

Hops with a Difference:

The Development & Evolution of Aroma Hops in New Zealand

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Historic overview of New Zealand Hops

Hops were introduced to New Zealand approximately 150 years ago. The "old line" European selections were not well suited to New Zealand's temperate oceanic environment. Instead, the North American cultivar 'Late Cluster' was imported and grown until the 1950's. Since then a successful breeding programme, combined with a pristine environment, few pests or diseases has led to the development of 16 locally adapted cultivars. The market has subsequently evolved so that currently c. 90% of the crop is grown for export markets.

The New Zealand Hop Breeding Programme

Cultivar development commenced in the early 1950's through the breeding of new disease resistant hops which were descendants of "old line" noble hop cultivars from Europe and America. The plant breeding programme continues to develop advanced aroma-type selections particularly with parentage of Fuggle, Hallertauer Mittelfrueh and Saazer. This has included the completion of successful brew trials.



B. SAAZ



PACIFIC HALLERTAUER



HORT 1524



HORT 7709



NELSON SAUVIN



NZ HALLERTAUER

Hop Breeding



Select amongst seedling populations

Triploid Breeding

Tetraploid female (40 chromosomes) XXXX X Diploid male (20 chromosomes) XY

Triploid seedlings (30 chromosomes) XXX, XXY

Name	Parentage	Alpha (HPLC) (%)	Beta (HPLC) (%)	Cohumulone (%)	Colupurone (%)	Alpha ratio (HPLC)	Xanthohumol (%)	Alphaxin Ratio	mis-oil(10g/dwt)	oils (ul/g alpha)	Myrcene	Caryophyllene	Farnesene	Humulene	linalool	oxidation products	floral estery products	citrus piney products	other compounds	HIC ratio
B Saaz	1/3 rd Saazer	7.3	5.0	30	51	1.47	0.37	20	1.7	218	71.4	0.9	7.3	1.7	0.8	0.7	1.7	7.6	7.2	2.18
Pacific Jade	1/6 th Saazer	15.3	8.5	25	50	1.80	0.82	19	2.3	147	50.2	6.6	0.3	20.7	0.6	2.0	1.8	6.1	11.2	3.27
Nelson Sauvin	2/3 rd Smoothcone	14.1	7.1	24	48	1.98	0.59	24	1.9	134	54.8	6.1	0.3	20.2	0.4	2.2	1.4	5.3	8.7	3.23
NZ Hallertauer	1/3 rd Hallertauer MF	8.2	8.1	33	59	1.01	0.37	22	1.7	203	54.0	5.9	5.0	10.6	0.7	1.6	2.6	6.4	12.0	2.11
Pacific Hallertauer	1/3 rd Hallertauer MF	6.1	6.4	24	46	0.96	0.32	19	1.8	302	46.6	9.3	0.2	27.0	0.8	1.4	1.3	4.8	7.1	2.93
97-77-09	1/3 rd Hallertauer MF	3.8	4.5	24	42	0.84	0.19	20	1.0	304	24.9	10.0	15.2	32.4	0.3	3.3	0.7	5.7	6.9	3.34
99-34-20	2/3 rd Fuggle	7.0	2.8	26	47	1.97	0.26	27	1.1	149	31.7	10.6	0.8	35.1	0.5	3.3	1.6	6.0	10.8	3.34
99-38-29	2/3 rd Hallertauer MF	6.8	3.5	21	41	1.47	0.21	33	0.9	126	26.4	12.7	1.0	38.6	0.4	3.2	1.4	6.3	10.3	3.05
99-41-01	2/3 rd Hallertauer MF	6.1	3.2	19	40	1.49	0.19	32	0.9	142	35.7	8.8	5.4	29.2	0.6	3.0	1.6	5.9	10.3	3.35
99-41-40	2/3 rd Hallertauer MF	8.8	4.4	21	45	1.49	0.35	25	1.1	124	33.0	12.1	0.7	33.0	0.5	3.3	1.4	5.7	10.9	2.72
99-42-84	2/3 rd Saazer	6.7	3.6	25	48	1.42	0.26	26	1.0	134	28.2	10.4	8.1	33.3	0.4	3.6	1.4	5.8	9.3	3.20
99-43-73	2/3 rd Saazer	7.8	4.2	22	45	1.46	0.28	28	1.0	121	27.4	6.4	25.1	19.4	0.3	3.2	1.6	4.6	12.4	3.22
99-44-43	2/3 rd Saazer	6.5	3.8	24	45	1.34	0.28	23	1.0	150	22.8	9.0	18.1	28.4	0.2	4.1	1.2	5.8	10.6	3.22

