

Hop Varieties European Grown

Europe's traditional growing regions continue to produce above all fine aroma hops, but now they are also growing more bitter varieties of high quality. The Bohemian noble hops from Saaz can be put in one line (Saaz group) with the varieties from the Tettngang or Spalt growing regions. Premium beers could not be produced without these varieties. Lublin hops from Poland have similar characteristics. And the Hallertau region distinguishes itself with attractive selections like Perle, Hallertauer Tradition, Spalter Select and not to forget the high alpha varieties Hallertauer Magnum and Hallertauer Taurus. Apart from these varieties, Hersbrucker Spaet and Northern Brewer are still cultivated.

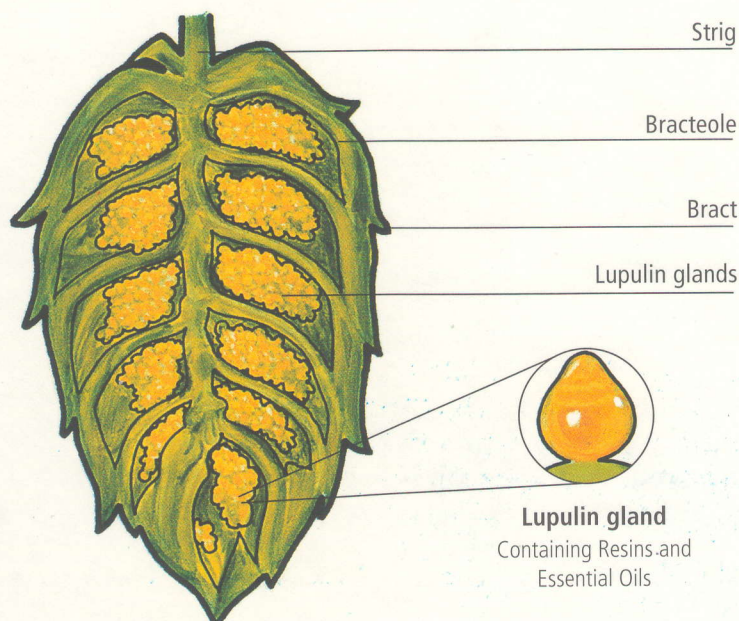
Slovenia's Savinja Valley is known for its main varieties Golding and Aurora (Super Styrian), which are both aroma varieties. The traditional English growing regions are also worth mentioning, as they offer quite a number of interesting bitter and aroma varieties.

This brochure presents the most important varieties and provides a summary of their main characteristics. Analytical data are based on long-term averages and may vary from year to year.

Please do contact us for more information or samples. All varieties can be supplied in form of raw hops, pellets type 90 and 45 or CO₂ extract.



Cross-section of a hop cone



Analytical Data

Yield in kg per hectare

Maturity

Alpha Acids (EBC 7.7)

Beta Acids

Alpha:Beta Ratio

Humulone*

Cohumulone

Total Oils in ml per 100 g

Humulene

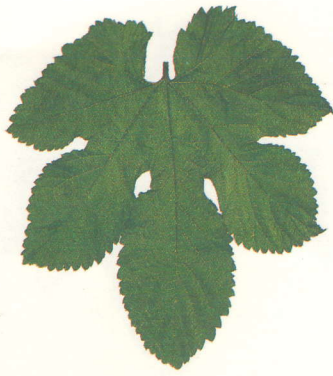
Caryophyllene

Humulene/Caryophyllene

Farnesene

The analytical values indicated are based on long-term averages. They are typical for each variety at harvest time but can vary among crop years, growing areas, growers, and with aging after harvest. Myrcene values are not indicated because of great range in values due to variations in handling of hops.

*Humulone values include adhumulone could be 5 -10 % of total.



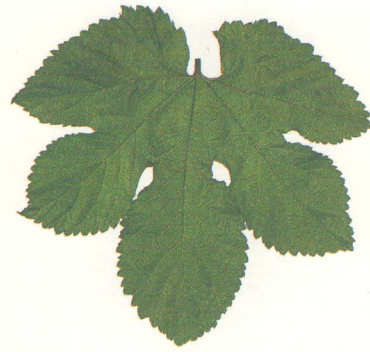
.... Styrian Golding

This variety is cultivated mainly in Slovenia, but also in Styria (Austria). Styrian Golding is a very popular variety due to its characteristic aroma and average alpha values.



..... Perle

The combination of good alpha acid content with good aroma caused Perle's popularity. High yields and good tolerance to most diseases make this variety attractive also for growers.



..... Kent Golding

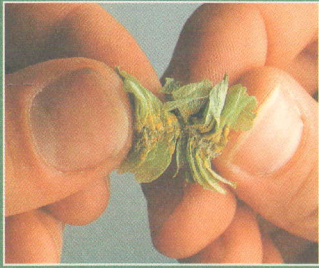
The typical "English" aroma is attributed to this traditional group of varieties. East Kent Golding enjoys the highest popularity as its characteristics are most distinct. Its tolerance to diseases is rather low.



**Aurora
.... (Super Styrian)**

The main cultivation area of this aroma variety with high alpha content is Slovenia. With regard to variety characteristics Aurora can be placed between Perle and Northern Brewer. It impresses with constant yield and bitter content.

1.550	1.750	1.650	1.800
medium early	medium late	medium late	medium late
5,0 %	6,5 %	5,0 %	7,5 %
3,1 %	3,4 %	2,4 %	3,1 %
1,6	1,9	2,1	2,4
71-75 %	68-73 %	64-68 %	72-77 %
25-29 %	27-32 %	32-36 %	23-28 %
0,6-0,9	0,7-1,1	0,4-0,8	0,9-1,4
16-29 %	28-35 %	38-44 %	15-20 %
7-10 %	9-12 %	12-16 %	4-8 %
2,4-3,1	2,6-3,0	2,6-3,0	2,9-3,4
3-5 %	0,0 %	3-6 %	5-8 %



... Northern Brewer ...

Bred in England, this variety has a high alpha content. It is one of the main varieties in the Hallertau region, where it developed good aroma qualities by adapting to climate and soil. Northern Brewer is wilt-resistant.



Hallertauer Magnum

High alpha variety from Huell which mostly produces good yields. Like all Huell varieties Hallertauer Magnum can be characterized by its high tolerance to diseases. Its extremely big and heavy cones are another characteristic.



... Hallertauer Taurus ...

New Huell-bred high alpha variety with a very high alpha content and noble, aromatic bitter quality. Small and very compact cones which allow clean, mechanical picking and easy drying are also a feature of Taurus.

Analytical Data

Yield in kg per hectare

1.550

2.100

2.100

Maturity

early

late

late

Alpha Acids (EBC 7.7)

7,6 %

12,0 %

14,0 %

Beta Acids

3,6 %

5,1 %

4,6 %

Alpha:Beta Ratio

2,1

2,4

3,0

Humulone*

69-73 %

69-75 %

74-78 %

Cohumulone

27-31 %

25-31 %

22-26 %

Total Oils in ml per 100 grams

1,2-1,8

1,6-2,2

1,2-1,6

Humulene

20-31 %

17-36 %

17-30 %

Caryophyllene

8-12 %

6-11 %

6-10 %

Humulene/Caryophyllene Ratio

2,4-2,7

2,5-3,5

2,5-3,6

Farnesene

0,0 %

0-3 %

< 1 %

*Humulone values include adhumulone which could be 5-10 % of total.

Bitter Varieties



Nugget

Nugget is a high alpha variety with high yield, originally from the U.S. It is undemanding with regard to soil quality and thus grows in almost every region on every soil. Compared to US Nugget, the alpha content of Hallertau Nugget is a little lower.



Target

Target is a high alpha selection from England which mostly produces high yields and has a high resistance to wilt and mildew. Characteristic of Target is its low ability to wind around the strings.



Challenger

English selection from Wye College, related to Northern Brewer and Target. Challenger grows and yields well and has a fine aroma. Its tolerance to diseases however is low.



Brewers Gold

This variety with good alpha value originally comes from England. Brewers Gold yields well, but is susceptible to downy mildew and wilt. Brewers like this uncomplicated bitter variety for its good value.

2.250

very late

9,6 %

4,0 %

2,4

68-72 %

28-32 %

1,0-1,5

20-38 %

11-18 %

1,8-2,2

< 1 %

2.250

late

10,0 %

3,8 %

2,6

60-64 %

36-40 %

1,1-1,6

14-29 %

7-11 %

1,8-2,7

< 1 %

1.800

late

7,0 %

3,5 %

2,0

68-72 %

28-32 %

1,0-1,5

25-30 %

8-10 %

2,8-3,1

1-2 %

2.300

late

6,0 %

3,1 %

1,9

52-58 %

42-48 %

1,3-1,9

15-30 %

6-9 %

1,8-2,2

0,0 %

Hop Varieties European Grown

Europe's traditional growing regions continue to produce above all fine aroma hops, but now they are also growing more bitter varieties of high quality. The Bohemian noble hops from Saaz can be put in one line (Saaz group) with the varieties from the Tettang or Spalt growing regions. Premium beers could not be produced without these varieties. Lublin hops from Poland have similar characteristics. And the Hallertau region distinguishes itself with attractive selections like Perle, Hallertauer Tradition, Spalter Select and not to forget the high alpha varieties Hallertauer Magnum and Hallertauer Taurus. Apart from these varieties, Hersbrucker Spaet and Northern Brewer are still cultivated.

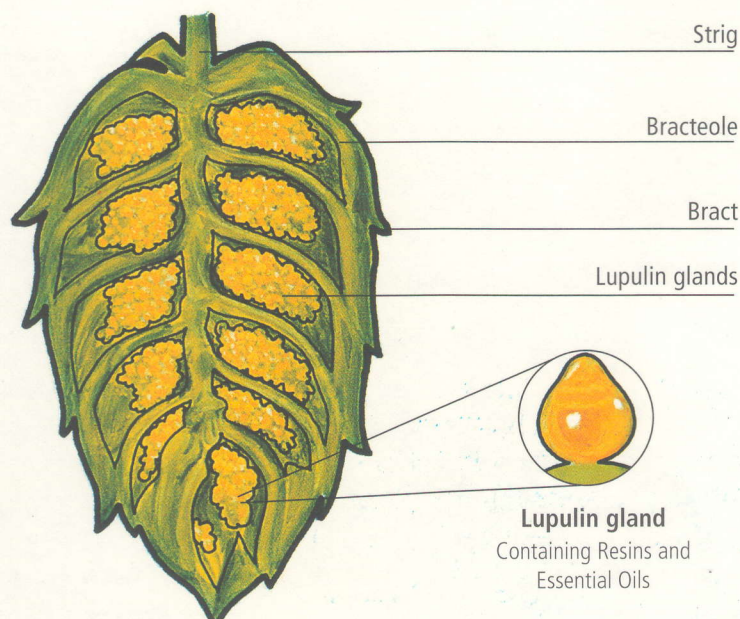
Slovenia's Savinja Valley is known for its main varieties Golding and Aurora (Super Styrian), which are both aroma varieties. The traditional English growing regions are also worth mentioning, as they offer quite a number of interesting bitter and aroma varieties.

This brochure presents the most important varieties and provides a summary of their main characteristics. Analytical data are based on long-term averages and may vary from year to year.

Please do contact us for more information or samples. All varieties can be supplied in form of raw hops, pellets type 90 and 45 or CO₂ extract.



Cross-section of a hop cone



The analytical values indicated are based on long-term averages. They are typical for each variety at harvest time but can vary among crop years, growing areas, growers, and with aging after harvest. Myrcene values are not indicated because of great range in values due to variations in handling of hops.

Analytical Data

Yield in kg per hectare

Maturity

Alpha Acids (EBC 7.7)

Beta Acids

Alpha:Beta Ratio

Humulone*

Cohumulone

Total Oils in ml per 100 grams

Humulene

Caryophyllene

Humulene/Caryophyllene Ratio

Farnesene

*Humulone values include adhumulone which could be 5-10% of total.



..... **Saaz**

Classical variety from the traditional Bohemian growing regions around the town of Saaz. Heavy, red-colored soil is typical of this hop region. Saaz hops achieved worldwide fame for their noble aroma. Yields however are often not satisfactory.



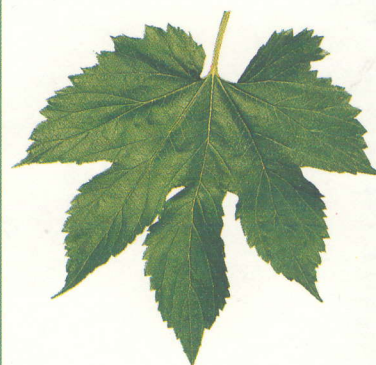
..... **Tett nang**

A traditional indigenous variety from the Saaz group which is mainly cultivated around Tett nang on Lake Constance. The unique combination of the favorable climate at Lake Constance and sandy clay soils from the Ice Age produces a very fine aroma. This variety has a good tolerance to plant diseases.



..... **Spalt**

Spalt variety has a very good aroma, comparable to Tett nang. The home grown Spalt variety also belongs to the Saaz group. It is cultivated exclusively in the region around Spalt. Despite its sometimes less than satisfactory yields, this variety has become more popular again. It has a good resistance to wilt and other diseases.



..... **Lublin**

Originating from the Saaz hop, this variety is a Pulawy breeding with very fine aroma characteristics. Today Lublin is cultivated in the Polish growing regions Lublin, Poznan and Opole. Its average alpha and hectare yield, however, is better than that of Saaz. Lublin has a good tolerance to diseases and grows on light to medium-heavy soils.

1.250

early

3,1 %

3,4 %

0,9

71-78 %

22-29 %

0,3-0,6

14-28 %

7-12 %

2,9-3,4

11-15 %

1.350

medium early

4,1 %

4,2 %

1,0

71-76 %

24-29 %

0,7-1,0

21-27 %

7-11 %

2,3-3,0

13-17 %

1.400

medium early

4,0 %

4,1 %

1,0

71-76 %

24-29 %

0,5-0,8

21-34 %

7-15 %

3,0-3,7

7-15 %

1.250

early

3,8 %

3,5 %

1,1

72-75 %

25-28 %

0,5-0,7

18-26 %

6-11 %

3,1-3,6

12-16 %

Aroma Varieties



Hallertauer Mittelfrueh

A very popular variety with fine aroma and average bitter content. Because of its high susceptibility to wilt this variety suffered from a dramatic decrease in cultivation. Due to increasing demand and availability of virus-free plant material, Hallertauer Mittelfrueh has recently experienced a comeback.



Spalter Select

Spalter Select was bred at Huell. Its fine aroma and high farnesene content are typical of Spalt hops. This variety grows very fast and develops a very strong "head". Spalter Select is characterized by a good tolerance to diseases like wilt and downy mildew.



Hallertauer Tradition

Hallertauer Tradition is a variety bred at Huell which is characterized by its fine aroma and average bitter content. It can be compared to Hallertauer Mittelfrueh and stands out due to good yields, which remain stable also in difficult years. This variety has a good tolerance to wilt and downy mildew.



...Hersbrucker Spaet

A traditional variety with good very good aroma, but sometimes rather low bitter content. It is considered as a successor of Hallertauer Mittelfrueh and has a good tolerance to diseases.

1.400

medium early

3,5 %

3,5 %

1,0

74-80 %

20-26 %

0,5-0,9

36-55 %

11-15 %

2,8-3,5

0,0 %

1.950

medium late

4,1 %

3,7 %

1,1

74-78 %

22-26 %

0,6-0,8

10-20 %

5-10 %

2,0-2,2

9-20 %

1.950

medium early

5,5 %

3,8 %

1,4

71-77 %

23-29 %

0,7-1,0

25-48 %

9-14 %

2,6-3,6

< 1 %

1.550

late

3,0 %

4,3 %

0,7

76-82 %

18-24 %

0,4-0,8

18-32 %

9-14 %

2,0-2,3

0,0 %



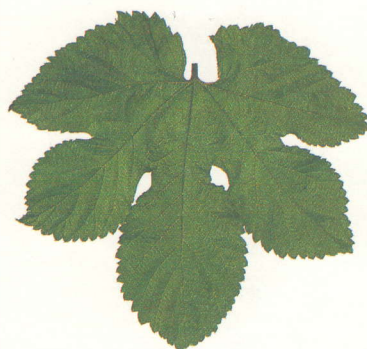
.... Styrian Golding

This variety is cultivated mainly in Slovenia, but also in Styria (Austria). Styrian Golding is a very popular variety due to its characteristic aroma and average alpha values.



..... Perle

The combination of good alpha acid content with good aroma caused Perle's popularity. High yields and good tolerance to most diseases make this variety attractive also for growers.



..... Kent Golding

The typical "English" aroma is attributed to this traditional group of varieties. East Kent Golding enjoys the highest popularity as its characteristics are most distinct. Its tolerance to diseases is rather low.



**Aurora
.... (Super Styrian)**

The main cultivation area of this aroma variety with high alpha content is Slovenia. With regard to variety characteristics Aurora can be placed between Perle and Northern Brewer. It impresses with constant yield and bitter content.

1.550

medium early

5,0 %

3,1 %

1,6

71-75 %

25-29 %

0,6-0,9

16-29 %

7-10 %

2,4-3,1

3-5 %

1.750

medium late

6,5 %

3,4 %

1,9

68-73 %

27-32 %

0,7-1,1

28-35 %

9-12 %

2,6-3,0

0,0 %

1.650

medium late

5,0 %

2,4 %

2,1

64-68 %

32-36 %

0,4-0,8

38-44 %

12-16 %

2,6-3,0

3-6 %

1.800

medium late

7,5 %

3,1 %

2,4

72-77 %

23-28 %

0,9-1,4

15-20 %

4-8 %

2,9-3,4

5-8 %

The European Growing Regions



..... **Joh. Barth & Sohn GmbH & Co. KG**

Freiligrathstrasse 7/9

90482 Nürnberg

Germany

Phone (+49 911) 54 89-0

Fax (+49 911) 54 89 330

E-Mail info_mail@barth-hopfen.de

Internet www.johbarth.com

AG Joh. Barth & Sohn

Dufourstrasse 25

4010 Basel

Switzerland

Phone (+41 61) 2 25 52 00

Fax (+41 61) 2 25 52 44

E-Mail contact@johbarth.ch

The Wigan Hop Company Limited

Eardiston, Nr. Tenbury Wells

Worcestershire WR15 8JJ

Great Britain

Phone (+44 1584) 881361

Fax (+44 1584) 881498

E-Mail hops@wiganhop.com