mild flavor, earthy aroma.
<b>Golding (US)</b>	4 - 6%	Pale Ale, ESB, all English style beer	UK Golding, Whitebread Golding Variety, UK Progress, Willamette	Mild, extremely pleasant and gently hoppy.
<b>Green Bullet (N. Zealand)</b>	11 - 14%		Liberty, Ultra, Hallertauer, Tradition, Crytal, Mt. Hood	Dual purpose hop
<b>Hallertauer (US)</b>	3.5 - 5.5%	Lager, Pilsner, Bock, Wheat	Liberty, Ultra, German Tradition	Very mild, Pleasnt and slightly flowery, some spicy.
<b>Hallertauer Gold</b>	6 - 6.5%	Lager	US Hallertauer	Known for aromatic properties similar to Hallertauer.
<b>Hallertauer Mittelfruch</b>	3 - 5.5%	Lager, Bock, Wheat, maybe Pilsner	Vanguard	Mild and pleasant.
<b>Hallertauer Tradition (Ger)</b>	3 - 5.5%	Mild flavored beers	Crystal, Liberty	Very fine, similar to German Hallertauer Mittelfruch.
<b>Hersbucker (German)</b>	3 - 5.5%	Lager, Pilsner, Bock, Wheat	Mt. Hood, French Strisslespalt	Mild to semi-strong, pleasant and hoppy.

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<b>Horizon</b>	11 - 14%	Ale, Lager	Magnum or high alpha hop	Floral, spicy.
<b>Kent Golding (UK)</b>	4 - 5.5%	All English style ales, ESB, Bitter	US Golding, WGV, UK Progress	Gentle, fragrant, and pleasant.
<b>Liberty</b>	3 - 6%	Lager, Pilsner, Bock, Wheat	Hallertauer Tradition, Hallertauer, Mt. Hood	Mild and clean aroma, slightly spicy character.
<b>Magnum</b>	13 - 15%	All beers particularly, Lager, Pilsner, and Stout	Northern Brewer	Good, bitter quality.
<b>Mt. Hood</b>	3 - 8%	Lager, Pilsner, Bock, Wheat	Crystal, French Strisslespalt, Hersbucker	Mild, pleasant and clean, somewhat pungent and resinous.
<b>Newport</b>	13 - 17%	All styles	Gelana, Nugget	Fairly pungent.
<b>Northdown (UK)</b>	7.5 - 9.5%	All ales, Porter		Mild, pleasant, delicate aroma.
<b>Northern Brewer (US)</b>	6 - 10%	ESB, Bitter, English pale ale, Porter, California Steam Beer	Nugget, Chinook	Medium-strong
<b>Northern Brewer (Ger)</b>	7 - 10%	ESB, Bitter, English pale ale, Porter	Chinook, US Northern Brewer	Medium-strong with some wild American tones
<b>Northwest Golding</b>	4 - 5%	Ale, Porter, Stout, ESB, Bitter		Known for its aromatic properties.
<b>Nugget</b>	11 - 14.5%	Light Lager	Columbus, Chinook, UK Target, Gelana	Herbal
<b>Pacific Gem (N. Zealand)</b>	13 - 15%			Bittering hops with a woody character.
<b>Palisade</b>	5.5 - 9.5%	perhaps Cascade		Some American characteristics.
<b>Perle (US)</b>	6 - 9%	Pale Ale, Porter, Lager	Northern Brewer, Cluster, Gelana, Chinook	Floral, slightly spicy
<b>Perle (German)</b>	6 - 8.5%	Pale Ale, Porter, Lager	US Perle, Northern Brewer	Moderately intense, good and hoppy.
<b>Phoenix (UK)</b>	4.2 - 5.5%	All Ales	UK Northdown, UK Kent Golding, UK Challenger	Similar to UK Challenger.
<b>Pioneer (UK)</b>	8 - 10%	Ale, ESB	UK Kent Golding	A mild, typical English aroma.

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<b>Polish Lublin</b>	4 - 4.5%	Pilsner	US Saaz, Czech Saaz, US Tettnanger	Mild and typical of noble aroma types, spicy, herbal.
<b>Pride of Ringwood (AUS)</b>	7 - 10%	Australian Lager	Gelana, Cluster	Quite pronounced, but not unpleasant.
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<b>Progress (UK)</b>	5 - 7.5%	Ale, Bitter, ESB, Porter	US Kent Golding, Fuggle	Moderately strong, good aroma.
<b>Saaz (Czech)</b>	3 - 4.5%	Pilsner	US Saaz, Polish Lublin	Very mild with pleasant hoppy notes.
<b>Saaz (US)</b>	3 - 5%	Pilsner, Lager, Wheat	Czech Saaz, Polish Lublin	Very mild, earthy and spicy.
<b>Santiam</b>	5 - 7.9%	Lager, American Ale, Pilsner	Spalt, German Spalt Select	Floral, slightly spicy.
<b>Satus</b>	12.5 - 14%		Galena	Known for its bittering and aromatic properties.
<b>Saphir (German)</b>	2.5 - 4.5%	Lager	Any noble hop	Mild aroma hop
<b>Simcoe</b>	12 - 14%	Hoppy American Ales		A bittering and aromatic hop. Piney aroma.
<b>Spalt (German)</b>	4 - 5.5%	Lager	US Saaz, US Tettnanger, German Spalt Select	Mild and pleasant, slightly spicy.
<b>Spalt Select (German)</b>	4 - 6%	Lager, and any beer in which noble aroma is appropriate.	US Saaz, US Tettnanger, German Spalt	Very fine Spalter-type aroma
<b>Spalt Select (US)</b>	3 - 5%	German Lagers	Tettnanger, Saaz	Medium intensity and pleasant hoppy qualities.
<b>Sterling</b>	6 - 9%	Lager, Ale, Pilsner	Saaz, Polish Lublin	Herbal, spicy, pleasant aroma, hint of floral and citrus.
<b>Strisslespalt (France)</b>	3 - 5%	Pilsner, Lager, Wheat	Mt. Hood, Crystal, Hersbrucker	Medium intensity, pleasant, hoppy.
<b>Styrian Golding (Slovenia)</b>	4.5 - 6%	All English style Ales, ESB, Bitter, Lager	US Fuggle, UK Fuggle, Willamette	Delicate, slightly spicy.
<b>Target (UK)</b>	9.5 - 12.5%	All Ales and Lager	Fuggle, Willamette	Pleasant English hop aroma, quite intense.

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<b>Tettnager (US)</b>	3.5 - 5.5%	German Ales and Lagers, American Lagers, Wheat	German Spalt, Czech Saaz, Santiam	An aromatic hop, mild and slightly spicy.
<b>Tettnager (German)</b>	3.4 - 5.2%	Lager, Ale	German Spalt, German Spalt Select, US Tettnager, Saaz	Mild and pleasant, slightly spicy, herbal.
<b>Tomahawk</b>	15 - 17%	Ale	Columbus, Zeus	Primarily a bittering hop.
<b>Tradition (German)</b>	5 - 7%	Lager, Pilsner	Hersbrucker, Hallertauer Mittelfruch	Very fine and similar to Hallertauer Mittelfruch.
<b>Vangaurd</b>	4 - 5.6%		Saaz, Hallertauer Mittelfruch	Aroma similar to continental aroma types.
<b>Warrior</b>	15 - 17%	Ale, Stout	Nugget	A bittering and aromatic hop.
<b>WVG (Whitebread Golding Variety) (UK)</b>	5 - 7%	Ale	UK Kent Golding, UK Progress	Quite pleasant and hoppy, moderatley intense.
<b>Willamette</b>	3.5 - 6%	Pale Ale, ESB, English style ale, Porter, Stout	US Fuggle, US Tettnanger, Styrian Golding	Mild and pleasant, slightly spicy, fruity, floral, a little earthy.
<b>Yakima Cluster</b>	6 - 8.5%			Used aa a kettle hop for bittering.
<b>Zeus</b>	13 - 17%		Columbus, Tomahawk	Aromatic and pungent.