

**THE ULTIMATE HOP
SUBSTITUTION SHEET**



VARIETY	POSSIBLE SUBSTITUTION
Adeena	Hallertau Mittelfruh (GR), Styrian Golding (SL)
Admiral	Northdown (UK), Target (UK), Challenger (UK)
African Queen	Amarillo, Cascade, Simcoe, Citra, Mosaic
Agnus	Magnum, Nugget, Target (UK), Columbus
Ahtanum	Amarillo, Cascade, Centennial, Willamette
Akoya	Perle, Perle (GR), Aurora (SL), Hallertau Tradition (GR), Northern Brewer, Northern Brewer (GR)
Altus	Apollo
Amarillo	Cascade, Centennial, Chinook, Summer (AU), Simcoe
Apollo	Magnum, Magnum (GR), Columbus, Tomahawk , Zeus, CTZ, Nugget
Aquila	Cluster, Galena
Aramis	Willamette, Challenger (UK), Ahtanum, Centennial, Strisselspalt (FR), East Kent Golding (UK), Saaz (CZ), Hallertau Mittelfruh (GR)
Ariana	Huell Melon (GR) , Mandarina Bavaria (GR), Hallertau Blanc (GR)
Aurora	Styrian Golding (ST), Perle (GR), Perle, Northern Brewer, Northern Brewer (GR)
Azacca	Amarillo, Citra, Delta, Pekko
Banner	Aquila, Cluster, Galena
Belma	Huell Melon, Pacific Gem
Bergamot	XJA2-436
Bianca	Sunbeam
Bitter Gold	Galena, Nugget, El Dorado
Boadicea	Green Bullet, Cascade, Chinook
Bobek	Fuggle, Styrian Golding, Willamette
Bramling Cross	East Kent Goldings, Bullion, Northern Brewer (US), Northern Brewer (GR), Galena
Bravo	Columbus, Tomahawk, Zeus, CTZ, Zeus, Chinook, Centennial, Nugget
Brewer's Gold (GR)	Chinook, Galena, Nugget, Brewer's Gold (US)
Brewer's Gold (US)	Galena, Brewer's Gold, Chinook, Galena, Nugget
Brooklyn	Moutere
Bullion	Brewers Gold, Northern Brewer (US), Northern Brewer (GR), Galena, Bramling Cross, Mount Ranier
Callista	Hallertau Tradition, Grungeist
Calypso	Galena, Cascade, Huell Melon, Belma
Canadian Redvine	Newport, Magnum, Galena, Cascade
Cascade	Amarillo, Centennial, Ahtanum, Summit
Cashmere	Cascade
Cekin	Styrian Golding, Brewers Gold, Aurora
Celeia	Styrian Golding, Bobek, Saaz (CZ)
Centennial	Cascade, Chinook, Columbus
Challenger	Northern Brewer (US), Northern Brewer (GR), Perle (US), Target, Northdown
Chelan	Galena, Nugget
Chinook	Nugget, Columbus, Tomahawk, Zeus, CTZ, Northern Brewer (US), Galena
Citra	Simcoe, Mosaic, Centennial, Cascade, Galaxy
Cluster	Galena, Chinook, Eroica, Nugget

Columbia	Centennial, Chinook, Fuggle
Columbus	CTZ, Tomahawk, Zeus, Centennial, Chinook, Galena, Nugget, Millennium
Comet	Galena, Citra, Cascade
Crystal	Mount Hood, Hersbrucker, Strisselspalt, Liberty, Ultra, Hallertau
CTZ	Columbus, Tomahawk, Zeus
Dana	Fuggle, Willamette
Delta	Fuggle, Willamette, Cascade
Dr. Rudi	Green Bullet
East Kent Goldings	Golding, Fuggle, Willamette
Ekuanot	Chinook, Summit, Galena, Cluster
El Dorado	Citra, Nelson Sauvin, Rakau, Bitter Gold
Ella	Perle (US), Palisade, Galaxy
Endeavour	Bramling Cross, Pilgrim
Enigma	Nelson Sauvin, Hallertau Blanc
Equinox	Ekuanot
Eroica	Brewer's Gold, Galena, Glacier, Bullion
Eureka	Columbus, Tomahawk, Zeus, CTZ, Apollo, Merkur, Simcoe, Summit
Falconer's Flight	Citra, Simcoe, Amarillo, Sorachi Ace, Summit, Cascade
Falconer's Flight 7CS	CTZ, Centennial, Citra, Columbus, Chinook, Cluster, Cascade, Crystal
First Gold	Crystal, East Kent Golding (GBR), Whitbread Golding Variety, East Kent Golding, Willamette
Flyer	Willamette, East Kent Goldings
Fuggle (US)	Willamette, Fuggle (GR) Styrian Savinjski Golding (SL)
Fuggle (UK)	Fuggle, Willamette, Styrian Savinjski Golding (SL)
Galaxy	Citra, Amarillo, Simcoe
Galena	Brewer's Gold, Columbus, Nugget
Glacier	Fuggle, Styrian Golding, Willamette
Godiva	Wai-iti, Hallertau Blanc
Golden Star	Fuggle
Golding	East Kent Golding, Fuggle, Willamette, Styrian Golding, Progress, Whitbread Golding Variety
Green Bullet	Liberty, Hallertau, Mount Hood, Ultra, Crystal, Fuggle
Grungeist	Callista
Hallertau (US)	Liberty, Mount Hood, Hallertau Mittelfruh, Crystal, Hallertau Tradition
Hallertau Blanc (GR)	Nelson Sauvin, Enigma
Hallertau Gold (GR)	Hallertau Mittelfruh, Tettnanger, East Kent Golding, Crystal, Mount Hood
Hallertau Mittelfruh (GR)	Hallertau, Liberty, Vanguard, Hallertau Tradition
Hallertau Taurus (GR)	Magnum (GR), Magnum (US), Citra, Hallertau Tradition, Merkur, Herkules
Hallertau Tradition (GR)	Hallertau Mittelfruh, Tettnanger, East Kent Golding, Crystal, Mount Hood
Harlequin	Mosaic
HBC 692	Talus
Helga	Hallertau, Hallertau Mittelfruh
Herald	Pioneer, Pilgrim
Herkules	Taurus, Warrior
Hersbrucker	Hallertau, Mount Hood, Liberty, Spalt, Strisselspalt (FR)
Horizon	Magnum (US), Magnum (GR), Nugget
Huell Melon	Belma, Jarrylo
Idaho 7	Azacca, El Dorado, Cashmere, Citra, Idaho Gem, Amarillo, Chinook, Columbus
Idaho Gem	Azacca, El Dorado, Cashmere, Citra, Idaho 7, Cascade

Jarrylo	Motueka, Nelson Sauvin, Mosaic
Jester	Cascade
Junga	Nugget, Target, Galena
Kazbek	Saaz (CZ)
Kohatu	Wai-iti, Motueka
Lemondrop	Cascade, Motueka, Liberty, Mandarin Bavaria, Centennial
Liberty	Hallertau, Mount Hood, Crystal
Loral	Glacier, Nugget, Strisselspalt, Tardif De Bourgogne
Lubelski	Saaz (CZ), Saaz (US), Tett nang, Stirling
Magnat	Magnum (GR), Magnum (US), Lubelski
Magnum (GR)	Magnum (US), Nugget, Taurus, Columbus, Tomahawk, Zeus, CTZ
Magnum (US)	Galena, Magnum (GR), Nugget, Columbus, Horizon, Northdown, Northern Brewer (US)
Mandarina Bavaria	Cascade, Huell Melon, Lemondrop, Perle (US)
Marco Polo	CTZ, Columbus, Tomahawk, Zeus
Marynka	Tett nanger
Medusa	Zappa, Multihead
Melba	Galaxy
Meridian	Citra, Glacier, Centennial
Merkur	Magnum (GR), Magnum (US), Hallertau Taurus, Hallertau Tradition
Millennium	Nugget, Columbus, Tomahawk, Zeus, CTZ
Mistrel	Challenger
Mosaic	Citra, Simcoe
Motueka	Saaz (US), Sterling
Mount Hood	Hallertau, Hersbrucker, Liberty, Crystal, Hallertau Mittelfruh
Mount Rainier	Fuggle, Hallertau
Mt. Hood	Strisselpalt (FR), Hallertau Mittelfruh (GR), Hersbrucker (GR)
Mt. Rainier	Brewer's Gold, Fuggle, Hallertau
Multihead	Medusa
Mystic	Barbe Rouge, Styrian Dragon, Huell Melon
Nectaron	Waimea, Citra, Mosaic
Nelson Sauvin	Hallertau Blanc, Enigma, Motueka, Riwaka
Newport	Brewer's Gold, Fuggle, Galena, Magnum (GR), Magnum (US), Nugget
Northdown	Northern Brewer (US), Northern Brewer (GR), Target, Challenger, Admiral
Northern Brewer (GR)	Northern Brewer (US), Brewers Gold, Chinook, Perle (US), Perle (GR)
Northern Brewer (US)	Galena, Perle (US), Magnum (GR), Magnum (US), Chinook, Northern Brewer (GR)
Nugget	Galena, Magnum (US), Columbus, Tomahawk, Zeus, CTZ
Olympic	Brewers Gold, Chinook, Galena
Omega	Super Galena, Challenger
Opal	East Kent Golding, Styrian Golding, Tett nanger
Orion	Northern Brewer (GR), Perle (GR), Challenger
Pacific Gem	Galena, Cluster, Magnum (GR), Magnum (US), Belma
Pacific Jade	Hallertau, Saaz (CZ), Cluster
Pacific Sunrise	Pacific Gem
Pacifica	Hallertau
Palisade	Willamette, Glacier
Paradigm	Saaz (US), Mosaic, Citra, Galaxy
Pekko	Saaz (CZ), Azacca

Perle (GR)	Northern Brewer (US), Northern Brewer (GR), Perle (US)
Perle (US)	Perle (GR), Northern Brewer (US), Northern Brewer (GR), Cluster, Galena
Phoenix	Northdown (UK), Challenger (UK)
Pilgrim	Target (UK), Challenger (UK)
Pilot	Galena
Pioneer	East Kent Golding (UK)
Polaris	Herkules
Premiant	Styrian Golding, Saaz (CZ)
Pride of Ringwood	Centennial, Galena, Cluster
Progress	Fuggle, East Kent Golding (UK)
Rakau	Amarillo, Summit
Relax	Monroe
Riwaka	Saaz (CZ), Citra, Calypso, Centennial, Motueka
Saaz (CZ)	Polish Lublin, Saaz (US), Sterling, Tettang
Saaz (US)	Saaz (CZ), Polish Lublin, Sterling, Tettang
Saaz Late	Saaz (CZ), Saaz (US)
Santiam	Citra, Spalt, Spalter Select, Tettang
Saphir	Hallertau Mittelfruh, Hallertau, Spalter Select
Satus	Nugget, Galena
Select	Saaz, Tettang, Hersbrucker (GR), Spalt (GR), Tettang (GR)
Simcoe	Summit, Magnum (US), Amarillo, Mosaic, Cascade, Centennial, Citra, Columbus
Sládek	Saaz (CZ), Saaz (US), Northern Brewer (GR), Northern Brewer (US)
Smaragd	Hallertau Mittelfruh, Opal
Smooth Cone	Cluster
Sonnet	East Kent Golding, Hersbrucker, Crystal, Saaz (CH), Saaz (US)
Sorachi Ace	Southern Cross
Southern Aroma	Motueka
Southern Brewer	Southern Promise, Fuggle
Southern Cross	Sorachi Ace
Southern Promise	Southern Brewer
Southern Star	Mosaic, Ekuanot, El Dorado, Mandarina Bavaria, Southern Cross, Warrior
Sovereign	Fuggle
Spalt	Saaz (CZ), Tettang, Ultra, Tettanger, Santiam, Liberty, Hallertau
Spalter Select	Tettanger, Saaz (CZ), Spalt, Perle (GR), Hallertau Tradition
Sterling	Saaz (US), Mount Hood
Sticklebract	Northern Brewer (GR), Hersbrucker, Hallertau, Sorachi Ace, Simcoe
Stirling	Saaz (US)
Strata	Galaxy, Mosaic
Strisselspalt	Crystal, Hersbrucker, Mount Hood, Liberty, Hallertau
Styrian Aurora	Styrian Bobek (SL), Styrian Savinjski Golding (SL)
Styrian Celeia	Saaz, Styrian Bobek (SL), Styrian Savinjski Golding (SL)
Styrian Golding	Fuggle, Willamette, Bobek
Styrian Savinjski Golding	Fuggle, Fuggle (GR), Styrian Bobek (SL)
Sultana (Denali)	Columbus, Tomahawk, Zeus, CTZ, Nugget
Summer	Palisade, Saaz (US)
Summit	Columbus, Tomahawk, Zeus, CTZ, Warrior, Millennium, Simcoe, Amarillo, Cascade
Sun	Magnum (GR), Magnum (US), Galena, Zeus

Super Galena	Galena, Nugget, Cluster, Chinook
Super Pride	Pride of Ringwood
Sussex	Progress, Whitbread Golding Variety, Fuggle
Sybilla	Perle (US), Perle (GR), Northern Brewer (US), Northern Brewer (GR), Magnum (GR), Magnum (US), Nugget, Bobek, Lubelski
Sybilla	Perle (US), Perle (GR), Northern Brewer (US), Northern Brewer (GR), Magnum (GR), Magnum (US), Nu
Sylva	Hallertau Mittelfruh, Helga, Saaz (US), Northern Brewer (US)
Tahoma	Glacier
Talus	Sabro
Tardif de Bourgogne	Strisselspalt
Target	Fuggle, Willamette
Target	Fuggle, Willamette
Taurus	Citra, Magnum, Tradition (GR)
Teamaker	Crystal
Tettnang (US)	Tettnanger, Fuggle, Santiam, Spalter Select, Spalt
Tettnang (GR)	Saaz, Hersbrucker (UK), Spalt (GR), Select (GR)
Tillicum	Galena, Chelan
Tomahawk	Columbus, CTZ, Zeus, Centennial, Chinook, Galena, Nugget, Millennium
Topaz	Galaxy, Citra, Cascade, Riwaka, Rakau, Amarillo
Tradition	Liberty, Hallertau Mittelfruh (GR)
TriplePearl	Perle (US)
Triskel	Strisselspalt, Ahtanum, Centennial, Chinook, Simcoe
Triumph	Nugget, Hallertau
Tsingdao Flower	Cluster
Ultra	Hallertau, Crystal, Liberty, Mount Hood, Saaz (US), Tettnanger
Vanguard	Hallertau, Hersbrucker, Mount Hood, Liberty
Vic Secret	Galaxy
Vienna Gold	Cluster
Wai-iti	Riwaka
Waimea	Pacific Jade
Wakatu	Hallertau Mittelfruh, Nelson Sauvignon
Warrior	Columbus, Tomahawk, Zeus, CTZ, Nugget, Magnum (GR), Magnum (US), Summit
WGV	East Kent Golding (UK), Progress (UK)
Whitbread Golding Variety	Fuggle
Wild Loyalist	Saaz (US), Styrian Golding
Willamette	Glacier, Fuggle, Tettnang (US), Styrian Golding, East Kent Golding
Wurttemberg	Tettnanger
XJA2/436	Simcoe, Centennial, Bergamot
Yakima Cluster	Chinook, Cluster
Yakima Gold	Cluster
Yellow Sub	Amarillo
Yeoman	Target
Zagrava	Saaz (US), Tettnanger, Lubelski, Spalter Select
Zenith	Yeoman, Northern Brewer (US)
Zeus	Columbus, Tomahawk, Zeus, CTZ, Centennial, Chinook, Galena, Nugget, Millennium
Zythos	Amarillo, Cascade, Simcoe