

Foreword

Frankly speaking, back in the autumn of 2011 hardly anyone imagined that we would already be publishing a third volume of our Hop Aroma Compendium in 2014. The emotional descriptions of the different hop varieties obviously whetted the appetites of our “hopheads” for more! More hops, more varieties and new combinations for brewing flavourful beers. An increasing number of creative spirits in breweries are rediscovering beer and its ingredients – and, as the world’s largest provider of hop-related services, we are, of course, delighted that our product is playing an increasingly important part in this. These brewers are creating a new beer culture worldwide in which the flavour experience and pure enjoyment have priority.

There are around 200 hop varieties worldwide, but the number of hop varieties available in large quantities for brewing purposes is not yet very large. The purpose of the Hop Aroma Compendium is to go beyond the technical details about the individual hop varieties and compile the sensory information that is required for creative beers. Volume III covers more than 38 additional hop varieties from nine different hop-growing countries.

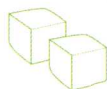
What was new ground for us in Volume II has now become indispensable for the purpose of holistic consideration: comparison according to growing region. How differently do the same hop varieties develop in different growing areas? In this volume we compare three varieties: Perle, Brewers Gold and Cascade – in Cascade’s case, in fact, it is six different growing regions. In Volume III of the Hop Aroma Compendium you can discover the differences!

As was the case for Volume I, our renowned hop aroma team comprises two world champion beer sommeliers Karl Schiffner and Sebastian Priller-Riegele, and perfumist Frank Rittler. All three of them and the experts at Joh. Barth & Sohn are due a particular vote of thanks.

Let me invite you on the third stage of our voyage around the diverse and incomparable world of hop aromas. Just wait and see what a variety of flavours the hops have in store for you!

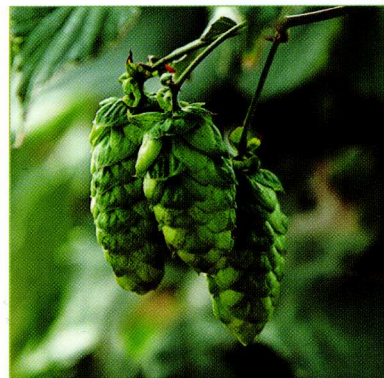
Stephan J. Barth

Caramel
Garlic
Green apple
Lavender
Grape



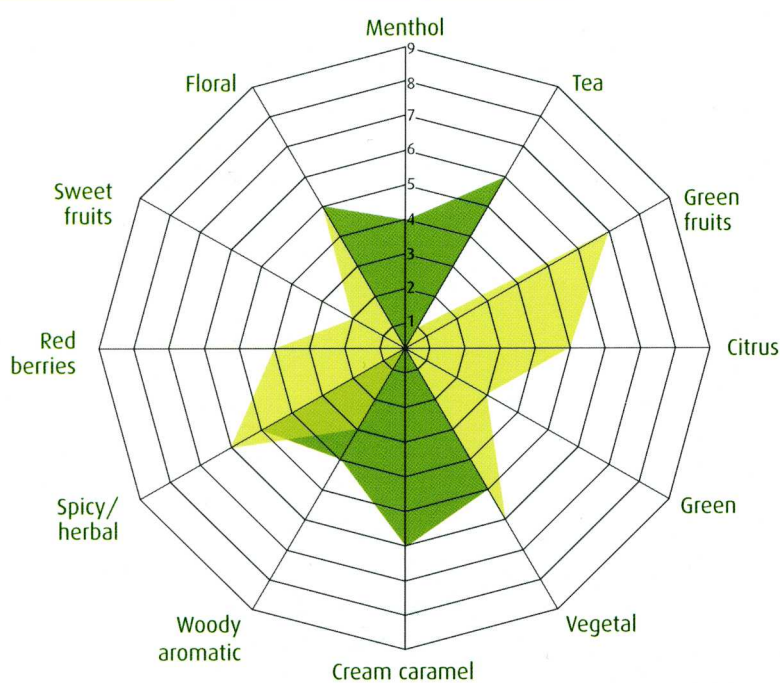
Bouclier

France



Bouclier is the French word for “shield”. This cultivar has led the way for hop growing in Alsace since 2005. It was bred by crossing Strisselspalt with an English male variety (from Wye, Kent). Its ancestors are Wye Challenger, Early Bird Golding and Northern Brewer, which explains the mixture of English and French aromas.

The cold infusion of the French cultivar Bouclier is characterised by tea aromas and lavender, mild components of cream caramel and a spicy-herbal aroma. In the raw hops, the overall profile is reinforced by green apple, grapes, spicy aniseed and garlic.



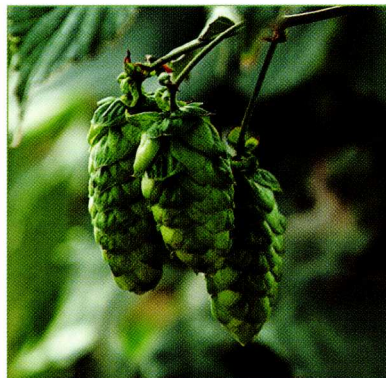
■ Bouclier (cold infusion*) ■ Bouclier (raw hops)

Descriptor	This includes the following aromas:
Menthol	Mint, lemon balm, sage, metallic, camphor, pine
Tea	Green tea, camomile tea, black tea
Green fruits	Pear, quince, apple, gooseberry, wine yeast, ethereal, grape
Citrus	Grapefruit, orange, lime, lemon, bergamot, lemon grass, ginger, mandarin
Green	Green-grassy, tomato leaves, green peppers, nettle, thuja, basil, parsley
Vegetal	Celeriac, leek, onion, artichoke, garlic, wild garlic
Cream caramel	Butter, chocolate, yoghurt, gingerbread, honey, cream, caramel, toffee, coffee, vanilla
Woody aromatic	Tobacco, cognac, barrique, hay, leather, tonka, woodruff, incense, myrrh, resin
Spicy/herbal	Lovage, pepper, chilli, curry, juniper, marjoram, tarragon, dill, aniseed, nutmeg, liquorice, fennel, thyme, rosemary, clove
Red berries	Cassis, blueberries, raspberries, blackberries, strawberries, currants, wild strawberries, cranberries
Sweet fruits	Banana, watermelon, honeydew melon, peach, apricot, passion fruit, lychee, dried fruit, plum, pineapple, white jelly bears, cherry, kiwi, mango
Floral	Elderflower, camomile blossom, lily of the valley, jasmine, apple blossom, rose, geranium, carnation, lilac, lavender

* for the cold infusion 2 gr of pellets were dissolved in 200 ml water (20 °C) for 30 min and subsequently evaluated in order to simulate to some extent the change in aroma through dry hopping.

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The cold infusion of the French cultivar Bouclier is characterised by tea aromas and lavender, mild components of cream caramel and a spicy-herbal aroma. In the raw hops, the overall profile is reinforced by green apple, grapes, spicy aniseed and garlic.

Analytical values

Type	Aroma
Growing Area	France
Lineage	cross between Strisselspalt and an English male
Alpha acids*	7.9 – 8.5 %
Beta acids	2.4 – 3.3 %
Total Polyphenols	no data
Total oils	1.1 – 1.6 ml/100g
Myrcene	0.38 % of total oil
Linalool	0.5 % of total oil

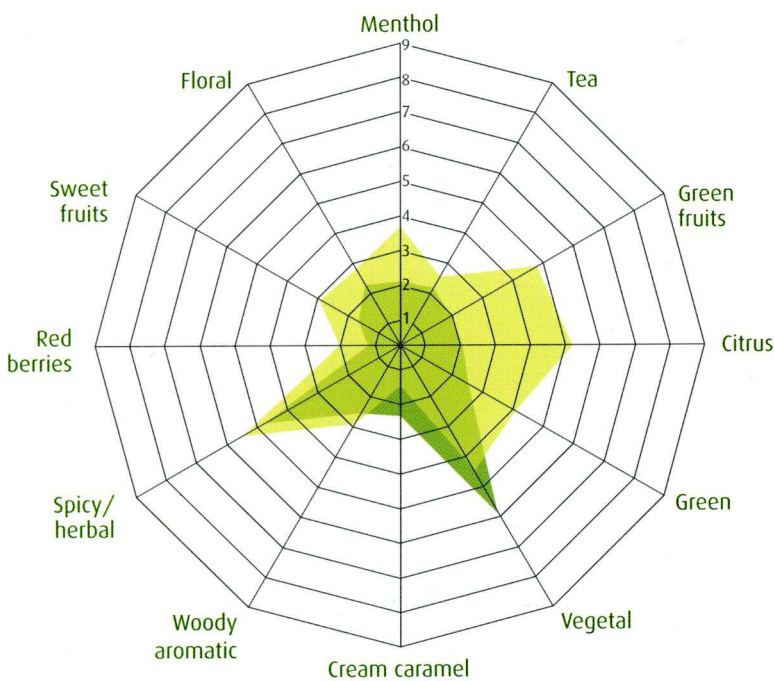
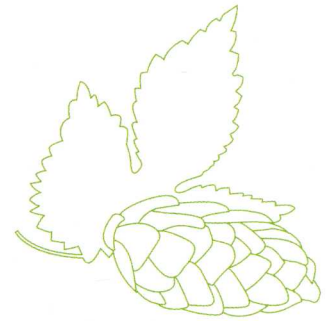
The analytical values are typical for the variety at the time of harvest, but may vary according to crop year, growing region, grower and degree of ageing.

* The alpha content is determined by means of spectrophotometric analysis.

You can formulate your own flavour impressions here:

Extra Styrian Dana

Slovenia



© ■ Extra Styrian Dana (cold infusion*) ■ Extra Styrian Dana (raw hops)

Descriptor	This includes the following aromas:
Menthol	Mint, lemon balm, sage, metallic, camphor, pine
Tea	Green tea, camomile tea, black tea
Green fruits	Pear, quince, apple, gooseberry, wine yeast, ethereal, grape
Citrus	Grapefruit, orange, lime, lemon, bergamot, lemon grass, ginger, mandarin
Green	Green-grassy, tomato leaves, green peppers, nettle, thuja, basil, parsley
Vegetal	Celeriac, leek, onion, artichoke, garlic, wild garlic
Cream caramel	Butter, chocolate, yoghurt, gingerbread, honey, cream, caramel, toffee, coffee, vanilla
Woody aromatic	Tobacco, cognac, barrique, hay, leather, tonka, woodruff, incense, myrrh, resin
Spicy/herbal	Lovage, pepper, chilli, curry, juniper, marjoram, tarragon, dill, aniseed, nutmeg, liquorice, fennel, thyme, rosemary, clove
Red berries	Cassis, blueberries, raspberries, blackberries, strawberries, currants, wild strawberries, cranberries
Sweet fruits	Banana, watermelon, honeydew melon, peach, apricot, passion fruit, lychee, dried fruit, plum, pineapple, white jelly bears, cherry, kiwi, mango
Floral	Elderflower, camomile blossom, lily of the valley, jasmine, apple blossom, rose, geranium, carnation, lilac, lavender

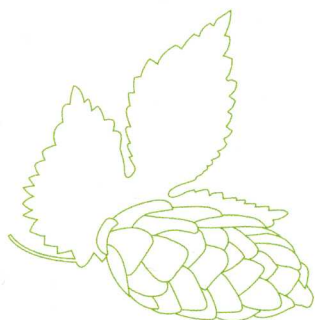
* for the cold infusion 2 gr of pellets were dissolved in 200 ml water (20 °C) for 30 min and subsequently evaluated in order to simulate to some extent the change in aroma through dry hopping.

Extra Styrian Dana is a daughter of Hallertau Magnum. The objective behind the breeding of this cultivar was to obtain both a robust bitterness and an intense hop aroma. Extra Styrian Dana provides both.

In the raw hops, Extra Styrian Dana features prominent spicy-herbal notes of lovage and juniper, as well as pine. Combined with these aromas are delicate notes of green fruits, citrus-like green and vegetal elements, such as gooseberries, pear, lemon, thyme, orange and nettle. In the cold infusion, this broad spectrum is further reinforced by wild garlic, dried fruits and an unique curry aroma.

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Analytical values

Type	Dual
Growing Area	Slovenia
Lineage	daughter of Hallertau Magnum
Alpha acids*	12.5 – 18.8 %
Beta acids	4.2 – 6.0 %
Total Polyphenols	no data
Total oils	2.4 – 3.9 ml/100g
Myrcene	42.0 – 60.0 % of total oil
Linalool	0.5 – 1.0 % of total oil

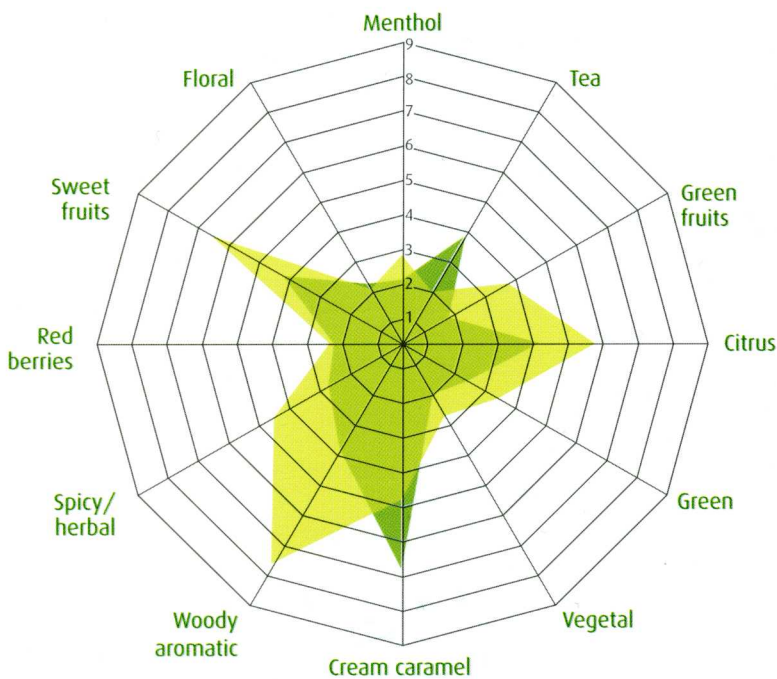
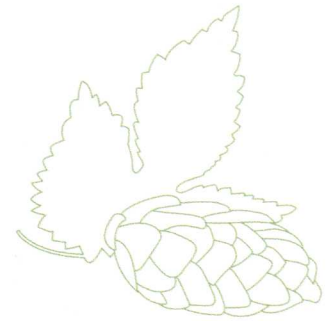
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Sorachi Ace

Japan



■ Sorachi Ace (cold infusion*) ■ Sorachi Ace (raw hops)

Descriptor	This includes the following aromas:
Menthol	Mint, lemon balm, sage, metallic, camphor, pine
Tea	Green tea, camomile tea, black tea
Green fruits	Pear, quince, apple, gooseberry, wine yeast, ethereal, grape
Citrus	Grapefruit, orange, lime, lemon, bergamot, lemon grass, ginger, mandarin
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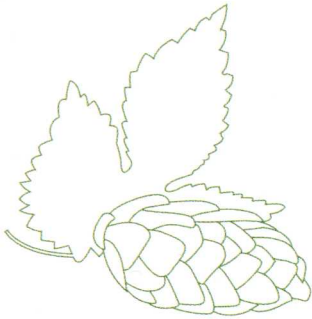
Sorachi Ace was developed in 1984 for Sapporo Breweries Ltd. and is named after Sorachi, a subprefecture in Hokkaido. The aroma variety produces a good yield and is particularly resistant to powdery mildew, wilt and botrytis. The original breeding objective was to develop a variety that was very similar to Saaz, but had a higher alpha content. Today, Sorachi Ace is grown only to a limited extent in the USA and no longer in Asia.

In the raw hops, Sorachi Ace is very sweet and fruity with notes of overripe oranges, fermented fruit juice, lychee, maple syrup, lemon grass and fruit punch. These are combined with woody aromatic almost exotic elements such as the scent of frankincense. In the cold infusion, these elements are joined by contrasting citrusy, green vegetal and spicy-herbal components, such as ginger, curry, butter, vanilla essence and Japanese natto.

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Analytical values

Type	Dual
Growing Area	Japan
Lineage	breeding material derived from Saaz
Alpha acids*	12.0 – 16.0 %
Beta acids	6.0 – 8.0 %
Total Polyphenols	no data
Total oils	2.0 – 3.0 ml/100g
Myrcene	no data
Linalool	no data

The analytical values are typical for the variety at the time of harvest, but may vary according to crop year, growing region, grower and degree of ageing.

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