



# Columbus

U.S.

High Alpha Hop

The current Super High Alpha varieties, which include the names Columbus, Tomahawk and Zeus (CTZ) have the same female parent as Nugget, making them at least half sisters to Nugget. The CTZ varieties are currently used extensively for beer bittering. However, CTZ's are losing favor due to their very poor storage characteristics and susceptibility to mildews.

<b>Pedigree</b>	<b>Nugget daughter</b>
<b>Aroma</b>	<b>Aromatic, pungent</b>
<b>Alpha Acids*</b>	<b>15.0 - 17.0 %</b>
<b>Beta Acids</b>	<b>4.5 - 5.0 %</b>
<b>Cohumulone</b>	<b>28 - 32 % of alpha acids</b>
<b>Total Oil</b>	<b>2.5 - 3.5 ml/100g</b>
<b>Myrcene</b>	<b>50 - 60 % of total oil</b>
<b>Humulene</b>	<b>12 - 18 % of total oil</b>
<b>Caryophyllene</b>	<b>9 - 11 % of total oil</b>
<b>Farnesene</b>	<b>&lt; 1 % of total oil</b>
<b>Storage Stability</b>	<b>Very poor</b>

\* Alpha acids are determined by conductometric titration (EBC 7.4) in Europe; by spectrophotometric (ASBC Hops-6) in USA