North Dakota State University - Dickinson Research and Extension Center, Dickinson, ND

Colupulone as a percent of Alpha Acids	Cohumulone as a percent of Alpha Acids	Beta Acid Content (%)	Alpha Acid Content (%)	Variety of Hops	Yield in air-dried ounces		Number of plants harvested		Yield per harvested plant in air-dried ounces	
2016	2016	2016	2016		2015	2016	2015	2016	2015	2016
60.60	35.90	5.28	7.80	Brewers Gold	16.5	25.5	3	3	5.5	8.5
47.90	30.20	2.90	3.46	Fuggle	4.5	11.3	3	3	1.5	3.8
63.10	37.70	10.10	15.10	Galena	9.0	22.5	3	3	3.0	7.5
32.90	12.10	6.96	4.61	Glacier	1.8	9.2	1	3	1.8	3.1
47.60	26.00	2.47	3.45	Golding	1.9	4.8	2	3	1.0	1.6
47.10	30.10	2.77	3.05	Hallertau	3.6	3.9	2	3	1.8	1.3
37.80	22.40	8.02	14.40	Magnum	4.9	6.9	2	3	2.5	2.3
46.00	25.10	2.19	2.72	Mt. Hood	1.1	1.5	2	1	0.6	1.5
59.50	34.40	8.30	11.00	Newport	4.2	15.7	3	3	1.4	5.2
				Averages	5.3	11.3	2.3	2.8	2.1	3.9

Alpha acids produce desireable bitterness when boiled in wort before the wort is cooled and fermented into beer.
Beta acids lend a more harsh bitterness during conditioning and storage of beer than the bitterness of alpha acids.
Hops with low cohumulone levels (making up <25% of alpha acids) are thought to attribute a smoother bitterness in the finished beer.
Hops with high colupulone (a beta acid) levels are thought to attribute a harsh bitterness produced during the aging of beer.